

# All-Cause Admissions and Readmissions Measures

DRAFT REPORT FOR COMMENT

June 6, 2014

This report is funded by the Department of Health  
and Human Services under contract HHSM-500-  
2012-00009I Task 8.0

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# All-Cause Admissions and Readmissions

## DRAFT REPORT

### Executive Summary

Unnecessary admissions and early readmissions to acute care facilities are the subject of ever-increasing scrutiny and are an important focus for quality improvement by the health care system. Previous studies have shown that nearly one in five Medicare patients is readmitted to the hospital within 30 days of discharge, including many patients returning via the emergency room, costing upwards of \$26 billion annually. Multiple entities across the health care system, including hospitals, post-acute care facilities, skilled nursing facilities, and others, all have a responsibility to ensure high quality care transitions to reduce unplanned readmissions to the hospital.

The Readmissions and Admissions Portfolio of measures is growing rapidly. Currently, NQF's portfolio of Admissions and Readmissions measures includes measures for admissions, readmissions, and length of stay and contains 10 outcome measures, 3 of which will be evaluated by the Admissions and Readmissions Standing Committee during this project. While some of the oldest measures have been endorsed since 2008, many of the condition-specific and all-cause measures have come in the last 2 years. Due to the ever-increasing scrutiny on unnecessary admissions and readmissions, these measures are part of an important focus on quality improvement within the health care system. As such, several of the measures in the portfolio are in use for a number of federal programs including, the Home Health Quality Reporting Program, Ambulatory Surgical Center Quality Reporting Program, the Hospital Inpatient Quality Reporting Program, and Hospital Readmission Reduction Program. Additionally the condition-specific measures for heart failure, acute myocardial infarction, and pneumonia are in use in at least 4 communities involved in the Aligning Forces for Quality initiative. Lastly, as part of on-going work with the NQF-convened Measure Applications Partnership (MAP), several of the Readmissions measures are included in the Care Coordination Family of Measures.

On May 5-6, 2014 the All-Cause Admissions and Readmissions Standing Committee evaluated 15 new measures and 3 measures undergoing maintenance review against NQF's standard evaluation criteria. Thirteen measures were recommended for endorsement while the remaining 5 the Committee did not reach consensus on. The 13 measures that were recommended by the Committee are:

- 0505 Hospital 30-day all-cause risk-standardized readmission rate (RSRR) following acute myocardial infarction (AMI) hospitalization.
- 0695 Hospital 30-Day Risk-Standardized Readmission Rates following Percutaneous Coronary Intervention (PCI)
- 2375 PointRight OnPoint-30 SNF Rehospitalizations
- 2380 Rehospitalization During the First 30 Days of Home Health
- 2393 Pediatric All-Condition Readmission Measure
- 2414 Pediatric Lower Respiratory Infection Readmission Measure

- 2502 All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Inpatient Rehabilitation Facilities (IRFs)
- 2505 Emergency Department Use without Hospital Readmission During the First 30 Days of Home Health
- 2510 Skilled Nursing Facility 30-Day All-Cause Readmission Measure (SNFRM)
- 2513 Hospital 30-Day All-Cause Risk-Standardized Readmission Rate (RSRR) following Vascular Procedures
- 2514 Risk-Adjusted Coronary Artery Bypass Graft (CABG) Readmission Rate
- 2515 Hospital 30-day, all-cause, unplanned, risk-standardized readmission rate (RSRR) following coronary artery bypass graft (CABG) surgery
- 2539 Facility 7-Day Risk-Standardized Hospital Visit Rate after Outpatient Colonoscopy

Measures where consensus is not yet reached

- 0327 Risk-Adjusted Average Length of Inpatient Hospital Stay
- 2496 Standardized Readmission Ratio (SRR) for dialysis facilities
- 2503 Hospitalizations per 1000 Medicare fee-for-service (FFS) Beneficiaries
- 2504 30-day Rehospitalizations per 1000 Medicare fee-for-service (FFS) Beneficiaries
- 2512 All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Long-Term Care Hospitals (LTCHs)

Brief summaries of the measures currently under review are included in the body of the report; detailed summaries of the Committee's discussion and ratings of the criteria are including in Appendix A.

## Introduction

Unnecessary admissions and early readmissions to acute care facilities are the subject of ever-increasing scrutiny and are an important focus for quality improvement by the health care system. Previous studies have shown that nearly one in five Medicare patients is readmitted to the hospital within 30 days of discharge, including many patients returning via the emergency room, costing upwards of \$26 billion annually.<sup>1,2</sup> Multiple entities across the health care system, including hospitals, post-acute care facilities, skilled nursing facilities, and others, all have a responsibility to ensure high quality care transitions to reduce unplanned readmissions to the hospital.

The causes of readmissions are complex and multifactorial. One report by the Robert Wood Johnson Foundation suggests that communities and health systems with higher underlying admission rates also have higher readmission rates, since patients in these communities are more likely to rely on the hospital as a site of care in general.<sup>3</sup> Other risk factors may also include environmental and patient characteristics, including socio-demographic factors.<sup>4,5</sup> A 2013 MedPAC report suggests that to succeed in reducing readmissions, policies must encourage hospitals to look beyond their walls and improve care coordination (i.e. medication reconciliation, use of case managers, discharge planning) across providers. The report suggests that reducing avoidable readmissions by 10 percent could achieve a savings of \$1 billion or more.<sup>6</sup>

NQF has undertaken a number of projects addressing admissions and readmissions that are condition or setting-specific. Past measure endorsement projects have included the consideration of six condition-specific readmission measures, as well as measures of acute care hospitalization from the home health and dialysis settings. NQF's most recent work in this area, which concluded in April 2012, was the [Readmissions Endorsement Maintenance](#) project that resulted in the endorsement of two new all-cause readmission measures.

In addition to measure endorsement projects, NQF has pursued other work related to admissions and readmissions. The NQF convened Measure Applications Partnership (MAP) recommended that measures of readmissions should be part of a suite of measures promoting a system of patient-centered care coordination. This recommendation supports the notion that multiple entities and individuals are jointly accountable for reducing avoidable readmissions, and performance assessments should include measures of both avoidable admissions and readmissions.<sup>7</sup> As the health care system moves towards a model of greater accountability using readmissions measures as part of a suite, in conjunction with quality measures looking at admissions and length of stay, we can achieve important improvements in quality.

## Post-Acute Care in the Medicare Program

Post-acute care and long-term care (PAC/LTC) is the skilled nursing care and therapy typically furnished after an inpatient hospital stay and takes place in a variety of settings including, but not limited to, skilled nursing facilities (SNFs), inpatient rehabilitation facilities (IRFs), long-term care hospitals (LTCHs), and through home health agencies (HHAs). Quality issues such as poor communication between providers and patients and lack of care coordination similarly affect patients in post-acute care. Additionally, post-acute care may not be delivered in the most efficient, clinically appropriate, or cost-

effective care setting. A 2014 MedPAC analysis showed per month post-acute spending varied from \$60 to \$450 per member.<sup>8</sup> Post-acute care, in particular, is often delivered in more intensive care settings where Medicare payments are higher, begging the question as to whether post-acute care is delivered in the most appropriate settings.

The NQF-convened Measures Application Partnership (MAP) has repeatedly recommended that care transition measures, including setting-specific admission and readmission measures that address the unique needs of the heterogeneous PAC/LTC population, are needed to promote coordination and shared accountability across the care continuum. In 2013, MAP supported the direction of readmission measures under consideration for the PAC/LTC programs that were not yet NQF-endorsed noting that the measures should be appropriately risk adjusted to account for various population characteristics. The MAP also noted the importance of identifying attribution issues and unintended consequences when further refining these measures.<sup>9</sup> This year, MedPAC recommended the development of additional quality measures for outpatient dialysis, SNFs, IRFs, and LTCH. Additionally, MedPAC has tasked Congress to direct the Secretary of Health and Human Services to reduce payments to SNFs and HHAs with relatively high risk-adjusted rates of readmission.<sup>10</sup>

## National Quality Strategy

The National Quality Strategy (NQS) serves as the overarching framework for guiding and aligning public and private efforts across all levels (local, state, and national) to improve the quality of health care in the U.S.<sup>11</sup> The NQS establishes a three-part aim of better care, affordable care, and healthy people/communities, focusing on six priorities to achieve those aims: *Safety, Person and Family Centered Care, Communication and Care Coordination, Effective Prevention and Treatment of Illness, Best Practices for Healthy Living, and Affordable Care.*<sup>12</sup>

Improvement efforts for admissions, readmissions, and length of stay care are consistent with the NQS triple aim and align with several of the NQS priorities, including:

- **Making Care Safer by Reducing Harm Caused in the Delivery of Care.** The Centers for Medicare & Medicaid Services reported in February 2013 that the 30-day, all-cause readmission rate dropped to 17.8 percent, or 70,000 fewer admissions in the last quarter of 2012, after averaging 19 percent for the past five years.<sup>13</sup> The MedPAC June 2013 Report to Congress indicated that, at a national level, all-cause readmissions for the three reported conditions (Heart Failure, AMI, and Pneumonia) had a larger decrease in readmissions over the three-year measurement period than for all conditions, since implementation of the Hospital Readmissions Reduction Program.<sup>14</sup>
- **Promoting Effective Communication and Coordination of Care.** Readmissions are events that are associated with gaps in follow-up care. Researchers have estimated that inadequate care coordination, including inadequate management of care transitions, was responsible for \$25 to \$45 billion in wasteful spending in 2011 through avoidable complications and unnecessary hospital readmissions.<sup>15</sup>

## Trends and Performance

Between 2007 and 2011, the 30-day, all-cause, hospital readmission rate among Medicare fee-for-service beneficiaries was relatively stable at 19 percent. However, in 2012 the rate declined to 18.4 percent, which translates to more than a half percentage point deduction or approximately 70,000 fewer readmissions.<sup>16</sup> In addition to the reduction in the overall number of readmissions, and the number of overall admissions declined as well. In 2007, there were approximately 26.7 index admissions and 5.1 readmissions per 1,000 fee-for-service beneficiaries. By 2012, these numbers dropped to 23.7 index admissions, and 4.4 readmissions per 1,000 fee-for-service beneficiaries.<sup>17</sup> The use of NQF-endorsed measures is central to improving quality of care by reducing the number of unnecessary admissions and readmissions to acute care hospitals.

## All-Cause Admissions and Readmissions Measure Evaluation: Refining the Evaluation Process

A few changes to the Consensus Development Process (CDP), including transitioning to Standing Steering Committees—have been incorporated into the ongoing maintenance activities for the Admissions and Readmissions portfolio. These changes are described below.

### Standing Steering Committee

In an effort to remain responsive to its stakeholders' needs, NQF is constantly working to improve the CDP. Volunteer, multi-stakeholder Committees are the central component to the endorsement process, and the success of the CDP projects is due in large part to the participation of its Committee members. In the past, NQF initiated the Committee nominations process and seated new project-specific Committees only when funding for a particular project had been secured. Seating new Committees with each project not only lengthened the project timeline, but also resulted in a loss of process continuity and consistency because Committee membership changed—often quite substantially—over time.

To address these issues in the CDP, NQF is beginning to transition to the use of Standing Steering Committees for various topic areas. These Standing Committees will oversee the various measure portfolios; this oversight function will include evaluating both newly-submitted and previously-endorsed measures against NQF's measure evaluation criteria, identifying gaps in the measurement portfolio, providing feedback on how the portfolio should evolve, and serving on any ad hoc or expedited projects in their designated topic areas.

The Admissions and Readmissions Standing Committee currently includes 24 members (see Appendix D). Each member has been randomly appointed to serve an initial two- or three- year term, after which he/she may serve a subsequent 3-year term if desired.

### Continuous Commenting

In another parallel effort, NQF is working to improve our rigorous committee review process, by making it more meaningful and effective. This begins with our varied stakeholders participating earlier and more frequently in our work, which will help us get to better measures faster. To facilitate stakeholder participation, NQF is piloting continuous commenting on measures in this project. Stakeholders now

have the opportunity to comment on measures at any point in the endorsement process—as opposed to a 30-day period after committee deliberations; giving stakeholders a stronger voice in endorsement discussions, and decisions, from beginning to end.

Continuous commenting on measures will:

- Allow stakeholders to more frequently engage in measure endorsement decisions;
- Better prepare committees to discuss relevant issues raised during the endorsement process; and
- Help shed light on the broader universe of measures currently in development, as well as where gaps still exist.

## **NQF Portfolio of performance measures for All-Cause Admissions and Readmissions conditions**

Currently, NQF’s portfolio of Admissions and Readmissions measures includes measures for Admissions, Readmissions, and Length of Stay and contains 10 outcome measures (see Appendix B), 3 of which will be evaluated by the Admissions and Readmissions Standing Committee during this project. Due to the high volume of measures in the portfolio as well as NQF’s cyclical measure review process (based on a harmonization analysis and most recent endorsement date) the remaining Admissions and Readmissions related measures will be evaluated at a later date.

### **NQF Admissions and Readmissions Portfolio of Measures**

	Outcome
<b>Admissions</b>	3
<b>Readmissions</b>	6
<b>Length of Stay</b>	1
<b>Total</b>	10

Other measures examining admissions, readmissions, and length of stay have been assigned, for various reasons, to other projects. These include AHRQ’s Prevention Quality Indicators (PQI) that examine ambulatory care sensitive conditions such as Diabetes Complications and Dehydration Admissions, and Pediatric Quality Indications (PDI) which capture admissions for Gastroenteritis and Asthma. Both the PQIs and PDIs measure admissions at the community or population level; as such they have been assigned the Health and Well Being Project (previously Population Health). Other measures including Readmissions for Chronic Obstructive Pulmonary Disease, PICU Readmissions, and Length of Stay Measures for the PICU and ICU are being evaluated as part of the Pulmonary Project.

Endorsement of measures by NQF is valued not only because the evaluation process itself is both rigorous and transparent, but also because evaluations are conducted by multi-stakeholder committees comprised of clinicians and other experts from hospitals and other healthcare providers, employers, health plans, public agencies, community coalitions, and patients—many of whom use measures on a



daily basis to ensure better care. Moreover, NQF-endorsed measures undergo routine "maintenance" (i.e., re-evaluation) to ensure that they are still the best-available measures and reflect the current science. Importantly, legislative mandate requires that preference be given to NQF-endorsed measures for use in federal public reporting and performance-based payment programs. NQF measures also are used by a variety of stakeholders in the private sector, including hospitals, health plans, and communities.

## Use of measures in the portfolio

The Readmissions and Admissions Portfolio of measures is growing rapidly. While some of the oldest measures have been endorsed since 2008, many of the condition-specific and all-cause measures have come in the last 2 years. Due to the ever-increasing scrutiny on potentially unnecessary admissions and readmissions, these measures are part of an important focus on quality improvement within the health care system. As such, several of the measures in the portfolio are in use for a number of federal programs including, the Home Health Quality Reporting Program, Ambulatory Surgical Center Quality Reporting Program, the Hospital Inpatient Quality Reporting Program, and Hospital Readmission Reduction Program. Additionally the condition-specific measures for heart failure, acute myocardial infarction, and pneumonia are in use in at least 4 communities involved in the Aligning Forces for Quality initiative.<sup>1</sup> Lastly, as part of on-going work with the NQF-convened Measure Applications Partnership (MAP), several of the Readmissions measures are included in the Care Coordination Family of Measures.

## All-Cause Admissions and Readmissions Measure Evaluation

On May 5-6, 2014 the All-Cause Admissions and Readmissions Standing Committee evaluated 15 new measures and 3 measures undergoing maintenance review against NQF's standard evaluation criteria. To facilitate the evaluation, the Committee and candidate standards were divided into 3 workgroups for preliminary review of the measures prior to the in-person meeting. The Committee's discussion and ratings of the criteria are summarized in the evaluation tables beginning on page 26.

### All-Cause Admissions and Readmissions Summary

	Maintenance	New	Total
Measures under consideration	3	15	18
Measures withdrawn from consideration	5	0	5
Measures recommended	2	11	13
Measures where consensus is not yet reached	1	4	5

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<sup>1</sup> Data from NQF's Community Tool to Align Measurement Measure Spreadsheet (<http://www.qualityforum.org/AlignmentTool/>)

## Comments Received

NQF solicits comments on endorsed measures on an ongoing basis through the [Quality Positioning System \(QPS\)](#). In addition, NQF is piloting continuous commenting in this project via an online tool located on the project webpage. Since the launch of the project in October 2013, a total of 10 comments were received (see Appendix E).

All submitted comments were provided to the Committee prior to their initial deliberations held during the workgroups calls as well as during the in-person meeting.

## Overarching Issues

During the Standing Committee's discussion of the measures, several overarching issues emerged that were factored into the Committee's ratings and recommendations for multiple measures and are not repeated in detail in Appendix A:

### *Socio-demographic and Socio-economic Factors*

The Committee reviewed the measures submitted in this project under the current NQF measure evaluation guidance that indicates factors associated with disparities in care (i.e., race, ethnicity, socio-demographic factors) generally should not be included in risk adjustment models. This guidance is currently under review by a NQF-convened expert panel that is charged with developing a set of recommendations on the inclusion of socioeconomic status (SES) and other factors such as race and ethnicity in risk adjustment for outcome and resource use performance measures.

While the Committee used the current NQF guidance, they cautioned that differences in readmissions performance, across hospitals, are influenced by many different factors. Differences in readmissions are driven, in part, by variation in hospital quality. Differences in performance are also influenced by the availability of support for patients as they transition from the hospital into the community. Committee members reiterated that readmissions are not uniquely a measure of hospital quality, but rather a measure of health system and community health quality. The Committee concluded that the measure recommendations made in this project should be revisited following final recommendations from the NQF expert panel charged with developing new guidance on risk adjustment for outcome measures.

### *Evidence for Outcome Measures*

The NQF measure endorsement criteria require a different level of evidence review depending on the type of measure submitted (structure, process, or outcome). For structure and process measures, the NQF endorsement criteria require Committee's to review and rate the quantity, quality, and consistency of the body of evidence that the measured healthcare structure or process leads to desired health outcomes with benefits that outweigh any harms to patients.

Achieving or improving health outcomes is a central goal of healthcare treatments and services (e.g., health, function, survival, symptom control). Thus, outcomes, such as admissions and readmissions, also are viewed as useful quality indicators because they integrate the influence of multiple care processes and disciplines involved in the care. Further, once they are measured and reported, many outcomes that were not thought to be modifiable tend to improve. This suggests that measurement stimulates

identification and adoption of effective healthcare processes that can improve health outcomes for patients. For the reasons noted above, health outcomes do not necessarily require empirical evidence linking them to a known process or structure of care. Although such evidence is desirable, a rationale supporting the linkages between the measured health outcome and at least one healthcare structure, process, intervention, or service is sufficient to meet the NQF criteria.

Several Committee members raised concern about the lack of evidence required to demonstrate the linkage between readmissions and at least one healthcare structure, process, intervention, or service. The members noted that a systematic review of evidence would enhance the review process and recommended that future updates to the evidence criterion should be considered by NQF.

### *Hospital Volume*

Several measures submitted to this project used a hierarchical model to estimate the hospital risk adjusted readmission rate. A hierarchical model is often used when the data have a hierarchical structure (e.g., patients clustered within hospitals). Some Committee members expressed concerns that the risk-adjusted rates using hierarchical linear modeling with Bayesian estimators to predict performance for low-volume hospitals would be adjusted toward the mean performance of all hospitals, potentially causing bias for small-volume hospitals, which would seem to have average rates. The Committee agreed that while this is a concern, further study should be explored on measurement approaches for low volume providers to ensure reliable and valid indicators of quality.

### *Planned Readmissions*

The Committee noted that not all readmissions back to a hospital are markers of poor quality. While many of the measures submitted exclude planned readmissions, the Committee urged that readmission measures should acknowledge that planned readmissions, such as planned two-stage procedures, should be excluded. Without the exclusion of these planned readmissions, the experts noted that there might be potential for unintended consequences for patients whose care may be delayed until after the 30-day window.

### *Related and Competing Measures*

As a consensus standards-setting organization, NQF is uniquely positioned to help guide measure harmonization efforts and the selection of superior competing measures. These efforts can collectively move the field toward a more parsimonious set of national performance standards.

The Admissions and Readmissions Standing Committee reviewed two pairs of measures within this project that have been identified by NQF staff using existing [guidance](#) as competing measures. Competing measures are defined as those measures that address the same measure focus and target population. Competing measures may be similar at the conceptual level, but may also differ slightly in their technical specifications. Specifically, the following pairs of measures within this project were flagged as competing measures by NQF staff.

1. [2515 Hospital 30-day, all-cause, unplanned, risk-standardized readmission rate \(RSRR\) following coronary artery bypass graft \(CABG\) surgery](#) [CMS] and [2514 Risk-Adjusted Coronary Artery Bypass Graft \(CABG\) Readmission Rate](#) [STS]
2. [2375 PointRight OnPoint-30 SNF Rehospitalizations](#) [AHCA] and [2510 Skilled Nursing Facility 30-Day All-Cause Readmission Measure \(SNFRM\)](#) [CMS]

The Standing Committee met during a post in-person meeting conference call on May 16, 2014 to review the recommended measures that were identified by staff as competing and assess the pairs of measures for superiority by weighing each measure's strengths and weaknesses across all NQF evaluation criteria. The Committee reviewed this information and presentations by each developer and determined that there were no clear superior measure for the competing CABG and Skilled Nursing Facilities readmission measures and that the benefit of endorsing both outweighed the potential burden of endorsing two similar measures. The Committee agreed that the measures were harmonized to the extent possible and acknowledged both sets of measures used different data sources.

### *Review of Dry Run Results for Measure 1789*

Measure 1789: [Hospital-Wide All-Cause Unplanned Readmission Measure \(HWR\)](#) (CMS) estimates the hospital-level, risk-standardized rate of unplanned, all-cause readmissions for any eligible condition within 30 days of hospital discharge for patients aged 18 and older. The measure results in a single summary risk-adjusted readmission rate for conditions or procedures that fall within five specialties: surgery/gynecology, general medicine, cardiorespiratory, cardiovascular, and neurology.

While Measure 1789 was not under full endorsement maintenance review, as follow up to the initial endorsement of this measure in 2011, NQF requested that CMS bring the following information back to the Admissions and Readmissions Standing Committee: results of the CMS dry run, updates to the planned readmission exclusions, and updates on progress toward harmonization with Measure 1768: [Plan All-Cause Readmissions \(PCR\)](#) (NCQA). The review of CMS's dry run included an analysis of the distribution of performance between hospitals with varying proportions of low socio-economic status (SES) patients, and the proportion of measure result variation that is attributable to providers compared to patients. NQF encouraged hospitals to provide feedback in their use of the measure, as part of an effort to help foster strategic dialogue on measure use and usability as well as identify any unintended consequences. The Standing Committee reviewed dry run results from CMS and had no concerns about the results or the scientific acceptability of the measure properties.

### *Summary of Measure Evaluation*

The following brief summaries of the measures and the evaluation highlight the major issues that were considered by the Committee. Details of the Committee's discussion and ratings of the criteria are included in Appendix A.

Three previously NQF-endorsed measures and 15 newly submitted measures addressing admissions, readmissions, and length of stay were reviewed. 13 of the 18 measures were recommended for endorsement. The remaining 5 were measures where consensus was not reached.

## Measures Recommended for Endorsement

### 0505: Hospital 30-day all-cause risk-standardized readmission rate (RSRR) following acute myocardial infarction (AMI) hospitalization. (Centers for Medicare & Medicaid): Recommended

**Description:** *The measure estimates a hospital-level 30-day risk-standardized readmission rate (RSRR) for patients discharged from the hospital with a principal diagnosis of acute myocardial infarction (AMI). The outcome is defined as unplanned readmission for any cause within 30 days of the discharge date for the index admission. A specified set of planned readmissions do not count as readmissions. The target population is patients aged 18 years and older; Measure Type: Outcome; Level of Analysis: Facility; Setting of Care: Hospital/Acute Care Facility; Data Source: Administrative claims*

This measure was initially endorsed by NQF in 2008 was developed under the stewardship of The Centers for Medicare and Medicaid Services (CMS). Since its last endorsement, the developer has made several changes to the measure, including: changing the reporting period from one year to three years to accommodate a large proportion of hospitals that do not have a sufficient volume of AMI cases over a one year period; the measure now excludes patients who are discharged against medical advice; the measure was expanded to include VA hospitals; and lastly, the measure algorithm was updated to further define a planned versus unplanned readmission. In general, the Committee did not have any issues with the measure specifications and agreed that AMI readmissions are important to measure and report. The Committee did express caution that statistical confidence intervals should be used when reporting this measure and linking performance to a payment program to ensure that statistically significant differences in provider performance are identified. This measure is currently in use in the CMS Hospital Inpatient Quality Reporting Program and the Medicare Hospital Readmission Reduction Program.

### 0695: Hospital 30-Day Risk-Standardized Readmission Rates following Percutaneous Coronary Intervention (PCI) (American College of Cardiology): Recommended

**Description:** *This measure estimates a hospital-level risk-standardized readmission rate (RSRR) following PCI for Medicare Fee-for-Service (FFS) patients who are 65 years of age or older. The outcome is defined as unplanned readmission for any cause within 30 days following hospital stays. The measure includes both patients who are admitted to the hospital (inpatients) for their PCI and patients who undergo PCI without being admitted (outpatient or observation stay); Measure Type: Outcome; Level of Analysis: Facility; Setting of Care: Hospital/Acute Care Facility; Data Source: Administrative claims, Electronic Clinical Data : Registry*

This measure was initially endorsed in 2011 and was developed by the American College of Cardiology. Since its last endorsement, the developer has made several changes, including: re-specification of variables to reflect changes in the data collection form that occurred when the CathPCI Registry was updated from V.3 to V.4; a revised strategy to link the CathPCI Registry dataset to the Medicare claims dataset using Social Security numbers; and lastly, a revised strategy for identifying and removing planned readmissions from the outcome. In general, the Committee did not have any issues with the measure specifications and agreed that PCI readmissions are important to measure and report. As such,

the Committee recommended this measure for endorsement. This measure is currently reported on Hospital Compare.

**2375: PointRight OnPoint-30 SNF Rehospitalizations (American Health Care Association): Recommended**

**Description:** *PointRight OnPoint-30 is an all-cause, risk adjusted rehospitalization measure. It provides the rate at which all patients (regardless of payer status or diagnosis) who enter skilled nursing facilities (SNFs) from acute hospitals and are subsequently rehospitalized during their SNF stay, within 30 days from their admission to the SNF.;* **Measure Type:** Outcome; **Level of Analysis:** Facility; **Setting of Care:** Post Acute/Long Term Care Facility : Nursing Home/Skilled Nursing Facility; **Data Source:** Electronic Clinical Data

This measure is a new submission to NQF and was developed under the stewardship of the American Health Care Association. The Committee generally agreed that this measure fills an important area of measurement and noted that 13 to 22 percent of patients were readmitted from skilled nursing facilities, demonstrating a significant performance gap. While the Committee ultimately agreed to recommend the measure for endorsement, the principal concern raised was the lack of planned readmission exclusions from this measure. The developer noted that the planned/unplanned variable was not available in the MDS dataset at the time of measure development, and the benefits of the MDS data used to calculate the measure outweigh its current limitations. For example, the MDS includes patients beyond those with Medicare fee-for-service, and the use of MDS allows for a more rapid turnaround of the data to SNFs. The Committee voted to recommend this measure for endorsement. The measure is currently in use by AHCA as part of their Quality Improvement Recognition Program.

**2380: Rehospitalization During the First 30 Days of Home Health (Centers for Medicare and Medicaid Services): Recommended**

**Description:** *Percentage of Home Health stays in which patients who had an acute inpatient hospitalization in the 5 days before the start of their Home Health stay were admitted to an acute care hospital during the 30 days following the start of the Home Health stay;* **Measure Type:** Outcome; **Level of Analysis:** Facility; **Setting of Care:** Home Health; **Data Source:** Administrative claims

This measure is a new submission to NQF and was developed under stewardship of The Centers for Medicare and Medicaid Services (CMS). There was agreement among Committee members that there are certain strategies Home Health Agencies (HHA) can undertake to reduce readmissions including care coordination, physician follow up, hospital discharge planning and a variety of Home Health care specific evidence-based strategies. However, the Committee was generally concerned that there may not be a strong process-outcome linkage, recognizing that HHA may have fewer resources to significantly affect outcomes and prevent readmissions. This measure is indicted for use in combination with Measure 2505: Emergency Department Use without Hospital Readmission During the First 30 Days of Home Health. However, the Committee noted there was a limited explanation as to the combined use of these 2 measures. The Committee voted to recommend this measure for endorsement. CMS plans to publicly report the measure on Home Health Compare starting in 2015

### 2393: Pediatric All-Condition Readmission Measure (Center of Excellence for Pediatric Quality Measurement): Recommended

**Description:** This measure calculates case-mix-adjusted readmission rates, defined as the percentage of admissions followed by 1 or more readmissions within 30 days, for patients less than 18 years old. The measure covers patients discharged from general acute care hospitals, including children's hospitals; **Measure Type:** Outcome; **Level of Analysis:** Facility; **Setting of Care:** Hospital/Acute Care Facility; **Data Source:** Administrative claims

This measure is a new measure submission to NQF. Developed by the Center for Excellence for Pediatric Quality Measurement, the measure was newly commissioned and developed as part of the AHRQ/CMS Pediatric Quality Measures Program. Measuring and reducing readmissions has become a widespread focus in pediatrics, but to date no readmission measures developed specifically for use in children and adolescents have been publicly available. The Committee members discussed several challenges with this measure specifically concerns with its usability for an all-payer dataset since it was tested using the Medicaid MAX Dataset, and a concern that the reliability of the measure was highly dependent on case volume. During discussion of this measure, the Committee emphasized the appropriateness of risk adjusting for socio-demographic factors, and noted that risk adjustment in this population should be taken under consideration by the developer in the next iteration of this measure. Ultimately, the Committee agreed there is a shortage of quality outcome measures in pediatrics and subsequently agreed this outcome was important to measure and report. As such, the Committee voted to recommend the measure.

### 2414: Pediatric Lower Respiratory Infection Readmission Measure (Center of Excellence for Pediatric Quality Measurement): Recommended

**Description:** This measure calculates case-mix-adjusted readmission rates, defined as the percentage of admissions followed by 1 or more readmissions within 30 days, following hospitalization for lower respiratory infection (LRI) in patients less than 18 years old. The measure covers patients discharged from general acute care hospitals, including children's hospitals; **Measure Type:** Outcome; **Level of Analysis:** Facility; **Setting of Care:** Hospital/Acute Care Facility; **Data Source:** Administrative claims

This measure is a new submission to NQF and was developed by the Center of Excellence for Pediatric Quality Measurement. The measure was newly commissioned and developed as part of the AHRQ/CMS Pediatric Quality Measures Program. Currently, there are no readmissions measures specifically for use with the pediatric population. Overall, the Committee recommended this measure for endorsement due to its importance to measure and report. Committee members acknowledged that this measure impacts a large number of patients, accounting for a vast number of readmissions, indicating that addresses a high priority area. Similar to measure 2393, Committee members noted that the reliability of the measure was highly dependent on case volume, as it is in the adult population. Since lower respiratory infections are seasonal, the Committee was concerned about the measure's ability to account for this factor. However, the developers explained that this should not be an issue since the data is collected annually, as opposed to monthly. The Committee recommended this measure for endorsement.



## 2502: All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Inpatient Rehabilitation Facilities (IRFs) (Centers for Medicare & Medicaid Services (CMS)): Recommended

**Description:** This measure estimates the risk-standardized rate of unplanned, all-cause readmissions for patients (Medicare fee-for-service [FFS] beneficiaries) discharged from an Inpatient Rehabilitation Facility (IRF) who were readmitted to a short-stay acute-care hospital or a Long-Term Care Hospital (LTCH), within 30 days of an IRF discharge. The measure is based on data for 24 months of IRF discharges to non-hospital post-acute levels of care or to the community; **Measure Type:** Outcome; **Level of Analysis:** Facility; **Setting of Care:** Post Acute/Long Term Care Facility : Inpatient Rehabilitation Facility; **Data Source:** Administrative claims, Other

This measure is a new submission to NQF and was developed under stewardship of The Centers of Medicare and Medicaid Services (CMS). The Committee noted that the evidence cited by the developer was evidence based on hospital readmissions as opposed to Inpatient Rehabilitation Facility readmissions. The developer explained that the evidence base around readmissions after post-acute care is very limited, nothing that this measure will provide some insights into how care transitions are managed for this patient population. The Committee expressed concerns as to why transfers were being excluded and cautioned that this could lead to unintended consequences, including potential ‘gaming’ of the measure by providers. Ultimately, the Committee agreed that the measure addresses a high priority area and recommended the measure for endorsement. CMS plans to use this measure as part of the Inpatient Rehabilitation Facility Quality Reporting Program.

## 2505: Emergency Department Use without Hospital Readmission During the First 30 Days of Home Health (Centers for Medicare and Medicaid Services): Recommended

**Description:** Percentage of Home Health stays in which patients who had an acute inpatient hospitalization in the 5 days before the start of their Home Health stay used an emergency department but were not admitted to an acute care hospital during the 30 days following the start of the Home Health stay; **Measure Type:** Outcome; **Level of Analysis:** Facility; **Setting of Care:** Home Health; **Data Source:** Administrative claims

This measure is a new submission to NQF and was developed under the stewardship of The Centers for Medicare and Medicaid Services (CMS). The Committee expressed caution that there is limited evidence on the interventions that Home Health Agencies (HHA) can undertake to influence ED use. Given the heterogeneity of the services provided by HHAs and the variation in performance among HHAs, the Committee generally agreed that there is a rationale that processes can be undertaken by HHAs to improve performance on this measure. The developer noted that HHAs have varied approaches to scheduling follow-up visits, medication reconciliation, and patient educations – all factors that influence the likelihood of ED use. Ultimately, the measure was recommended for endorsement; however, committee members cautioned that HHAs may have limited ability to influence returns to the emergency department. CMS plans to publicly report this measure on Home Health Compare starting in 2015.



### 2510: Skilled Nursing Facility 30-Day All-Cause Readmission Measure (SNFRM) (Centers for Medicare and Medicaid Services): Recommended

**Description:** This measure estimates the risk-standardized rate of all-cause, unplanned, hospital readmissions for patients who have been admitted to a Skilled Nursing Facility (SNF) (Medicare fee-for-service [FFS] beneficiaries) within 30 days of discharge from their prior proximal hospitalization. The prior proximal hospitalization is defined as an admission to an IPPS, CAH, or a psychiatric hospital. The measure is based on data for 12 months of SNF admission; **Measure Type:** Outcome; **Level of Analysis:** Facility; **Setting of Care:** Post-Acute/Long Term Care Facility : Nursing Home/Skilled Nursing Facility; **Data Source:** Administrative claims, Other

This measure is a new submission to NQF and was developed under stewardship of The Centers for Medicare and Medicaid Services (CMS). The Committee agreed that there is a performance gap, with performance ranging from 11.9 to 41.9 percent, signaling an opportunity for improvement in the number of readmissions from the SNF to acute hospital. There was concern that the evidence presented by the developers related to studies of acute care transfers and not transfers from SNFs. Ultimately, the Committee recommended the measure for endorsement and noted that the reliability and validity testing results were generally sufficient. CMS is considering the use of this measure for public reporting.

### 2513: Hospital 30-Day All-Cause Risk-Standardized Readmission Rate (RSRR) following Vascular Procedures (Centers for Medicare & Medicaid Services (CMS)): Recommended

**Description:** This measure estimates hospital risk-standardized 30-day unplanned readmission rates following hospital stays with one or more qualifying vascular procedure in patients who are 65 years of age or older and either admitted to the hospital (inpatients) for their vascular procedure(s) or receive their procedure(s) at a hospital but are not admitted as an inpatient (outpatients). Both scenarios are hereafter referred to as "hospital stays."; **Measure Type:** Outcome; **Level of Analysis:** Facility; **Setting of Care:** Hospital/Acute Care Facility; **Data Source:** Administrative claims

This measure is a new submission to NQF and was developed under stewardship of The Centers for Medicare and Medicaid Services (CMS). Overall, the Committee agreed that the measure was important to measure and report, as vascular procedures were identified by MedPAC to be affecting large numbers of patients. During discussion, the Committee expressed concerns regarding the use of this measure for outpatient quality reporting. They questioned whether there are differences in risk associated with performing outpatient vs. inpatient procedures, and noted that care setting was not included in the risk adjustment model. The developer noted that it would not be an appropriate risk factor to adjust for, as the procedure most often defines the risk, not the setting. The Committee generally accepted the developer's rationale and recommended the measure for endorsement. CMS plans to publicly report the measure in the Inpatient Quality Reporting Program or Outpatient Quality Reporting Program.

### 2514: Risk-Adjusted Coronary Artery Bypass Graft (CABG) Readmission Rate (The Society of Thoracic Surgeons): Recommended

**Description:** Risk-adjusted percentage of Medicare fee-for-service beneficiaries aged 65 and older who undergo isolated coronary artery bypass grafting (CABG) and are discharged alive but have a subsequent acute care hospital inpatient admission within 30 days of the date of discharge from the CABG hospitalization.; **Measure Type:** Outcome; **Level of Analysis:** Facility; **Setting of Care:** Hospital/Acute Care Facility; **Data Source:** Administrative claims, Electronic Clinical Data : Registry

This measure is a new submission to NQF and was developed under stewardship of The Centers for Medicare and Medicaid Services (CMS) from The Society of Thoracic Surgeons. Committee members agreed that the measure addresses a high-priority area, noting that coronary artery bypass graft (CABG) surgery is a procedure that adds significant costs to Medicare and is also a high volume procedure. Members of the Committee questioned the specifications of the measure, specifically the inclusion of patients with Ventricular Assist Devices (VADs). The developers explained that VAD implantations during CABG surgeries are often unplanned and may be impacted by the quality of the CABG operation and perioperative care. The Committee agreed with this rationale, but noted that there is a very high likelihood that high-risk heart failure patients will need a VAD placement following CABG surgery. Consequently, some members of the Committee were concerned that including CABG plus VAD in this particular patient population could lead to a higher risk of penalizing tertiary and quaternary care centers that treat patients with advanced heart failure. The developer noted that the STS database has been modified so that ventricular assist devices are now tracked as to whether it was a planned or unplanned insertion. As such, the developer plans to update the measure once this data becomes available. The Committee accepted this plan and recommended the measure for endorsement.

**2515: Hospital 30-day, all-cause, unplanned, risk-standardized readmission rate (RSRR) following coronary artery bypass graft (CABG) surgery (Centers for Medicare & Medicaid Services (CMS)): Recommended**

**Description:** The measure estimates a hospital-level risk-standardized readmission rate (RSRR), defined as unplanned readmission for any cause within 30 days from the date of discharge of the index CABG procedure, for patients 18 years and older discharged from the hospital after undergoing a qualifying isolated CABG procedure. The measure was developed using Medicare Fee-for-Service (FFS) patients 65 years and older and was tested in all-payer patients 18 years and older. An index admission is the hospitalization for a qualifying isolated CABG procedure considered for the readmission outcome; **Measure Type:** Outcome; **Level of Analysis:** Facility; **Setting of Care:** Hospital/Acute Care Facility; **Data Source:** Administrative claims

This measure is a new submission to NQF and was developed under stewardship of The Centers for Medicare and Medicaid Services (CMS). Committee members agreed that this measure was high priority, noting that coronary artery bypass graft (CABG) surgery is a procedure for which Medicare incurs significant costs and is also a high-volume procedure. Data submitted by the developer cites the annual preventable CABG readmissions costs to Medicare as \$151 million. Committee members noted that since this measure is based on claims data, it is highly feasible. While the Committee was concerned about how this measure would distinguish between low and high performers, they found the measure to be comprehensive enough for public reporting and recommended it for endorsement. CMS is considering the use of this measure for public reporting.

### 2539: Facility 7-Day Risk-Standardized Hospital Visit Rate after Outpatient Colonoscopy (The Centers for Medicare & Medicaid Services (CMS)): Recommended

**Description:** Rate of risk-standardized, all-cause, unplanned hospital visits within 7 days of an outpatient colonoscopy among Medicare fee-for-service (FFS) patients aged 65 years and older.; **Measure Type:** Outcome; **Level of Analysis:** Facility; **Setting of Care:** Ambulatory Care : Ambulatory Surgery Center (ASC), Ambulatory Care : Clinician Office/Clinic, Other; **Data Source:** Administrative claims

This measure is a new submission to NQF and was developed under stewardship of The Centers for Medicare and Medicaid Services (CMS). During discussion the Committee questioned why polypectomy was included in the risk adjustment model, since polypectomy could cause a readmission, and inclusion in the model would negate that effect. As such, the Committee recommended that this measure should be used in conjunction with other measures of polypectomy rates or adenoma detection rates. Ultimately, the Committee agreed that the measure was usable for quality improvement and accountability purposes, and voted to recommend the measure for endorsement. CMS plans to publicly report the measure in the Hospital Outpatient Quality Reporting Program and/or Ambulatory Surgery Center Quality Reporting Program.

### Measures where Consensus was Not Reached

#### 0327: Risk-Adjusted Average Length of Inpatient Hospital Stay (Premier, Inc): Consensus Not Reached

**Description:** The average (geometric mean) hospital length of stay in days relative to the expected geometric mean length of stay of any well defined population of inpatients over a specified time interval; **Measure Type:** Outcome; **Level of Analysis:** Facility; **Setting of Care:** Hospital/Acute Care Facility, Behavioral Health/Psychiatric : Inpatient, Post Acute/Long Term Care Facility : Inpatient Rehabilitation Facility, Post Acute/Long Term Care Facility : Long Term Acute Care Hospital, Post Acute/Long Term Care Facility : Nursing Home/Skilled Nursing Facility; **Data Source:** Administrative claims

This measure was initially endorsed by NQF in 2008 and was developed by Premier, Inc. The Committee noted that this measure represents an important area of measurement and there continues to be a performance gap and large variation in hospital performance. Members of the Committee were concerned that the limited information presented by the developer in terms of validity and reliability testing made the assessment of scientific acceptability difficult. Others noted that the measure has been endorsed for some time with broad use. The Committee did express caution that the risk adjustment model does use socio-demographic variables; however, some members agreed that this approach was appropriate for this measure focus. Ultimately the Committee failed to reach consensus on Scientific Acceptability and agreed revisit Overall Suitability for Endorsement until after the 30-day Public and Member Comment.

#### 2496: Standardized Readmission Ratio (SRR) for dialysis facilities (Centers for Medicare and Medicaid Services): Consensus Not Reached

**Description:** The Standardized Readmission Ratio (SRR) is defined to be the ratio of the number of index discharges from acute care hospitals that resulted in an unplanned readmission to an acute care hospital

*within 30 days of discharge for Medicare-covered dialysis patients treated at a particular dialysis facility to the number of readmissions that would be expected given the discharging hospitals and the characteristics of the patients as well as the national norm for dialysis facilities. Note that in this document, “hospital” always refers to acute care hospital; **Measure Type:** Outcome; **Level of Analysis:** Facility; **Setting of Care:** Dialysis Facility; **Data Source:** Administrative claims*

This measure is a new submission to NQF and was developed under stewardship of The Centers of Medicare and Medicaid Services (CMS). There was strong agreement that this is a high impact area of measurement and there is opportunity for improvement with the overall readmissions rate at approximately 30 percent and the readmissions rate for hemodialysis patients at approximately 36 percent. A few members of the Committee were concerned that the dialysis unit is not the appropriate accountable entity for this measure, noting that dialysis units can not compel Nephrologists to see patients immediately after acute care discharges. Others on the Committee argued that while the locus of accountability may not be the dialysis facility at present – this measure and improvement efforts tied to it might be the type of impetus needed to improve care for this vulnerable population. These members also noted that with patients spending nine to 12 hours in these units during the week, more could be done to improve care for these patients. The measure passed each of the criteria – importance to measure, scientific acceptability, usability, and feasibility; however, the Committee was unable to reach consensus on Overall Suitability for Endorsement. As such, the Committee agreed to revisit this measure after the 30-day Public and Member Comment. CMS plans to use this measure for public reporting.

#### **2503: Hospitalizations per 1000 Medicare fee-for-service (FFS) Beneficiaries (Centers for Medicare & Medicaid Services): Consensus Not Reached**

**Description:** *Number of hospital discharges from an acute care hospital (PPS or CAH) per 1000 FFS Medicare beneficiaries at the state and community level by quarter and year; **Measure Type:** Outcome; **Level of Analysis:** Population: Community, Population: State; **Setting of Care:** Other; **Data Source:** Administrative claims, Other*

This measure is a new submission to NQF and was developed under stewardship of The Centers for Medicare and Medicaid Services. While Committee members described the rationale to be clear and the measure focus to be a high priority particularly in terms of Medicare FFS beneficiaries, the Committee was concerned about the lack of risk adjustment in the measure. While the developer noted that the measure would be used to compare regions/states with themselves over time, the Committee was concerned that the measure may be used to compare regions that may have very different underlying populations. The measure passed the following criteria – importance to measure, scientific acceptability, and feasibility; however, the Committee was unable to reach consensus on Overall Suitability for Endorsement due to concerns with usability. As such, the Committee agreed to revisit this measure after the 30-day Public and Member Comment.

#### **2504: 30-day Rehospitalizations per 1000 Medicare fee-for-service (FFS) Beneficiaries (Centers for Medicare & Medicaid Services): Consensus Not Reached**

**Description:** Number of rehospitalizations occurring within 30 days of discharge from an acute care hospital (prospective payment system (PPS) or critical access hospital (CAH)) per 1000 FFS Medicare beneficiaries at the state and community level by quarter and year; **Measure Type:** Outcome; **Level of Analysis:** Population : Community, Population : State; **Setting of Care:** Other; **Data Source:** Administrative claims, Other

This measure is a new submission to NQF and was developed under stewardship of The Centers for Medicare and Medicaid Services. Similar to measure 2503 the Committee expressed concern over the lack of risk adjustment in the measure and that the measure does not exclude planned readmissions. The developers noted that the measure is only intended to measure communities/states against themselves over time and thus risk adjustment was not necessary. While the Committee recognized the importance of this measure focus and the ability to reduce high costs associated with readmissions among Medicare FFS beneficiaries, Committee members ultimately failed to reach consensus on Overall Suitability for Endorsement and agreed to revisit this measure after the 30-day Public and Member Comment. The measure passed each of the criteria – importance to measure, scientific acceptability, usability, and feasibility; however, the Committee was unable to reach consensus on Overall Suitability for Endorsement. As such, the Committee agreed to revisit this measure after the 30-day Public and Member Comment.

#### **2512: All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Long-Term Care Hospitals (LTCHs) (Centers for Medicare & Medicaid Services (CMS)): Consensus Not Reached**

**Description:** This measure estimates the risk-standardized rate of unplanned, all-cause readmissions for patients (Medicare fee-for-service [FFS] beneficiaries) discharged from a Long-Term Care Hospital (LTCH) who were readmitted to a short-stay acute-care hospital or a Long-Term Care Hospital (LTCH), within 30 days of an LTCH discharge. The measure is based on data for 24 months of LTCH discharges to non-hospital post-acute levels of care or to the community; **Measure Type:** Outcome; **Level of Analysis:** Facility; **Setting of Care:** Post Acute/Long Term Care Facility : Long Term Acute Care Hospital; **Data Source:** Administrative claims, Other

This measure is a new submission to NQF and was developed under stewardship of The Centers for Medicare and Medicaid Services (CMS). The Committee raised concern about why the measure is specified to include both readmissions to a short-stay acute-care hospital or a Long-Term Care Hospital (LTCH). There was concern that these are two different patient populations are not conceptually aligned. The Committee questioned whether 30 days was the appropriate time frame for this patient population, as one Committee Member noted, LTCH patients are typically sicker and may have fewer short-term episodes. The Committee discussed several unintended consequences during review of this measure, these include; potential gaming of the measure by transferring or redirecting patients with higher acuity or greater complexity to avoid penalty and the potential for “double jeopardy” since the same readmissions may be counted against the hospital and the LTCH. The measure passed the following criteria – importance to measure, scientific acceptability, and feasibility; however, the Committee was unable to reach consensus on Overall Suitability for Endorsement due to concerns with usability. As such, the Committee agreed to revisit this measure after the 30-day Public and Member

Comment. CMS plans to publicly report the measure on Long Term Care Hospital Quality Reporting Program.

*Measures withdrawn by the developer from further consideration of endorsement*

Over time, and for various reasons, some previously endorsed admission and readmission measures have been dropped from the full NQF portfolio (see Appendix A). In some cases, the measure steward may want to continue maintain the measure for endorsement (e.g., update specifications to reflect new planned readmissions categories or as diagnosis/procedure codes evolve or go through NQF's measure maintenance process). In other cases, measures may lose endorsement upon maintenance review. Loss of endorsement can occur for many different reasons including—but not limited to—a change in evidence without an associated change in specifications, high performance on a measure signifying no further opportunity for improvement, and endorsement of a superior measure.

The following measures were withdrawn during the measure evaluation period

Measure	Measure Steward	Reason for withdrawal
0698: 30-Day Post-Hospital AMI Discharge Care Transition Composite Measure	Centers for Medicare & Medicaid Services	CMS has not implemented measures 0698, 0699 and 0707 related to care transition since their endorsement by NQF. CMS contracted with Yale in October 2013 to conduct a comprehensive reevaluation of these measures; incorporating the findings from implementing the CMS readmissions for public reporting and payment programs. CMS will re-submit these measures for a comprehensive reevaluation once completed by Yale.
0699: 30-Day Post-Hospital HF Discharge Care Transition Composite Measure	Centers for Medicare & Medicaid Services	
0707: 30-day Post-Hospital PNA (Pneumonia) Discharge Care Transition Composite Measure	Centers for Medicare & Medicaid Services	
0328: Casemix-Adjusted Inpatient Hospital Average Length of Stay	United Health Group	United Health Group indicated that they no longer have the capacity to maintain these measures in accordance with NQF's Maintenance Policy. Their methods for risk-adjusting length of stay have evolved and now more closely mirror those put forth by Premier in measure 0327. Given the relative alignment of the endorsed Premier and internal UHG methodologies, the effort required to document our current process for risk-adjusted LOS is likely counterproductive. For this reason, we will not be resubmitting measure 0328 during the upcoming measure maintenance cycle.
0331: Severity-Standardized Average Length of Stay -- Routine Care (risk adjusted)	Leapfrog Group	The Leapfrog Group- Indicated that they no longer have the capacity to maintain these measures in accordance with NQF's Maintenance Policy. Due to the staff-intensive resources that shepherding a measure through the NQF process requires, The Leapfrog Group has made the decision to no longer serve as measure steward on measure #0331.





## References

1. Dartmouth Atlas Project, PerryUndem Research & Communications. *The Revolving Door: A Report on U.S. Hospital Readmissions*. Princeton, NJ:Robert Wood Johnson Foundation;2013. Available at <http://www.rwjf.org/en/research-publications/find-rwjf-research/2013/02/the-revolving-door--a-report-on-u-s--hospital-readmissions.html>. Last accessed June 2014.
2. Medicare Payment Advisory Committee (MEDPAC). *Report to the Congress: Medicare and the Health Care Delivery System*. Washington, DC: MedPAC;2013. Available at [http://medpac.gov/documents/Jun13\\_EntireReport.pdf](http://medpac.gov/documents/Jun13_EntireReport.pdf). Last accessed June 2014.
3. Dartmouth Atlas Project, PerryUndem Research & Communications. *The Revolving Door: A Report on U.S. Hospital Readmissions*. Princeton, NJ:Robert Wood Johnson Foundation;2013. Available at <http://www.rwjf.org/en/research-publications/find-rwjf-research/2013/02/the-revolving-door--a-report-on-u-s--hospital-readmissions.html> RWJF. Last accessed June 2014.
4. Joynt KE, Orav EJ, Jha AK. Thirty-day readmission rates for Medicare beneficiaries by race and site of care. *JAMA*. 2011;305(7):675-681.
5. Arbaje AI, Wolff JL, Yu Q, et al. Postdischarge environmental and socioeconomic factors and the likelihood of early hospital readmission among community-dwelling Medicare beneficiaries. *Gerontologist*. 2008;48(4):495-504.
6. Medicare Payment Advisory Committee (MEDPAC). *Report to the Congress: Medicare and the Health Care Delivery System*. Washington, DC: MedPAC;2013. Available at [http://medpac.gov/documents/Jun13\\_EntireReport.pdf](http://medpac.gov/documents/Jun13_EntireReport.pdf). Last accessed June 2014.
7. National Quality Forum (NQF). *MAP Pre-Rulemaking Report: 2013 Recommendations on Measures Under Consideration by HHS*. Washington, DC: NQF;2013. Available at <http://www.qualityforum.org/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=72746>. Last accessed June 2014.
8. Medicare Payment Advisory Committee (MEDPAC). *Report to the Congress: Medicare Payment Policy*. Washington, DC: MedPAC;2014. Available at [http://www.medpac.gov/documents/Mar14\\_EntireReport.pdf](http://www.medpac.gov/documents/Mar14_EntireReport.pdf). Last accessed June 2014.
9. National Quality Forum (NQF). *MAP Pre-Rulemaking Report: 2014 Recommendations on Measures for More than 20 Federal Programs*. Washington, DC:NQF;2014. Available at [http://www.qualityforum.org/Publications/2014/01/MAP\\_Pre-Rulemaking\\_Report\\_2014\\_Recommendations\\_on\\_Measures\\_for\\_More\\_than\\_20\\_Federal\\_Programs.aspx](http://www.qualityforum.org/Publications/2014/01/MAP_Pre-Rulemaking_Report_2014_Recommendations_on_Measures_for_More_than_20_Federal_Programs.aspx). Last accessed June 2014.
10. Medicare Payment Advisory Committee (MEDPAC). *Report to the Congress: Medicare Payment Policy*. Washington, DC: MedPAC; 2014. Available at [http://www.medpac.gov/documents/Mar14\\_EntireReport.pdf](http://www.medpac.gov/documents/Mar14_EntireReport.pdf) . Last accessed June 2014.
11. HHS, AHRQ. National Strategy for Quality Improvement in Health Care Website. <http://www.ahrq.gov/workingforquality/about.htm>; Last accessed June 2014.
12. Health Services Advisory Group I. *National Impact Assessment of Medicare Quality Measures*. Baltimore, MD:Centers for Medicare and Medicaid Services (CMS); 2012.
13. Executive Office of the President Council of Economic Advisers. *Economic Report of the President*. Washington, DC: Government Printing Office; 2013.
14. Medicare Payment Advisory Committee (MEDPAC). *Report to the Congress: Medicare and the Health Care Delivery System*. Washington,DC: MedPAC;2013. Available at [http://medpac.gov/documents/Jun13\\_EntireReport.pdf](http://medpac.gov/documents/Jun13_EntireReport.pdf). Last accessed June 2014.



15. Burtin R. Improving care transitions. *Health Policy Briefs*. September 13, 2012  
[http://www.healthaffairs.org/healthpolicybriefs/brief.php?brief\\_id=76](http://www.healthaffairs.org/healthpolicybriefs/brief.php?brief_id=76). Last accessed June 2014.
16. Gerhardt G, et al. Medicare Readmission Rates Showed Meaningful Decline in 2012. *Medicare & Medicaid Research Review*. 2013; 3(2):1-12
17. *ibid*

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### Measures recommended

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## Measures Recommended

**Rating Scale:** H=High; M=Moderate; L=Low; I=Insufficient; NA=Not Applicable; Y=Yes; N=No

### 0505 Hospital 30-day all-cause risk-standardized readmission rate (RSRR) following acute myocardial infarction (AMI) hospitalization.

#### [Submission](#) | [Specifications](#)

**Description:** The measure estimates a hospital-level 30-day risk-standardized readmission rate (RSRR) for patients discharged from the hospital with a principal diagnosis of acute myocardial infarction (AMI). The outcome is defined as unplanned readmission for any cause within 30 days of the discharge date for the index admission. A specified set of planned readmissions do not count as readmissions. The target population is patients aged 18 years and older. CMS annually reports the measure for individuals who are 65 years and older and are either Medicare fee-for-service (FFS) beneficiaries hospitalized in non-federal hospitals or patients hospitalized in Department of Veterans Affairs (VA) facilities.

**Numerator Statement:** The outcome for this measure is 30-day readmission. We define readmission as an inpatient admission for any cause, with the exception of certain planned readmissions, within 30 days from the date of discharge from the index AMI admission. If a patient has more than one unplanned admission within 30 days of discharge from the index admission, only the first one is counted as a readmission. The measure looks for a dichotomous yes or no outcome of whether each admitted patient has an unplanned readmission within 30 days. However, if the first readmission after discharge is considered planned, then no readmission is counted, regardless of whether a subsequent unplanned readmission takes place. This is because it is not clear whether such readmissions are appropriately attributed to the original index admission or the intervening planned readmission.

**Denominator Statement:** The target population for this measure is patients aged 18 years and older hospitalized for AMI. The measure is currently publicly reported by CMS for those 65 years and older who are either Medicare FFS beneficiaries admitted to non-federal hospitals or patients admitted to VA hospitals.

The measure includes admissions for patients discharged from the hospital with a principal diagnosis of AMI and with a complete claims history for the 12 months prior to admission.

As noted above, this measure can also be used for an all-payer population aged 18 years and older. We have explicitly tested the measure in both patients aged 18+ years and those aged 65+ years.

**Exclusions:** For all cohorts, the measure excludes admissions for patients:

- discharged against medical advice (AMA) (because providers did not have the opportunity to deliver full care and prepare the patient for discharge);
- admitted and then discharged on the same day (because it is unlikely these are clinically significant AMIs);
- admitted with AMI within 30 days of discharge from a qualifying index admission (Admissions within 30 days of discharge of an index admission will be considered readmissions. No admission is counted as a readmission and an index admission. The next eligible admission after the 30-day time period following an index admission will be considered another index admission.)

For Medicare FFS patients, the measure additionally excludes admissions for patients:

- without at least 30 days post-discharge enrollment in FFS Medicare (because the 30-day readmission outcome cannot be assessed in this group).

**Adjustment/Stratification:**

**Level of Analysis:** Facility

**Setting of Care:** Hospital/Acute Care Facility

**Type of Measure:** Outcome

**Data Source:** Administrative claims

**Measure Steward:** Centers for Medicare & Medicaid

**STANDING COMMITTEE MEETING [05/05/2014-05/06/2014]**

**1. Importance to Measure and Report: The measure meets the Importance criteria**

(1a. Evidence, 1b. Performance Gap, 1c. High Impact)

1a. Evidence: **Y-19; N-0** 1b. Performance Gap: **H-9; M-10; L-0; I-0**; 1c. Impact: **H-14; M-5; L-0; I-0**

Rationale:

- The Committee agreed that measuring AMI readmissions is a high priority. They noted that AMI is among the most common principal hospital discharge diagnoses among Medicare beneficiaries, and was the sixth most expensive condition billed to Medicare in 2008.
- The Committee reviewed the extensive body of evidence provided by the developer in their evidence forms and agreed there is a demonstrable relationship between hospital quality initiatives and reduction of readmissions.

The Committee agreed that there was still an opportunity for improvement in this measure. The developer noted that since implementation of this measure, the developers have seen national declines in AMI readmissions over a 3-year period. The developers attribute the decline to improvements around quality of care for AMI patients.

**2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria**

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

2a. Reliability: **H-3; M-16; L-0; I-0** 2b. Validity: **H-4; M-15; L-0; I-0**

Rationale:

- The Committee noted that the interclass correlation coefficient (ICC) provided by the developer (0.38, interpreted as fair agreement) was comparable to other outcome measures of quality. The developer noted that the split sample which was used to conduct reliability testing contained 2-years of data, rather than 3-years (as the measure is specified). When extrapolating the data to 3-years the ICC increased to 0.48 which can be interpreted as moderate agreement.
- The Committee agreed that the testing results provided by the developer demonstrated the measure had good reliability, showing a correlation of 0.98 between the medical record model and the administrative claims model.
- The Committee agreed that the model indicated good discrimination, and further discussed performance of the model when used in an all-payer data set, noting that the C statistic was slightly higher at 0.67, when compared to the Medicare Population. The developer explained that the models typically perform better in all-payer data sets. The developer hypothesized that since younger populations generally have less comorbidity, the covariates may be more powerful predictors of severity when compared to the Medicare population.

**3. Feasibility: H-18; M-1; L-0; I-0**

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Susceptibility to inaccuracies/unintended consequences identified 3d. Data collection strategy can be implemented)

Rationale:

- All data elements are in defined fields in electronic claims and these data are routinely collected as part of the billing process.

**4. Use and Usability: H-4; M-14; L-0; I-0**

(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability and 4b. Quality Improvement)

Rationale:

- This measure is currently in use for a number of federal programs including the Hospital Inpatient Quality Reporting Program and the Hospital Readmissions Reduction Program.
- The Committee agreed that while there has been improvement nationally in AMI Readmissions, there is still potential for unintended consequences when the measure is tied to a payment program. The Committee suggested that public reporting and payment programs should include confidence interval estimates to ensure statistically significant differences in performance are used to identify quality differences.

#### 5. Related and Competing Measures

- No related or competing measures noted.

**Standing Committee Recommendation for Endorsement: Y-17; N-2**

#### 6. Public and Member Comment

**7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X**

**8. Board of Directors Vote: Y-X; N-X**

#### 9. Appeals

### 0695 Hospital 30-Day Risk-Standardized Readmission Rates following Percutaneous Coronary Intervention (PCI)

[Submission](#) | [Specifications](#)

**Description:** This measure estimates a hospital-level risk-standardized readmission rate (RSRR) following PCI for Medicare Fee-for-Service (FFS) patients who are 65 years of age or older. The outcome is defined as unplanned readmission for any cause within 30 days following hospital stays. The measure includes both patients who are admitted to the hospital (inpatients) for their PCI and patients who undergo PCI without being admitted (outpatient or observation stay). A specified set of planned readmissions do not count as readmissions. The measure uses clinical data available in the National Cardiovascular Disease Registry (NCDR) CathPCI Registry for risk adjustment and Medicare claims to identify readmissions. Additionally, the measure uses direct patient identifiers including Social Security Number (SSN) and date of birth to link the datasets.

A hospital stay is when a patient is admitted to the hospital (inpatient) for PCI or receives a procedure at a hospital, but is not admitted as an inpatient (outpatient).

The primary update to this measure since it was last reviewed by the National Quality Forum (NQF) is a more comprehensive specification of planned readmission. Additionally, the updated measure includes a re-specification of variables to reflect changes in the data collection form that occurred when the CathPCI Registry was updated from Version 3.04 (Version 3) to Version 4.3.1 (Version 4). Finally, the measure has been updated to use direct identifiers including SSN and date of birth to link the CathPCI Registry data with corresponding administrative claims data. These updates are described within this application and in the accompanying report re-specifying Hospital 30-Day Readmission Following Percutaneous Coronary Intervention Measure (see Appendix attachment).

**Numerator Statement:** The outcome for this measure is 30-day all-cause readmission. We define readmission as an acute care inpatient hospital admission for any cause, with the exception of certain planned readmissions, within 30 days from the discharge date of the index PCI hospitalization or PCI outpatient claim end date (hereafter referred to as discharge). If a patient has more than one unplanned admission within 30 days of discharge from the index admission, only the first one is counted as a readmission. The measure looks for a dichotomous yes or no outcome of whether each admitted patient has an unplanned readmission within 30 days. However, if the first readmission after discharge is considered planned, then no readmission is counted, regardless of whether a subsequent unplanned readmission takes place. We use this approach because it would potentially be unfair to attribute an unplanned readmission that follows a planned readmission back to the care received during the initial index admission. For more details on how planned readmissions were identified and removed from the outcome, please refer to the Specifications Report in the attached Appendix.

**Denominator Statement:** The target population for this includes hospital stays for patients who are 65 years of age or older who receive a PCI and who have matching records in the CathPCI Registry and Medicare claims.

**Exclusions:** The following exclusions were applied to data during the merging of NCDR CathPCI and Medicare datasets:

1. Patients younger than 65 years of age.

Rationale: Patients younger than 65 in the Medicare dataset represent a distinct population that qualifies for Medicare due to disability. The characteristics and outcomes of these patients may be less representative of the larger population of PCI patients. Additionally, patients younger than 65 in the NCDR CathPCI dataset will not have corresponding data in the Medicare claims dataset to obtain the readmission outcome.

2. Patient stays with duplicate fields (NCDR CathPCI and Medicare datasets).

Rationale: Two or more patient stays that have identical information for SSN, admission date, discharge date, and hospital MPN are excluded to avoid making matching errors upon merging of the two datasets.

3. Unmatched patient stays.

Rationale: The measure requires information from both the CathPCI Registry and corresponding Medicare claims data. Accordingly, the measure cannot be applied to patient stays that are not matched in both datasets.

Exclusions applied to the linked dataset:

1. Patients not enrolled in Medicare FFS at the start of the episode of care.

Rationale: Readmission data are currently available only for Medicare FFS patients.

2. Not the first claim in the same claim bundle.

Rationale: Multiple claims from an individual hospital can be bundled together. To ensure that the selected PCI is the index PCI, we exclude those PCI procedures that were not the first claim in a specific bundle. Inclusion of additional claims could lead to double counting of an index PCI procedure.

3. Instances when PCI is performed more than 10 days following admission.

Rationale: Patients who undergo PCI late into their hospitalization represent an unusual clinical situation in which it is less likely that the care delivered at the time of or following the PCI would be reasonably assumed to be associated with subsequent risk of readmission.

4. Transfers out.

Rationale: Patient stays in which the patient received a PCI and was then transferred to another hospital are excluded because the hospital that performed the PCI procedure does not provide discharge care and cannot fairly be held responsible for their outcomes following discharge.

5. In-hospital deaths (the patient dies in the hospital).

Rationale: Subsequent admissions (readmissions) are not possible.

6. Discharges Against Medical Advice (AMA).

Rationale: Physicians and hospitals do not have the opportunity to deliver the highest quality care.

7. PCI in which 30-day follow-up is not available.

Rationale: Patients who are not enrolled for 30 days in fee-for-service Medicare following their hospital stay are excluded because there is not adequate follow-up data to assess readmissions.

8. Admissions with a PCI occurring within 30-days of a prior PCI already included in the cohort.

Rationale: We do not want to count the same admission as both an index admission and an outcome.

**Adjustment/Stratification:**

**Level of Analysis:** Facility

**Setting of Care:** Hospital/Acute Care Facility

**Type of Measure:** Outcome

**Data Source:** Administrative claims, Electronic Clinical Data : Registry

**Measure Steward:** American College of Cardiology

**STANDING COMMITTEE MEETING [05/05/2014-05/06/2014]**

**1. Importance to Measure and Report: The measure meets the Importance criteria**

(1a. Evidence, 1b. Performance Gap, 1c. High Impact)

1a. Evidence: **Y-20; N-0** 1b. Performance Gap: **H-17; M-4; L-0; I-0**; 1c. Impact: **H-18; M-3; L-0; I-0**

Rationale:

- Committee members agreed that the rationale provided by the developer supported a relationship between the outcome and at least one process. Noting that numerous studies have demonstrated that differences in both PCI technique and subsequent hospital care affect patient outcomes following PCI.
- The Committee noted that with an interquartile performance range of 10.9 percent to 12.6 percent, there was a gap in performance.
- The Committee agreed this is a high impact measure that affects a large number of patients since it is one of the most common cardiac procedures in the country. In 2005, nearly 1.2 million PCIs were performed in the US with approximately one in five resulting in a readmission.

**2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria**

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

2a. Reliability: **H-5; M-16; L-0; I-0** 2b. Validity: **H-2; M-18; L-0; I-0**

Rationale:

- The Committee discussed the fact that the measure is based on clinical data, which is audited using annual onsite chart reviews and data abstraction.
- In terms of reliability, the measure developers used as a test-retest approach, similar to that of Measure 0505. The interclass correlation coefficient (ICC) in this measure is 0.37, which indicates a fair agreement.
- The Committee discussed the validity of the measure and specifically the hierarchical logistical regression model which had a C-statistic of 0.66. They agreed that this value was generally good for measures of readmissions. The model discrimination was similar in both development and validation sets.
- The Committee noted missing data for ejection fraction in approximately 29 percent of observations as a threat to validity. The committee considered this to be a high number of missing data, and noted that the missing data was imputed into the median of corresponding groups, which some agreed was not ideal.
  - The developer explained that patients without information on ejection fraction before a PCI are typically those that are treated in an emergency case. Given this, the missing information is not random and generally represents highly comorbid patients. To handle this concern, the developer used a dummy variable for missing ejection fraction to account the severity of these patients. The Committee was generally comfortable with this response by the developer.

**3. Feasibility: H-6; M-13; L-3; I-0**

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Susceptibility to inaccuracies/unintended consequences identified 3d. Data collection strategy can be implemented)

Rationale:

- The Committee noted that the measure is based on a hybrid of clinical and administrative electronic claims and it is feasible. The administrative data is to identify which patients are readmitted and the clinical data is based on the CathPCI registry.

**4. Use and Usability: H-3; M-14; L-3; I-0**

(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability and 4b. Quality Improvement)

Rationale:



<ul style="list-style-type: none"> <li>Committee members noted that the measure is reported hospitals participating in ACC Voluntary Public Reporting Program as well as Hospital Compare.</li> </ul>
<b>5. Related and Competing Measures</b> <ul style="list-style-type: none"> <li>No related or competing measures noted.</li> </ul>
<b>Standing Committee Recommendation for Endorsement: Y-20; N-0</b>
<b>6. Public and Member Comment</b>
<b>7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X</b>
<b>8. Board of Directors Vote: Y-X; N-X</b>
<b>9. Appeals</b>

<b>2375 PointRight OnPoint-30 SNF Rehospitalizations</b>
<a href="#">Submission</a>   <a href="#">Specifications</a>
<p><b>Description:</b> PointRight OnPoint-30 is an all-cause, risk adjusted rehospitalization measure. It provides the rate at which all patients (regardless of payer status or diagnosis) who enter skilled nursing facilities (SNFs) from acute hospitals and are subsequently rehospitalized during their SNF stay, within 30 days from their admission to the SNF.</p> <p><b>Numerator Statement:</b> The numerator is the number of patients sent back to any acute care hospital (excluding emergency room only visits) during their SNF stay within 30 days from a SNF admission, as indicated on the MDS 3.0 discharge assessment during the 12 month measurement period.</p> <p><b>Denominator Statement:</b> The denominator is the number of all admissions, regardless of payer status and diagnosis, with an MDS 3.0 admission assessment to a SNF from an acute hospital during the target rolling 12 month period.</p> <p><b>Exclusions:</b> The denominator has 2 different exclusions: individual level and provider level. At the individual level the exclusion is related to incomplete assessments. At the provider level the exclusion is related to the amount of data necessary to calculate the measure that is missing. Payer status and clinical conditions are not used for any exclusions.</p> <p><b>Adjustment/Stratification:</b></p> <p><b>Level of Analysis:</b> Facility</p> <p><b>Setting of Care:</b> Post Acute/Long Term Care Facility : Nursing Home/Skilled Nursing Facility</p> <p><b>Type of Measure:</b> Outcome</p> <p><b>Data Source:</b> Electronic Clinical Data</p> <p><b>Measure Steward:</b> American Health Care Association</p>
<p><b>STANDING COMMITTEE MEETING [05/05/2014-05/06/2014]</b></p> <p><b>1. Importance to Measure and Report: <u>The measure meets the Importance criteria</u></b> (1a. Evidence, 1b. Performance Gap, 1c. High Impact)</p> <p>1a. Evidence: <b>Y-23; N-1</b>; 1b. Performance Gap: <b>H-15; M-9; L-0; I-0</b>; 1c. Impact: <b>H-19; M-4; L-0; I-0</b></p> <p><b>Rationale:</b></p> <ul style="list-style-type: none"> <li>The Committee noted that there is a significant performance gap across providers, noting data presented by the developer that shows performance variation from a low of 13 percent to a high of 22 percent readmissions across states.</li> <li>The Committee also noted that there are processes that skilled nursing facilities can undertake that would improve performance on this measure.</li> </ul>

## **2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria**

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

2a. Reliability: **H-4; M-13; L-5; I-2** 2b. Validity: **H-1; M-17; L-6; I-0**

### Rationale:

- Members of the Committee expressed concern that the measure does not exclude planned readmissions from the measure. Given the lack of planned readmission exclusions, some argued that the measure may not be actionable at the facility level or allow for appropriate accountability.
  - The developer responded to these concerns by noting that the measure is developed using data from the minimum data set (MDS). At the time of the development of this measure, this dataset did not collect information on whether a readmission was planned or unplanned. Subsequently, CMS has added this variable to the MDS dataset; however, it is currently missing 82 percent of the time.
  - The developer also noted this measure is stronger with the use of the MDS data versus the claims data since a measure specified using claims would only be applicable to the Medicare fee-for-service population. The developer argued that this dataset allows for a more comprehensive analysis of readmissions from SNFs.
  - The developer also noted that the strength in not using claims is that there is quicker turn-around in providing results back to SNFs.
- Committee members agreed that having this measure specified to include more than Medicare fee-for-service was beneficial and discussed whether the measure could be stratified based on payer class. The developer clarified that the MDS does not have reliable data for payer class.

## **3. Feasibility: H-14; M-8; L-2; I-0**

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Susceptibility to inaccuracies/unintended consequences identified 3d. Data collection strategy can be implemented)

### Rationale:

- The Committee agreed that the data elements are routinely generated and used during care delivery and noted, that all data elements are defined fields in an electronic clinical data (e.g., clinical registry, nursing home MDS, home health OASIS)

## **4. Use and Usability: H-5; M-14; L-5; I-0**

(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability and 4b. Quality Improvement)

### Rationale:

- Overall, the Committee agreed that this measure is usable but did note that the measure may be more susceptible to gaming through increased coding intensity and improvement.
- This measure is currently in use by the American Health Care Association (AHCA) as part of their Quality Improvement Recognition Program, LTC Trend Tracker, and AHCA Quality Initiative.

## **5. Related and Competing Measures**

- This measure directly competes with Measure:2510 Skilled Nursing Facility 30-Day All-Cause Readmission Measure (SNFRM)—the risk-standardized rate of all-cause, unplanned, hospital readmissions for patients (Medicare fee-for-service [FFS] beneficiaries) who have been admitted to a Skilled Nursing Facility (SNF)

<p>within 30 days of discharge from their prior proximal hospitalization. The prior proximal hospitalization is defined as an admission to an IPPS, CAH, or a psychiatric hospital. The measure is based on data for 12 months of SNF admissions.</p> <ul style="list-style-type: none"> <li>The principal difference between this measure, 2375 PointRight OnPoint-30 SNF Rehospitalizations [AHCA], and 2510 Skilled Nursing Facility 30-Day All-Cause Readmission Measure (SNFRM) is the data source. NQF #2510 uses administrative claims data, and thus limited to Medicare fee-for-service patients. NQF #2375 uses the minimum data set (MDS), and includes both planned/unplanned readmissions since the data source does not currently include reliable coding of this information.</li> <li>In anticipation of the NQF endorsement process, CMS and AHCA collaborated to discuss the suitability of their respective SNF-based readmission measures for harmonization and agreed that the measure differences justify having 2 measures.</li> <li>The Committee agreed with this sentiment and voted to recommend both 2375 PointRight OnPoint-30 SNF Rehospitalizations [AHCA], and 2510 Skilled Nursing Facility 30-Day All-Cause Readmission Measure (SNFRM) for endorsement.</li> </ul>
<b>Standing Committee Recommendation for Endorsement: Y-22; N-2</b>
<b>6. Public and Member Comment</b>
<b>7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X</b>
<b>8. Board of Directors Vote: Y-X; N-X</b>
<b>9. Appeals</b>

<b>2380 Rehospitalization During the First 30 Days of Home Health</b>
<a href="#">Submission</a>   <a href="#">Specifications</a>
<p><b>Description:</b> Percentage of Home Health stays in which patients who had an acute inpatient hospitalization in the 5 days before the start of their Home Health stay were admitted to an acute care hospital during the 30 days following the start of the Home Health stay.</p> <p><b>Numerator Statement:</b> Number of Home Health stays for patients who have a Medicare claim for an admission to an acute care hospital in the 30 days following the start of the Home Health stay.</p> <p><b>Denominator Statement:</b> Number of Home Health stays that begin during the relevant observation period for patients who had an acute inpatient hospitalization in the five days prior to the start of the Home Health stay. A Home Health stay is a sequence of Home Health payment episodes separated from other Home Health payment episodes by at least 60 days.</p> <p><b>Exclusions:</b> The measure denominator excludes several types of Home Health stays:  First, the measure denominator for the Rehospitalization During the First 30 Days of Home Health measure excludes the following Home Health stays that are also excluded from the all-patient claims-based NQF 0171 Acute Care Hospitalization measure: (i) Stays for patients who are not continuously enrolled in fee-for-service Medicare during the measure numerator window; (ii) Stays that begin with a Low-Utilization Payment Adjustment (LUPA). Stays with four or fewer visits to the beneficiary qualify for LUPAs; (iii) Stays in which the patient is transferred to another Home Health agency within a Home Health payment episode (60 days); and (iv) Stays in which the patient is not continuously enrolled in Medicare fee-for-service during the previous six months.  Second, to be consistent with the Hospital-Wide All-Cause Unplanned Readmission measure (as of January 2013), the measure denominator excludes stays in which the hospitalization occurring within 5 days of the start of Home Health care is not a qualifying inpatient stay. Hospitalizations that do not qualify as index hospitalizations include admissions for the medical treatment of cancer, primary psychiatric disease, or rehabilitation care, and admissions ending in patient discharge against medical advice.</p>

Third, the measure denominator excludes stays in which the patient receives treatment in another setting in the 5 days between hospital discharge and the start of Home Health.

Finally, stays with missing payment-episode authorization strings (needed for risk-adjustment) are excluded.

**Adjustment/Stratification:**

**Level of Analysis:** Facility

**Setting of Care:** Home Health

**Type of Measure:** Outcome

**Data Source:** Administrative claims

**Measure Steward:** Centers for Medicare and Medicaid Services

**STANDING COMMITTEE MEETING [05/05/2014-05/06/2014]**

**1. Importance to Measure and Report: The measure meets the Importance criteria**

(1a. Evidence, 1b. Performance Gap, 1c. High Impact)

1a. Evidence: **Y-18; N-4**; 1b. Performance Gap: **H-7; M-13; L-0; I-2**; 1c. Impact: **H-8; M-14; L-0; I-0**

**Rationale:**

- The Committee noted that there is opportunity for improvement, with 13.3 percent of Home Health patients experiencing an unplanned readmission in the first 30 days of care.
- There was agreement among Committee members that certain strategies can be implemented in the home health setting to reduce readmissions, including care coordination, physician follow-up, hospital discharge planning, and a variety of Home Health-specific evidence-based strategies. However, the Committee was generally concerned that there may not be a strong process-outcome linkage, recognizing that Home Health Agencies (HHAs) may not have sufficient resources to significantly impact outcomes and prevent readmissions.

**2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria**

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

2a. Reliability: **H-2; M-17; L-3; I-0** 2b. Validity: **H-0; M-18; L-4; I-0**

**Rationale:**

- During the Committee workgroup call, the Committee requested additional information to justify the exclusion of acute care hospitalizations occurring within 5 days of the start of a Home Health stay. The developer provided additional analyses in which they outlined the rationale for this exclusion:
  - The five-day timeframe enables a substantial proportion of Home Health patients to be captured in the measure denominator—the developer noted that the measure as specified (with a 5-day delay) captures 90 percent of patients who begin Home Health within 30 days of hospital discharge. Unlike post-acute care in many other settings, the patient returns to their home after hospital discharge, resulting in some gap between hospital discharge and the initial visit from a HHA.
  - The Medicare Conditions of Participation for HHAs require Home Health care to begin within 48 hours of hospital discharge or on the physician-ordered start of care date (which is usually within 1-3 calendar days of hospital discharge).
- The developer provided split-half reliability testing, which assesses the consistency with which measured entities are assigned performance scores. The testing results showed that 80 percent of the agencies were grouped into the same performance category, demonstrating a “high level of internal consistency.” The Committee voiced concern that there were no additional reliability statistics provided, specifically an

intraclass correlation coefficient (ICC) to determine reliability.

- This issue was also discussed during the workgroup call, and the developer provided additional explanation to the Committee at the in-person meeting, noting that an ICC would not be appropriate for assessing measure reliability since CMS intends to publicly report this measure using a categorical reporting method. This categorical reporting method does not attempt to distinguish between high and low performing agencies by comparing agencies' risk-adjusted rates; rather, each Home Health agency is classified into a performance category based on each Home Health agency's expected and observed rates.
- The mean differences in performance were consistently positive, ranging from 3.6 to 5.6 percent; however, the developer did not provide any additional description of how the correlations demonstrate validity of the performance score.

### **3. Feasibility: H-10; M-10; L-1; I-1**

*(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Susceptibility to inaccuracies/unintended consequences identified 3d. Data collection strategy can be implemented)*

#### Rationale:

- The required data elements are routinely generated and used during care delivery and all data elements are in defined fields in electronic claims.

### **4. Use and Usability: H-2; M-15; L-4; I-0**

*(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability and 4b. Quality Improvement)*

#### Rationale:

- The Committee noted that CMS plans to publicly report this measure on Home Health Compare starting in 2015. This plan was finalized in the CMS Home Health Prospective Payment System final rule for CY2014.
- This measure is indicted to be used in combination with Measure 2505: Emergency Department Use without Hospital Readmission During the First 30 Days of Home Health. However, the Committee noted that there was limited explanation as to how they would be used in combination.

### **5. Related and Competing Measures**

- This measure competes directly with Measure [0171 Acute Care Hospitalization](#)—Percentage of Home Health stays in which patients were admitted to an acute care hospital during the 60 days following the start of the Home Health stay.
- The measure specifications for Measure 0171 and Measure 2380 were harmonized along several measure dimensions, including Data source, Population, Denominator Exclusions, Numerator, and Risk Adjustment methodology.
- The developers of this measure contended that there are differences that justify having two separate measures. Whereas Measure 0171 evaluates patient admission to an acute care hospital during the 60 days following the start of a Home Health stay (regardless of whether or not this stay was preceded by an inpatient hospitalization), measure 2380 evaluates readmission to the hospital within 30 days after starting Home Health care for patients who were recently discharged from an inpatient setting. Home Health agencies can track their performance on both utilization measures to gain an accurate picture of

<p>how much acute care is being used by their patients. Additionally, Measure 2380 is an outcome measure that assesses the efficacy of care coordination as patients transition from inpatient acute care to outpatient Home Health services. In contrast, Measure 0171 assesses the efficacy of clinical care provided to all patients, as indicated by rates of hospitalization after entry into Home Health services.</p> <ul style="list-style-type: none"> <li>• These are distinct domains of care under the CMS Quality Strategy and reflect related but distinct care quality concepts. This is not the only setting in which CMS has developed paired readmission and hospitalization measures. Such measures exist for end-stage renal disease (ESRD), and such pairings are being considered in other care settings as well.</li> <li>• According to NQF guidance, since Measure 0171 was not evaluated in this project the Committee will not make a recommendation with regards to these 2 competing measures. A recommendation may be made at a later date.</li> </ul>
<b>Standing Committee Recommendation for Endorsement: Y-16; N-6</b>
<b>6. Public and Member Comment</b>
<b>7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X</b>
<b>8. Board of Directors Vote: Y-X; N-X</b>
<b>9. Appeals</b>

<b>2393 Pediatric All-Condition Readmission Measure</b>
<a href="#">Submission</a>   <a href="#">Specifications</a>
<p><b>Description:</b> This measure calculates case-mix-adjusted readmission rates, defined as the percentage of admissions followed by 1 or more readmissions within 30 days, for patients less than 18 years old. The measure covers patients discharged from general acute care hospitals, including children's hospitals.</p> <p><b>Numerator Statement:</b> The numerator consists of hospitalizations at general acute care hospitals for patients less than 18 years old that are followed by 1 or more readmissions to general acute care hospitals within 30 days. Readmissions are excluded from the numerator if the readmission was for a planned procedure or for chemotherapy.</p> <p>The measure outcome is a readmission rate, defined as the percentage of index admissions with 1 or more readmissions within 30 days. The readmission rate, unadjusted for case-mix, is calculated as follows:</p> $\frac{\text{number of index admissions with 1 or more readmissions within 30 days}}{\text{total number of index admissions}}$ <p><b>Denominator Statement:</b> Hospitalizations at general acute care hospitals for patients less than 18 years old.</p> <p><b>Exclusions:</b> EXCLUSIONS FROM THE NUMERATOR (READMISSIONS) AND DENOMINATOR (INDEX HOSPITALIZATIONS)</p> <p>We exclude certain hospitalizations from the measure entirely (i.e., from the numerator and denominator) based on clinical criteria or for issues of data completeness or quality that could prevent assessment of eligibility for the measure cohort or compromise the accuracy of readmission rates. Hospitalizations are excluded from the measure if they meet any of the following criteria:</p> <ol style="list-style-type: none"> <li>1. The hospitalization was at a specialty or non-acute care hospital.</li> </ol> <p>Rationale: The focus of the measure is admissions to hospitals that provide general pediatric acute care. Records for admissions to specialty and non-acute care hospitals are therefore omitted from the dataset. Because hospital type cannot be determined for records with missing data in the hospital type variable, these records are also removed from the dataset.</p> <ol style="list-style-type: none"> <li>2. Records for the hospitalization contain incomplete data for variables needed to assess eligibility for the measure or calculate readmission rates, including hospital type, patient identifier, admission date, discharge date,</li> </ol>

disposition status, date of birth, primary ICD-9 or principal ICD-10 diagnosis codes, or gender.

Rationale: Complete and valid information for the variables listed above is needed to define the measure cohort and calculate case-mix-adjusted readmission rates. Identifying readmissions within 30 days requires information on dates of admission and end-of-service dates and the ability to link unique patient identifiers across inpatient claims records. Hospital identifiers are needed to determine the hospital at which index admissions occurred. The disposition status is needed to determine whether a patient was discharged or experienced some other outcome (e.g., was transferred to another acute care hospital, left against medical advice, died). Establishing a patient's eligibility for membership in the pediatric cohort and performing case-mix adjustment requires an accurate date of birth and end-of-service date. Because gender is 1 of the variables used for case-mix adjustment, episodes of care with missing or inconsistent gender cannot be evaluated in the measure.

3. Records for the hospitalization contain data of questionable quality for calculating readmission rates, including

- a. Inconsistent date of birth across records for a patient.
- b. Discharge date prior to admission date.
- c. Admission or discharge date prior to date of birth.
- d. Admission date after a disposition status of death during a prior hospitalization.

Rationale: Complete and valid information for the variables listed above is needed to define the measure cohort and calculate case-mix-adjusted readmission rates. Identifying readmissions within 30 days requires information on dates of admission and end-of-service. A valid disposition status is needed to determine whether a patient was discharged or experienced some other outcome (e.g., was transferred to another acute care hospital, left against medical advice, died). Establishing a patient's eligibility for membership in the pediatric cohort and performing case-mix adjustment requires an accurate date of birth and end-of-service date.

4. Codes other than ICD-9 or ICD-10 codes are used for the primary procedure.

Rationale: ICD-9 or ICD-10 procedure codes are necessary for applying clinical exclusions.

5. The patient was older than 18 years, 29 days at the time of admission.

Rationale: This age exclusion limits the population to pediatric patients and prevents inclusion of records that overlap with adult readmission measures. Age eligibility for inclusion in the measure is based on age at the time of discharge from the index admission. Because the focus of the measure is pediatric patients, a patient's hospitalization is ineligible for inclusion in the measure as an index admission if the patient was 18 years old or greater at the time of discharge. Because the subsequent observation period for readmissions is 30 days, a patient's hospitalization is ineligible for inclusion in the measure as a readmission if the patient was older than 18 years, 29 days at the start of the readmission.

6. The hospitalization was for obstetric care, including labor and delivery.

Rationale: Hospitalizations for obstetric conditions are excluded because care related to pregnancy does not generally fall within the purview of pediatric providers.

7. The primary ICD-9 or principal ICD-10 diagnosis code was for a mental health condition.

Rationale: Hospitalizations for mental health conditions are excluded because we found that hospitals with high readmission rates for mental health hospitalizations tend to have low readmission rates for hospitalizations for other conditions, and vice versa. We describe this analysis in detail in Section 2b.3 of the Measure Testing Submission Form.

8. The hospitalization was for birth of a healthy newborn.

Rationale: Hospitalizations for birth of healthy newborns are excluded because these hospitalizations, unlike all others, are not for evaluation and management of disease.

#### EXCLUSIONS FROM THE DENOMINATOR ONLY (INDEX HOSPITALIZATIONS ONLY)

We also apply further exclusions to the denominator only (i.e., these hospitalizations are excluded from index hospitalizations but could still meet criteria for readmissions). Hospitalizations are excluded from the denominator only if they meet any of the following criteria:

9. The patient was 18 years old or older at the time of discharge.

Rationale: Age eligibility for inclusion in the measure is based on age at the time of discharge from the index admission. Because the measure covers pediatric patients, a patient's hospitalization is ineligible for inclusion in the measure as an index admission if the patient was 18 years old or greater at the time of discharge.



10. The discharge disposition was death.

Rationale: A patient must be discharged alive from an index admission in order to be readmitted. Therefore, any record with a discharge disposition of death cannot serve as an index admission.

11. The discharge disposition was leaving the hospital against medical advice.

Rationale: A discharge disposition of leaving against medical advice indicates that a patient left care before the hospital determined that the patient was ready to leave.

12. The hospital has less than 80% of records with complete patient identifier, admission date, and discharge date or less than 80% of records with complete primary ICD-9 or principal ICD-10 diagnosis codes. (Records for these hospitals are still assessed as possible readmissions, but readmission rates are not calculated for these hospitals due to their lack of complete data.)

Rationale: Readmission rates are not calculated for hospitals missing large amounts of data for the above variables because these hospitals have limited data to accurately apply measure cohort exclusions and calculate case-mix-adjusted readmission rates. Assessing eligibility for the measure cohort and performing case-mix adjustment requires information on admission dates, end-of-service dates, and diagnosis codes. Identifying readmissions requires information on admission dates and end-of-service dates and the ability to link unique patient identifiers across inpatient claims records.

13. The hospital is in a state not being analyzed.

Rationale: A claims database used for readmission analysis may contain records for hospitals located in states that are not included in the database (because covered patients may sometimes be admitted to out-of-state hospitals). Records for these out-of-state hospital admissions are not excluded from the measure dataset because these records may meet criteria for being counted as readmissions as part of an in-state hospital's readmission rate. However, readmission rates are not calculated for out-of-state hospitals due to the lack of complete data for these hospitals.

14. Thirty days of follow-up data are not available for assessing readmissions.

Rationale: Identifying readmissions within 30 days requires a full 30 days of follow-up data.

**Adjustment/Stratification:**

**Level of Analysis:** Facility

**Setting of Care:** Hospital/Acute Care Facility

**Type of Measure:** Outcome

**Data Source:** Administrative claims

**Measure Steward:** Center of Excellence for Pediatric Quality Measurement

**STANDING COMMITTEE MEETING [05/05/2014-05/06/2014]**

**1. Importance to Measure and Report: The measure meets the Importance criteria**

(1a. Evidence, 1b. Performance Gap, 1c. High Impact)

1a. Evidence: **Y-21; N-1**; 1b. Performance Gap: **H-1; M-20; L-0; I-0**; 1c. Impact: **H-7; M-13; L-2; I-0**

**Rationale:**

- The Committee noted that there is not a large evidence base to support a rationale between healthcare processes and structures, such as care coordination, discharge planning, and medication reconciliation, and pediatric readmission rates. However, the Committee agreed there are gaps in quality metrics for pediatric population, and subsequently agreed this outcome was important to measure and report.
- The Committee emphasized the potential for this measure to improve disparities in care, particularly for Black and Hispanic patients.
- The Committee agreed this measure was high priority given that that readmission occurs in 2 to 6 percent of hospitalizations for children, costing \$2.8 billion for children with 4 or more hospitalizations, over a one year period.

**2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria**



(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

2a. Reliability: **H-3; M-17; L-2; I-0** 2b. Validity: **H-0; M-19; L-3; I-0**

Rationale:

- The Committee expressed concern that the measure was tested using Medicaid data but is specified for use in an all-payer dataset, noting that testing was not provided to demonstrate how the measure performs outside of the Medicaid population.
- The Committee noted that the reliability of the measure was highly dependent on case volume. The developer provided additional analyses where they examined using a minimum threshold of 100 index hospitalizations per year. When the threshold is applied the developers concluded that reliability for this measure improves for hospitals with higher case volumes.
  - The developers acknowledged that this will be a consideration on how the measure is implemented. The developers hypothesize that, most likely, hospitals reporting pediatric readmission rates will be hospitals with a large volume of pediatric patients.
  - The developers also explained that small volumes of pediatric patients are a global challenge for pediatric measurement.
- The Committee acknowledged the lack of pediatric measures with which to correlate this measure with is a threat to validity. The developer noted that they were unable to assess how performance on this measure correlated with performance on other measures due to the unavailability of other pediatric inpatient measures for comparison.
- The Committee also noted that 10 percent of the hospitalizations were missing key data thus excluding them from the measure. Additionally, the Committee discussion highlighted the exclusion of specialty hospitals (Cancer, Orthopedic, Shriners Hospitals, and hospitals that do not provide acute care).
- During the discussion the Committee highlighted the importance of included socio-demographic factors in the risk adjustment model, especially for pediatric populations.

**3. Feasibility: H-3; M-18; L-1; I-0**

*(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Susceptibility to inaccuracies/unintended consequences identified 3d. Data collection strategy can be implemented)*

Rationale:

- The Committee discussed that the measure faces challenges in terms of implementation.
  - With regards to the use of Medicaid claims, the Committee expressed concerns that Medicaid claims are challenging to use as they vary from state to state and the Committee noted that the developer experienced model fitting issues when tested in the New York State database. The developer noted that they provided technical assistance to sites that had issues and anticipate the measure will be used for Medicaid programs to examine within-state comparisons.
  - The Committee also noted the challenge that children's health is covered by a number of insurance plans, spread among Medicaid and private insurance. The developer explained that Medicaid covers approximately one-third of hospitalized children and agreed that their analysis found higher readmission rates among children covered by Medicaid. Some members noted that comparisons to children covered by private insurance versus Medicaid are not necessarily comparable. The developer agreed that in future iterations of this measure they would potentially adjust for insurance status.

**4. Use and Usability: H-0; M-14; L-8; I-0**

*(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability and 4b. Quality Improvement)*

**Rationale:**

- The Committee noted that the reliability of the measure was highly dependent on case volume (similar to adult population) and questioned the usability of the measure given the smaller number of hospital that have a large enough pediatric population.
- While Committee members expressed concern about the lack of adjustment for sociodemographic factors for measures in this project, they were particularly concerned about the unintended consequences that could result from lack of this adjustment for this pediatric measure.

**5. Related and Competing Measures**

- No related or competing measures noted.

**Standing Committee Recommendation for Endorsement: Y-17; N-5**

**6. Public and Member Comment**

**7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X**

**8. Board of Directors Vote: Y-X; N-X**

**9. Appeals****2414 Pediatric Lower Respiratory Infection Readmission Measure**

[Submission](#) | [Specifications](#)

**Description:** This measure calculates case-mix-adjusted readmission rates, defined as the percentage of admissions followed by 1 or more readmissions within 30 days, following hospitalization for lower respiratory infection (LRI) in patients less than 18 years old. The measure covers patients discharged from general acute care hospitals, including children's hospitals.

**Numerator Statement:** The numerator consists of hospitalizations at general acute care hospitals for LRI in patients less than 18 years old that are followed by 1 or more readmissions to general acute care hospitals within 30 days. Readmissions are excluded from the numerator if the readmission was for a planned procedure or for chemotherapy.

The measure outcome is a readmission rate, defined as the percentage of index admissions with 1 or more readmissions within 30 days. The readmission rate, unadjusted for case-mix, is calculated as follows:

number of index admissions with 1 or more readmissions within 30 days/

total number of index admissions

**Denominator Statement:** Hospitalizations at general acute care hospitals for LRI in patients less than 18 years old.

**Exclusions:** EXCLUSIONS FROM THE NUMERATOR (READMISSIONS) AND DENOMINATOR (INDEX HOSPITALIZATIONS)

We exclude certain hospitalizations from the measure entirely (i.e., from the numerator and denominator) based on clinical criteria or for issues of data completeness or quality that could prevent assessment of eligibility for the measure cohort or compromise the accuracy of readmission rates. Hospitalizations are excluded from the measure if they meet any of the following criteria:

1. The hospitalization was at a specialty or non-acute care hospital.

**Rationale:** The focus of the measure is admissions to hospitals that provide general pediatric acute care. Records for admissions to specialty and non-acute-care hospitals are therefore omitted from the dataset. Because hospital type cannot be determined for records with missing data in the hospital type variable, these records are also removed from the dataset.

2. Records for the hospitalization contain incomplete data for variables needed to assess eligibility for the measure or calculate readmission rates, including hospital type, patient identifier, admission date, discharge date, disposition status, date of birth, primary ICD-9 or principal ICD-10 diagnosis codes, and gender.

Rationale: Complete and valid information for the variables listed above is needed to define the measure cohort and calculate case-mix-adjusted readmission rates. Identifying readmissions within 30 days requires information on dates of admission and end-of-service dates and the ability to link unique patient identifiers across inpatient claims records. Hospital identifiers are needed to determine the hospital at which index admissions occurred. The disposition status is needed to determine whether a patient was discharged or experienced some other outcome (e.g., was transferred to another acute care hospital, left against medical advice, died). Establishing a patient's eligibility for membership in the pediatric cohort and performing case-mix adjustment requires an accurate date of birth and end-of-service date. Because gender is 1 of the variables used for case-mix adjustment, episodes of care with missing or inconsistent gender cannot be evaluated in the measure.

3. Records for the hospitalization contain data of questionable quality for calculating readmission rates, including

- a. Inconsistent date of birth across records for a patient.
- b. Discharge date prior to admission date.
- c. Admission or discharge date prior to date of birth.
- d. Admission date after a disposition status of death during a prior hospitalization.

Rationale: Complete and valid information for the variables listed above is needed to define the measure cohort and calculate case-mix-adjusted readmission rates. Identifying readmissions within 30 days requires information on dates of admission and end-of-service. A valid disposition status is needed to determine whether a patient was discharged or experienced some other outcome (e.g., was transferred to another acute care hospital, left against medical advice, died). Establishing a patient's eligibility for membership in the pediatric cohort and performing case-mix adjustment requires an accurate date of birth and end-of-service date.

4. Codes other than ICD-9 or ICD-10 codes are used for the primary procedure.

Rationale: ICD-9 or ICD-10 procedure codes are necessary for applying clinical exclusions.

5. The patient was older than 18 years, 29 days at the time of admission.

Rationale: This age exclusion limits the population to pediatric patients and prevents inclusion of records that overlap with adult readmission measures. Age eligibility for inclusion in the measure is based on age at the time of discharge from the index admission. Because the focus of the measure is pediatric patients, a patient's hospitalization is ineligible for inclusion in the measure as an index admission if the patient was 18 years old or greater at the time of discharge. Because the subsequent observation period for readmissions is 30 days, a patient's hospitalization is ineligible for inclusion in the measure as a readmission if the patient was older than 18 years, 29 days at the start of the readmission.

6. The hospitalization was for obstetric care, including labor and delivery.

Rationale: Hospitalizations for obstetric conditions are excluded because care related to pregnancy does not generally fall within the purview of pediatric providers.

7. The primary ICD-9 or principal ICD-10 diagnosis code was for a mental health condition.

Rationale: Hospitalizations for mental health conditions are excluded because we found that hospitals with high readmission rates for mental health hospitalizations tend to have low readmission rates for hospitalizations for other conditions, and vice versa. We describe this analysis in detail in Section 2b.3 of the Measure Testing Submission Form.

8. The hospitalization was for birth of a healthy newborn.

Rationale: Hospitalizations for birth of healthy newborns are excluded because these hospitalizations, unlike all others, are not for evaluation and management of disease.

#### EXCLUSIONS FROM THE DENOMINATOR ONLY (INDEX HOSPITALIZATIONS ONLY)

We also apply further exclusions to the denominator only (i.e., these hospitalizations are excluded from index hospitalizations but could still meet criteria for readmissions). Hospitalizations are excluded from the denominator only if they meet any of the following criteria:

9. The patient was 18 years old or greater at the time of discharge.

Rationale: Age eligibility for inclusion in the measure is based on age at the time of discharge from the index

admission. Because the measure covers pediatric patients, a patient's hospitalization is ineligible for inclusion in the measure as an index admission if the patient was 18 years old or greater at the time of discharge.

10. The discharge disposition was death.

Rationale: A patient must be discharged alive from an index admission in order to be readmitted. Therefore, any record with a discharge disposition of death cannot serve as an index admission.

11. The discharge disposition was leaving the hospital against medical advice.

Rationale: A discharge disposition of leaving against medical advice indicates that a patient left care before the hospital determined that the patient was ready to leave.

12. The hospital has less than 80% of records with complete patient identifier, admission date, and discharge date or less than 80% of records with complete primary ICD-9 or principal ICD-10 diagnosis codes. (Records for these hospitals are still assessed as possible readmissions, but readmission rates are not calculated for these hospitals due to their lack of complete data.)

Rationale: Readmission rates are not calculated for hospitals missing large amounts of data for the above variables because these hospitals have limited data to accurately apply measure cohort exclusions and calculate case-mix-adjusted readmission rates. Assessing eligibility for the measure cohort and performing case-mix adjustment requires information on admission dates, end-of-service dates, and diagnosis codes. Identifying readmissions requires information on admission dates and end-of-service dates and the ability to link unique patient identifiers across inpatient claims records.

13. The hospital is in a state not being analyzed.

Rationale: A claims database used for readmission analysis may contain records for hospitals located in states that are not included in the database (because covered patients may sometimes be admitted to out-of-state hospitals). Records for these out-of-state hospital admissions are not excluded from the measure dataset because these records may meet criteria for being counted as readmissions as part of an in-state hospital's readmission rate. However, readmission rates are not calculated for out-of-state hospitals due to the lack of complete data for these hospitals.

14. Thirty days of follow-up data are not available for assessing readmissions.

Rationale: Identifying readmissions within 30 days requires a full 30 days of follow-up data.

15. The hospitalization does not have a primary ICD-9 or principal ICD-10 LRI diagnosis or does not have a secondary ICD-9 or additional ICD-10 LRI diagnosis plus a primary ICD-9 or principal ICD-10 diagnosis of asthma, respiratory failure, or sepsis/bacteremia.

Rationale: This measure focuses on readmissions following hospitalization for LRI. Episodes of care that do not meet the case definition for an LRI hospitalization are therefore excluded from index admissions.

**Adjustment/Stratification:**

**Level of Analysis:** Facility

**Setting of Care:** Hospital/Acute Care Facility

**Type of Measure:** Outcome

**Data Source:** Administrative claims

**Measure Steward:** Center of Excellence for Pediatric Quality Measurement

**STANDING COMMITTEE MEETING [05/05/2014-05/06/2014]**

**1. Importance to Measure and Report: The measure meets the Importance criteria**

(1a. Evidence, 1b. Performance Gap, 1c. High Impact)

1a. Evidence: **Y-19; N-2**; 1b. Performance Gap: **H-3; M-18; L-0; I-0**; 1c. Impact: **H-12; M-8; L-1; I-0**

**Rationale:**

- The Committee agreed that the evidence to support the rationale demonstrated readmissions can be improved through key processes, discharge planning, and care transitions.
- Committee members noted gaps in quality metrics for the pediatric population, and agreed that this

<p>outcome was important to measure and report.</p> <ul style="list-style-type: none"> <li>The Committee noted that the measure impacts a large number of pediatric patients and accounts for a large number of readmissions in hospitals. In addition, they noted that respiratory tract infections are one of the most common indications for hospitalization in Pediatrics, making it a high priority measure.</li> </ul>
<p><b>2. Scientific Acceptability of Measure Properties: <u>The measure meets the Scientific Acceptability criteria</u></b>  (2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)  2a. Reliability: <b>H-1; M-18; L-2; I-0</b> 2b. Validity: <b>H-0; M-20; L-1; I-0</b>  <u>Rationale:</u></p> <ul style="list-style-type: none"> <li>Similar to Measure 2393, Committee members noted that the reliability of the measure was highly dependent on case volume, which is similar to the adult population. The measure was found to be highly reliable at hospitals with an adequate sample size, but did not perform as well in those with a lower sample size. The Committee questioned the usability of the measure given the smaller number of hospitals that have a large enough pediatric population. The Committee noted that data used to assess validity was a 1-year data sample from Boston Children's Hospital and that sensitivity and specificity for identifying eligible readmissions were 87.0 percent and 99.7 percent, respectively.</li> <li>The Committee noted that there may be some seasonality in regards to the measure focus, noting that lower respiratory infections are seasonal. The developer explained that seasonality should not be an issue and is accounted for as the measure is collected annually as opposed to monthly.</li> <li>The Committee agreed the measure had good predictive ability with a C-statistic of 0.71.</li> </ul>
<p><b>3. Feasibility: H-3; M-17; L-1; I-0</b>  (3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Susceptibility to inaccuracies/unintended consequences identified 3d. Data collection strategy can be implemented)  <u>Rationale:</u></p> <ul style="list-style-type: none"> <li>All data elements are in defined fields in electronic claims and these data are routinely collected as part of the billing process.</li> <li>One concern was that the measure is based on Medicaid data and there is heterogeneity of Medicaid claims across states.</li> </ul>
<p><b>4. Use and Usability: H-0; M-17; L-4; I-0</b>  (Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability and 4b. Quality Improvement)  <u>Rationale:</u></p> <ul style="list-style-type: none"> <li>The Committee suggested that this pediatric readmission measure should be considered in the context of pediatric admissions.</li> <li>The Committee questioned whether this measure would be affected by seasonality, however the developer confirmed that this should not be an issue as the measure is collected over a 1-year period.</li> <li>While the Committee expressed concern on the lack of sociodemographic adjustment for the measures in this project, they were particularly concerned about the unintended consequences that may result from lack of this adjustment for this pediatric measure.</li> </ul>
<p><b>5. Related and Competing Measures</b></p> <ul style="list-style-type: none"> <li>No related or competing measures noted.</li> </ul>

<b>Standing Committee Recommendation for Endorsement: Y-18; N-3</b>
<b>6. Public and Member Comment</b>
<b>7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X</b>
<b>8. Board of Directors Vote: Y-X; N-X</b>
<b>9. Appeals</b>

<b>2502 All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Inpatient Rehabilitation Facilities (IRFs)</b>
<a href="#">Submission</a>   <a href="#">Specifications</a>
<p><b>Description:</b> This measure estimates the risk-standardized rate of unplanned, all-cause readmissions for patients (Medicare fee-for-service [FFS] beneficiaries) discharged from an Inpatient Rehabilitation Facility (IRF) who were readmitted to a short-stay acute-care hospital or a Long-Term Care Hospital (LTCH), within 30 days of an IRF discharge. The measure is based on data for 24 months of IRF discharges to non-hospital post-acute levels of care or to the community.</p> <p>A risk-adjusted readmission rate for each facility is calculated as follows:</p> <p>Step 1: Calculate the standardized risk ratio of the predicted number of readmissions at the facility divided by the expected number of readmissions for the same patients if treated at the average facility. The magnitude of the risk-standardized ratio is the indicator of a facility's effects on readmission rates.</p> <p>Step 2: The standardized risk ratio is then multiplied by the mean rate of readmission in the population (i.e., all Medicare FFS patients included in the measure) to generate the facility-level standardized readmission rate.</p> <p>For this measure, readmissions that are usually for planned procedures are excluded. Please refer to Appendix Tables A1-A5 for a list of planned procedures.</p> <p>The measure specifications are designed to harmonize with CMS' hospital-wide readmission (HWR) measure to a great extent. The HWR (NQF #1789) estimates the hospital-level, risk-standardized rate of unplanned, all-cause readmissions within 30 days of a hospital discharge, similar to this IRF readmission measure.</p> <p><b>Numerator Statement:</b> The numerator is mathematically related to the number of patients in the target population who have the event of an unplanned readmission in the 30- day post-discharge window. The measure does not have a simple form for the numerator and denominator—that is, the risk adjustment method used does not make the observed number of readmissions the numerator and a predicted number the denominator. Instead, the numerator is the risk-adjusted estimate of the number of unplanned readmissions that occurred within 30 days from discharge. This estimate includes risk adjustment for patient characteristics and a statistical estimate of the facility effect beyond patient mix.</p> <p><b>Denominator Statement:</b> The denominator is computed with the same model used for the numerator. It is the model developed using all non-excluded IRF stays in the national data. For a particular facility the model is applied to the patient population, but the facility effect term is 0. In effect, it is the number of readmissions that would be expected for that patient population at the average IRF. The measure includes all the IRF stays in the measurement period that are observed in national Medicare FFS data and do not fall into an excluded category.</p> <p><b>Exclusions:</b> The measure excludes some IRF patient stays; some of these exclusions result from data limitations. The following are the measure's denominator exclusions, including the rationale for exclusion:</p> <ol style="list-style-type: none"> <li>1. IRF patients who died during the IRF stay. Rationale: A post-discharge readmission measure is not relevant for patients who died during their IRF stay.</li> <li>2. IRF patients less than 18 years old. Rationale: IRF patients under 18 years old are not included in the target population for this measure. Pediatric patients are relatively few and may have different patterns of care from adults.</li> <li>3. IRF patients who were transferred at the end of a stay to another IRF or short-term acute care hospital. Rationale: Patients who were transferred to another IRF or short-term acute-care hospital are excluded from this measure because the transfer suggests that either their IRF treatment has not been completed or that their</li> </ol>

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condition worsened, requiring a transfer back to the acute care setting. The intent of the measure is to follow patients deemed well enough to be discharged to a less intensive care setting (i.e., discharged to less intense levels of care or to the community).

4. Patients who were not continuously enrolled in Part A FFS Medicare for the 12 months prior to the IRF stay admission date, and at least 30 days after IRF stay discharge date.

Rationale: The adjustment for certain comorbid conditions in the measure requires information on acute inpatient bills for 1 year prior to the IRF admission, and readmissions must be observable in the observation window following discharge. Patients without Part A coverage or who are enrolled in Medicare Advantage plans will not have complete inpatient claims in the system.

5. Patients who did not have a short-term acute-care stay within 30 days prior to an IRF stay admission date.

Rationale: This measure requires information from the prior short-term acute-care stay in the elements used for risk adjustment.

6. IRF patients discharged against medical advice (AMA).

Rationale: Patients discharged AMA are excluded because these patients have not completed their full course of treatment in the opinion of the facility.

7. IRF patients for whom the prior short-term acute-care stay was for nonsurgical treatment of cancer.

Rationale: Consistent with the HWR Measure, patients for whom the prior short-term acute-care stay was for nonsurgical treatment of cancer are excluded because these patients were identified as following a very different trajectory after discharge, with a particularly high mortality rate.

8. IRF stays with data that are problematic (e.g., anomalous records for hospital stays that overlap wholly or in part or are otherwise erroneous or contradictory).

Rationale: This measure requires accurate information from the IRF stay and prior short-term acute-care stays in the elements used for risk adjustment. No-pay IRF stays involving exhaustion of Part A benefits are also excluded.

### **Adjustment/Stratification:**

**Level of Analysis:** Facility

**Setting of Care:** Post Acute/Long Term Care Facility : Inpatient Rehabilitation Facility

**Type of Measure:** Outcome

**Data Source:** Administrative claims, Other

**Measure Steward:** Centers for Medicare & Medicaid Services (CMS)

## **STANDING COMMITTEE MEETING [05/05/2014-05/06/2014]**

### **1. Importance to Measure and Report: The measure meets the Importance criteria**

(1a. Evidence, 1b. Performance Gap, 1c. High Impact)

1a. Evidence: **Y-21; N-3**; 1b. Performance Gap: **H-3; M-13; L-8; I-0**; 1c. Impact: **H-6; M-13; L-3; I-0**

#### **Rationale:**

- The Committee noted that the evidence cited by the developer was based on Hospital Readmissions as opposed to Inpatient Rehabilitation Facilities. The developer explained that the evidence base around readmissions after post-acute care is very limited, noting that this measure will provide some insights into how care transitions occur for this patient population.
- Analysis provided by the developer showed variation in readmission rates by facilities. The risk-standardized readmission rate (RSRR) ranged from 11.1 percent to 16.1 percent across all IRFs based on 2010 and 2011 data. The Committee agreed that these data indicated a reasonable range of improvement possible even within the compressed range of this measure.
- Committee expressed a desire to have the measure be able to distinguish different service lines, noting



## 2502 All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Inpatient Rehabilitation Facilities (IRFs)

that that the variation in performance would be reduced more if the measure could distinguish how facilities are doing by service line. The developer confirmed that the service lines are indeed included as part of the risk adjustment model, and were added in an effort to prevent gaming of the measure.

- The Committee agreed that the measure was high priority, noting that 13.5 percent of patients are readmitted from an IRF.

### 2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

2a. Reliability: **H-3; M-16; L-4; I-0** 2b. Validity: **H-1; M-16; L-6; I-1**

#### Rationale:

- The Committee expressed concern with the developer's use of shrinkage estimators. They noted that quality differences for low volume hospitals may not be able to be detected. The developer explained that they used this methodology because shrinkage estimators provide a more stable estimate of performance, however the Committee noted, that for public reporting and accountability this methodology may not be ideal. The developer did agree that while shrinkage of the estimators did occur, the measure can still distinguish a large proportion of hospitals that vary in size.
- The Committee raised an issue around the 24-month time period for the data. The measure is based on 24 months of Medicare fee-for-service claims data and Committee members questioned whether a 24-month evaluation was something that could be acted on in a timely fashion.
- The Committee questioned why transfers were excluded from the measure. The developer explained that issues regarding transfer might need to be evaluated as a separate measure. Several Committee Members disagreed and concluded that this exclusion could lead to some potential for facilities transferring patients who may not be ready to be safely discharged towards the end of their stay, knowing that it would not count against them as a readmission.
- The developers provided Split Sample reliability testing, which involved calculating the level of agreement between facilities scored. Agreement was evaluated using intraclass correlations (ICC) and the developers calculated an ICC of 0.39, indicating a modest level of agreement between facilities' Standardized Risk Ratios.
- The Committee agreed that the measure has moderate validity based on validity testing in similar readmission measures.

### 3. Feasibility: **H-18; M-6; L-0; I-0**

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Susceptibility to inaccuracies/unintended consequences identified 3d. Data collection strategy can be implemented)

#### Rationale:

- The required data elements are routinely generated and used during care delivery and are in defined fields in electronic claims.

### 4. Use and Usability: **H-1; M-14; L-8; I-1**

(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability and 4b. Quality Improvement)

#### Rationale:

#### 2502 All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Inpatient Rehabilitation Facilities (IRFs)

- The Committee noted that CMS is developing this readmission measure in order to publicly report this measure as part of the Inpatient Rehab Facility Quality Reporting Program.
- The developer noted that at this time, CMS is working to establish procedures for public reporting, including procedures that provide the opportunity for IRFs to review their data before it is made public.
- The Committee noted that transfers being excluded may lead to unintended consequences and some degree of gaming the measure.

#### 5. Related and Competing Measures

- No related or competing measures noted.

#### Standing Committee Recommendation for Endorsement: Y-16; N-8

#### 6. Public and Member Comment

#### 7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X

#### 8. Board of Directors Vote: Y-X; N-X

#### 9. Appeals

#### 2505 Emergency Department Use without Hospital Readmission During the First 30 Days of Home Health

#### [Submission](#) | [Specifications](#)

Description: Percentage of Home Health stays in which patients who had an acute inpatient hospitalization in the 5 days before the start of their Home Health stay used an emergency department but were not admitted to an acute care hospital during the 30 days following the start of the Home Health stay.

Numerator Statement: Number of Home Health stays for patients who have a Medicare claim for outpatient emergency department use and no claims for acute care hospitalization in the 30 days following the start of the Home Health stay.

Denominator Statement: Number of Home Health stays that begin during the relevant observation period for patients who had an acute inpatient hospitalization in the five days prior to the start of the Home Health stay. A Home Health stay is a sequence of Home Health payment episodes separated from other Home Health payment episodes by at least 60 days.

Exclusions: The measure denominator excludes several types of Home Health stays:

First, the measure denominator for the Rehospitalization During the First 30 Days of Home Health measure excludes the following Home Health stays that are also excluded from the all-patient claims-based NQF 0171 Acute Care Hospitalization measure: (i) Stays for patients who are not continuously enrolled in fee-for-service Medicare during the measure numerator window; (ii) Stays that begin with a Low-Utilization Payment Adjustment (LUPA). Stays with four or fewer visits to the beneficiary qualify for LUPAs; (iii) Stays in which the patient is transferred to another Home Health agency within a Home Health payment episode (60 days); and (iv) Stays in which the patient is not continuously enrolled in Medicare fee-for-service during the previous six months.

Second, to be consistent with the Hospital-Wide All-Cause Unplanned Readmission measure (as of January 2013), the measure denominator excludes stays in which the hospitalization occurring within 5 days of the start of Home Health care is not a qualifying inpatient stay. Hospitalizations that do not qualify as index hospitalizations include admissions for the medical treatment of cancer, primary psychiatric disease, or rehabilitation care, and admissions ending in patient discharge against medical advice.

Third, the measure denominator excludes stays in which the patient receives treatment in another setting in the 5 days between hospital discharge and the start of Home Health.

Finally, stays with missing payment-episode authorization strings (needed for risk-adjustment) are excluded.

Adjustment/Stratification:

Level of Analysis: Facility

Setting of Care: Home Health

Type of Measure: Outcome

Data Source: Administrative claims

Measure Steward: Centers for Medicare and Medicaid Services

#### **STANDING COMMITTEE MEETING [05/05/2014-05/06/2014]**

1. Importance to Measure and Report: **The measure meets the Importance criteria**

(1a. Evidence, 1b. Performance Gap, 1c. High Impact)

**1a. Evidence: Y-16; N-6; 1b. Performance Gap: H-12; M-8; L-1; I-1; 1c. Impact: H-2; M-14; L-5; I-1**

**Rationale:**

- The Committee noted the importance of post-acute care coordination and reduction of hospital readmissions, however Committee members noted there was not a strong body of evidence provided by the developer to demonstrate 1) whether there is a strong process-outcome linkage that demonstrates Home Health Agencies (HHA) have control in preventing readmissions and 2) that there are substantial savings to incur in reducing readmissions.
  - Regarding the Committee's concerns around the relationship between HHA quality and ED admission, the Committee further noted that none of the studies provided examined the relationship between ED use with and without Home Health use. The developer provided additional rationale to the Committee which suggested that because some hospital readmissions and ED visits may not be preventable, HHA should not be expected to achieve a 0 percent readmission rate or ED use without hospital readmission rate for their patients.
  - Regarding concerns around evidence linking HHA specific interventions that can impact ED utilization, the developer explained that HHA follow best practice guidelines in order to reduce hospitalization rate including medication reconciliation, education, and physical therapy when needed.
- The Committee noted a large performance gap ranging from 3.9 percent to 29.3 percent and questioned how much the performance gap could be closed through quality improvement initiatives.

**2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria**

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

**2a. Reliability: H-4; M-14; L-3; I-1 2b. Validity: H-0; M-17; L-4; I-0**

**Rationale:**

- The developer provided split-half reliability testing where 78 percent of the agencies were grouped into the same performance category, demonstrating a "high level of internal consistency." The Committee voiced concern there were no additional reliability statistics provided, specifically an interclass correlation coefficient (ICC) to determine reliability.
  - This issue was also discussed during the workgroup call and the developer provided additional explanation noting that an ICC would not be appropriate for assessing measure reliability as CMS intends to publicly report this measure using a categorical reporting method. This categorical reporting method does not attempt to distinguish between high and low performing agencies by comparing agencies' risk-adjusted rates; rather, each Home Health agency is classified into a performance category based on each Home Health agency's expected and observed rates.

- The Committee noted that the correlations to the OASIS assessment that were used to demonstrate validity were not directly associated with ED care, and as such did not necessarily demonstrate construct validity.
  - The mean differences in performance were consistently positive, ranging from 3.5 percent to 6.5 percent; however no additional description of how the correlations demonstrate validity of the performance score was provided.

### **3. Feasibility: H-10; M-10; L-1; I-0**

*(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Susceptibility to inaccuracies/unintended consequences identified 3d. Data collection strategy can be implemented)*

#### Rationale:

- The required data elements are routinely generated and used during care delivery and are in defined fields in electronic claims.

### **4. Use and Usability: H-1; M-13; L-6; I-2**

*(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability and 4b. Quality Improvement)*

#### Rationale:

- The Committee voiced concern that while the measure is specified at the facility level, it is not clear that the measure is constructed for use only in HHA. The Committee cautioned that the measure could unintentionally be interpreted as a performance measure for Emergency Departments. The developer reiterated that the measure is only intended for use in HHA.
- The Committee noted that CMS plans to publicly report this measure on Home Health Compare starting in 2015. This plan was finalized in the CMS Home Health Prospective Payment System final rule for CY2014. CMS intends to publish three general levels of performance for HHA on ED admission without hospitalization; better (lower) than expected, not different than expected, and worse (above) than expected. As noted in earlier discussion, the Committee expressed concerns that there is not a large body of peer-reviewed evidence that has been published on the relationship between Home Health care and ED use without hospitalization. The Committee highlighted that due to the large degree of variability in ED admission rates for HHAs, the high variability associated with expected rates, and the instability of the measure for smaller HHAs, that approval and implementation of this measure should potentially wait until further study is done.
- Committee members cautioned that for Home Health, returns to the emergency department may be beyond the control of the HHA.
- Additionally the Committee expressed concerns that smaller HHA in under-performing regions would be categorized as 'worse than expected' due to small numbers of patients in the facility.

### **5. Related and Competing Measures**

- This measure directly competes with Measure [0173: Emergency Department Use without Hospitalization](#)—Percentage of Home Health stays in which patients used the emergency department but were not admitted to the hospital during the 60 days following the start of the Home Health stay.
- The measure specifications for Measure 0173 and Measure 2505 were harmonized along several measure dimensions, including Data source, Population, Denominator Exclusions, Numerator, and Risk Adjustment methodology.

- The developers of this measure agreed the measure differences justify having 2 measures. They further explained, whereas Measure 0173 evaluates patient admission to an emergency department (without hospitalization) during the 60 days following the start of Home Health stay, Measure 2505 evaluates admission to the emergency department (without hospital readmission) within 30 days after starting Home Health care for patients who were recently discharged from an inpatient setting. Home Health agencies can track their own performance on both utilization measures to gain an accurate picture of how much acute care is being used by their patients. As with the previously considered Home Health measures, it should be noted that Measure 2505 is an outcome measure assessing the efficacy of care coordination as patients transition from inpatient acute care to outpatient Home Health services. In contrast, Measure 0173 assesses the efficacy of clinical care provided to all patients as indicated by rates of hospitalization after entry into Home Health services. These are distinct domains of care under the CMS Quality Strategy and reflect related, but distinct care quality concepts.
- According to NQF guidance, since Measure 0173 was not evaluated in this project the Committee will not make a recommendation with regards to these 2 competing measures. A recommendation may be made at a later date

**Standing Committee Recommendation for Endorsement: Y-15; N-7**

**6. Public and Member Comment**

**7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X**

**8. Board of Directors Vote: Y-X; N-X**

**9. Appeals**

## 2510 Skilled Nursing Facility 30-Day All-Cause Readmission Measure (SNFRM)

[Submission](#) | [Specifications](#)

**Description:** This measure estimates the risk-standardized rate of all-cause, unplanned, hospital readmissions for patients who have been admitted to a Skilled Nursing Facility (SNF) (Medicare fee-for-service [FFS] beneficiaries) within 30 days of discharge from their prior proximal hospitalization. The prior proximal hospitalization is defined as an admission to an IPPS, CAH, or a psychiatric hospital. The measure is based on data for 12 months of SNF admissions.

A risk-adjusted readmission rate for each facility is calculated as follows:

Step 1: Calculate the standardized risk ratio of the predicted number of readmissions at the facility divided by the expected number of readmissions for the same patients if treated at the average facility. The magnitude of the risk-standardized ratio is the indicator of a facility's effects on readmission rates.

Step 2: The standardized risk ratio is then multiplied by the mean rate of readmission in the population (i.e., all Medicare FFS patients included in the measure) to generate the facility-level standardized readmission rate.

For this measure, readmissions that are usually for planned procedures are excluded. Please refer to the Appendix, Tables 1 - 5 for a list of planned procedures.

The measure specifications are designed to harmonize with CMS' hospital-wide readmission (HWR) measure to the greatest extent possible. The HWR (NQF #1789) estimates the hospital-level, risk-standardize rate of unplanned, all-cause readmissions within 30 days of a hospital discharge and uses the same 30-day risk window as the SNFRM.

**Numerator Statement:** This measure is designed to capture the outcome of unplanned all-cause hospital readmissions (IPPS or CAH) of SNF patients occurring within 30 days of discharge from the patient's prior proximal acute hospitalization.

The numerator is more specifically defined as the risk-adjusted estimate of the number of unplanned readmissions that occurred within 30 days from discharge from the prior proximal acute hospitalization. The numerator is mathematically related to the number of SNF stays where there was hospitalization readmission, but the measure

does not have a simple form for the numerator and denominator—that is, the risk adjustment method used does not make the observed number of readmissions the numerator and a predicted number the denominator. The numerator, as defined, includes risk adjustment for patient characteristics and a statistical estimate of the facility effect beyond patient mix.

Hospital readmissions that occur after discharge from the SNF stay but within 30 days of the proximal hospitalization are also included in the numerator. Readmissions identified using the Planned Readmission algorithm (see Section S.6) are excluded from the numerator. This measure does not include observation stays as a readmission (see Section S.6).

**Denominator Statement:** The denominator is computed with the same model used for the numerator. It is the model developed using all non-excluded SNF stays in the national data. For a particular facility the model is applied to the patient population, but the facility effect term is 0. In effect, it is the number of SNF admissions within 1 day of a prior proximal hospital discharge during a target year, taking denominator exclusions into account. Prior proximal hospitalizations are defined as admissions to an IPPS acute-care hospital, CAH, or psychiatric hospital.

**Exclusions:** The following are excluded from the denominator:

1. SNF stays where the patient had one or more intervening post-acute care (PAC) admissions (inpatient rehabilitation facility [IRF] or long-term care hospital [LTCH]) which occurred either between the prior proximal hospital discharge and SNF admission or after the SNF discharge, within the 30-day risk window. Also excluded are SNF admissions where the patient had multiple SNF admissions after the prior proximal hospitalization, within the 30-day risk window.

Rationale: For patients who have IRF or LTCH admissions prior to their first SNF admission, these patients are starting their SNF admission later in the 30-day risk window and receiving other additional types of services as compared to patients admitted directly to the SNF from the prior proximal hospitalization. They are clinically different and their risk for readmission is different than the rest of SNF admissions. Additionally, when patients have multiple PAC admissions, evaluating quality of care coordination is confounded and even controversial in terms of attributing responsibility for a readmission among multiple PAC providers. Similarly, assigning responsibility for a readmission for patients who have multiple SNF admissions subsequent to their prior proximal hospitalization is also controversial.

2. SNF stays with a gap of greater than 1 day between discharge from the prior proximal hospitalization and the SNF admission.

Rationale: These patients are starting their SNF admissions later in the 30-day risk window than patients admitted directly to the SNF from the prior proximal hospitalization. They are clinically different and their risk for readmission is different than the rest of SNF admissions.

3. SNF stays where the patient did not have at least 12 months of FFS Medicare enrollment prior to the proximal hospital discharge (measured as enrollment during the month of proximal hospital discharge and the for 11 months prior to that discharge).

Rationale: FFS Medicare claims are used to identify comorbidities during the 12-month period prior to the proximal hospital discharge for risk adjustment. Multiple studies have shown that using lookback scans of a year or more of claims data provide superior predictive power for outcomes including rehospitalization as compared to using data from a single hospitalization (e.g., Klabunde et al., 2000; Preen et al, 2006; Zhang et al., 1999).

4. SNF stays in which the patient did not have FFS Medicare enrollment for the entire risk period (measured as enrollment during the month of proximal hospital discharge and the month following the month of discharge).

Rationale: Readmissions occurring within the 30-day risk window when the patient does not have FFS Medicare coverage cannot be detected using claims.

5. SNF stays in which the principal diagnosis for the prior proximal hospitalization was for the medical treatment of cancer. Patients with cancer whose principal diagnosis from the prior proximal hospitalization was for other diagnoses or for surgical treatment of their cancer remain in the measure.

Rationale: These admissions have a very different mortality and readmission risk than the rest of the Medicare population, and outcomes for these admissions do not correlate well with outcomes for other admissions.

6. SNF stays where the patient was discharged from the SNF against medical advice.

Rationale: The SNF was not able to complete care as needed.

7. SNF stays in which the principal primary diagnosis for the prior proximal hospitalization was for

“rehabilitation care; fitting of prostheses and for the adjustment of devices”.

Rationale: Hospital admissions for these conditions are not for acute care.

**Adjustment/Stratification:**

**Level of Analysis:** Facility

**Setting of Care:** Post Acute/Long Term Care Facility : Nursing Home/Skilled Nursing Facility

**Type of Measure:** Outcome

**Data Source:** Administrative claims, Other

**Measure Steward:** Centers for Medicare and Medicaid Services

**STANDING COMMITTEE MEETING [05/05/2014-05/06/2014]**

**1. Importance to Measure and Report: The measure meets the Importance criteria**

(1a. Evidence, 1b. Performance Gap, 1c. High Impact)

1a. Evidence: **Y-23, O-N**; 1b. Performance Gap: **H-18; M-6; L-0; I-0**; 1c. Impact: **H-19; M-5; L-0; I-0**

**Rationale:**

- The Committee agreed that there is a performance gap with performance ranging from 11.9 percent to 41.9 percent in the number of readmissions from the SNF to acute hospital.
- Some Committee members were concerned that the evidence presented by the developers related to studies done about acute care transfers and not transfers from SNF.
- Ultimately, the Committee agreed that processes that improve transitions, communications, and overall SNF care would improve performance on this measure.

**2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria**

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

2a. Reliability: **H-5; M-18; L-1; I-0** 2b. Validity: **H-1; M-17; L-7; I-0**

**Rationale:**

- The Committee noted that the reliability testing results (interclass correlation coefficient – 0.56) was low, but within a generally acceptable range.
- In terms of validity, the Committee noted that the discrimination calibration with the C-statistics was 0.67. The group noted low correlation in the expected direction with the exception of pain management.
- Some Committee members raised concerns related to potential threats to validity. One member noted that the exclusion rate of approximately 20 percent appeared high.
  - The developer responded that the measure requires having 12 months of claims prior to the start of the hospitalization. With new enrollees to the Medicare program, and beneficiaries transitioning from Medicare fee for service into and out of Medicare Advantage, it is possible that they may not have a full 12 months of claims data. This lack of data would exclude them from the measured population.

**3. Feasibility: H-14; M-10; L-0; I-0**

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Susceptibility to inaccuracies/unintended consequences identified 3d. Data collection strategy can be implemented)

**Rationale:**

- The required data elements are routinely generated and used during care delivery and are in defined fields in electronic claims.



**4. Use and Usability: H-1; M-16; L-7; I-0**

*(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability and 4b. Quality Improvement)*

**Rationale:**

- The Committee expressed concern that using a shrinkage estimator limits the ability to understand performance for PAC/LTCs with low volume. For consumers, using the terms ‘no different than average’ for PAC/LTCs with low volumes of patients is not ideal.

**5. Related and Competing Measures**

- This measure directly competes with Measure:2510 Skilled Nursing Facility 30-Day All-Cause Readmission Measure (SNFRM)—the risk-standardized rate of all-cause, unplanned, hospital readmissions for patients (Medicare fee-for-service [FFS] beneficiaries) who have been admitted to a Skilled Nursing Facility (SNF) within 30 days of discharge from their prior proximal hospitalization. The prior proximal hospitalization is defined as an admission to an IPPS, CAH, or a psychiatric hospital. The measure is based on data for 12 months of SNF admissions.
- The principal difference between this measure, 2375 PointRight OnPoint-30 SNF Rehospitalizations [AHCA], and 2510 Skilled Nursing Facility 30-Day All-Cause Readmission Measure (SNFRM) is the data source. NQF #2510 uses administrative claims data, and thus limited to Medicare fee-for-service patients. NQF #2375 uses the minimum data set (MDS), and includes both planned/unplanned readmissions since the data source does not currently include reliable coding of this information.
- In anticipation of the NQF endorsement process, CMS and AHCA collaborated to discuss the suitability of their respective SNF-based readmission measures for harmonization and agreed that the measure differences justify having 2 measures.
- The Committee agreed with this sentiment and voted to recommend both 2375 PointRight OnPoint-30 SNF Rehospitalizations [AHCA], and 2510 Skilled Nursing Facility 30-Day All-Cause Readmission Measure (SNFRM) for endorsement.

**Standing Committee Recommendation for Endorsement: Y-19; N-5**

**6. Public and Member Comment**

**7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X**

**8. Board of Directors Vote: Y-X; N-X**

**9. Appeals****2513 Hospital 30-Day All-Cause Risk-Standardized Readmission Rate (RSRR) following Vascular Procedures**

[Submission](#) | [Specifications](#)

**Description:** This measure estimates hospital risk-standardized 30-day unplanned readmission rates following hospital stays with one or more qualifying vascular procedure in patients who are 65 years of age or older and either admitted to the hospital (inpatients) for their vascular procedure(s) or receive their procedure(s) at a hospital but are not admitted as an inpatient (outpatients). Both scenarios are hereafter referred to as "hospital stays."

**Numerator Statement:** The outcome for this measure is 30-day all-cause unplanned readmission following a qualifying index hospital stay (see S.7-S.11 for more details). We define a readmission as a subsequent hospital inpatient admission within 30 days of either the discharge date (for inpatients) or claim end date (for outpatients –

hereafter referred to as "discharge date") following a qualifying hospital stay. We do not count as readmissions any subsequent outpatient procedures or any subsequent admissions which are identified as "staged" or planned. If a patient has more than one unplanned readmission within 30 days of discharge from the index hospital stay, only the first one is counted as a readmission. The measure looks for a dichotomous yes or no outcome of whether each index hospital stay has an unplanned readmission within 30 days. (See S.6, Numerator Details, for more information.)

**Denominator Statement:** The target population for this measure includes inpatient and outpatient hospital stays for patients at least 65 years of age who receive one or more qualifying vascular procedure.

**Exclusions:** Hospital stays are excluded from the cohort if they met any of the following criteria:

1) Lack of follow-up in Medicare FFS for at least 30 days post-discharge. Hospital stays for patients without at least 30 days of enrollment in Medicare FFS after discharge from the index stay are excluded.

Rationale: We exclude these hospital stays because the 30-day readmission outcome cannot be assessed in this group.

2) Hospital stays for patients who leave hospital against medical advice (AMA). Hospital stays for patients who are discharged AMA are excluded.

Rationale: We exclude hospital stays for patients who are discharged AMA because providers in these circumstances do not have the opportunity to deliver full care and prepare the patient for discharge.

3) Hospital stays with a qualifying vascular procedure that occur within 30 days of a previous hospital stay with a qualifying vascular procedure. Subsequent hospital stays with a qualifying vascular procedure within 30 days of discharge from an index hospital stay will not be counted as another index hospital stay.

Rationale: Qualifying vascular procedures occurring within 30 days of discharge from an index hospital stay fall within the 30-day readmission assessment period during which no new hospital stay can be counted as an index hospital stay. They are considered readmissions. Any vascular hospital stay is either an index stay or a potential readmission, but not both.

**Adjustment/Stratification:**

**Level of Analysis:** Facility

**Setting of Care:** Hospital/Acute Care Facility

**Type of Measure:** Outcome

**Data Source:** Administrative claims

**Measure Steward:** Centers for Medicare & Medicaid Services (CMS)

#### **STANDING COMMITTEE MEETING [05/05/2014-05/06/2014]**

##### **1. Importance to Measure and Report: The measure meets the Importance criteria**

(1a. Evidence, 1b. Performance Gap, 1c. High Impact)

1a. Evidence: **Y-20; N-1**; 1b. Performance Gap: **H-4; M-17; L-0; I-0**; 1c. Impact: **H-16; M-5; L-0; I-0**

##### **Rationale:**

- The Committee noted that vascular surgery and readmissions was identified as one of the seven conditions which account for nearly 30 percent of potentially preventable readmissions within 15 days following discharge and that these conditions were responsible for \$182 million in spending on readmissions.
- The Committee agreed there was a performance gap on this measure, noting that the interquartile range was between 12.9 and 14.3 percent.
- The Committee agreed that multiple factors impact readmission rates as illustrated in the measure information form (i.e., improved discharge planning, reconciling patient medications, and improving communications with outpatient providers can reduce readmission rates) which supports the process-outcome linkage.

## **2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria**

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

2a. Reliability: **H-2; M-19; L-0; I-0** 2b. Validity: **H-0; M-20; L-0; I-1**

### Rationale:

- The Committee noted that the measure uses Hierarchical Linear Modeling which accounts for patient characteristics and well as facility level characteristics. The model also includes 8 procedure categories which we based on both anatomical location at neck, thoracic, abdominal and limb as well as an “unspecified” category. The developers also included both endovascular procedures and conventional open procedures.
- The Committee noted, that the interclass correlation coefficient (ICC) provided by the developer (0.40, interpreted as moderate agreement) was comparable to other outcome measures of quality.
- The Committee agreed the systematic face validity testing provided by the developer demonstrated the TEP agreed with overall validity of the measure as specified, concluding the measure could be used to distinguish quality.
- The Committee agreed that the model indicated good discrimination (C-statistic was 0.67) indicating the ability to distinguish high-risk patients from low-risk patients.

## **3. Feasibility: H-17; M-4; L-0; I-0**

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Susceptibility to inaccuracies/unintended consequences identified 3d. Data collection strategy can be implemented)

### Rationale:

- All data elements are in defined fields in electronic claims and that these data are routinely collected as part of the billing process.

## **4. Use and Usability: H-1; M-11; L-4; I-4**

(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability and 4b. Quality Improvement)

### Rationale:

- The Committee expressed some uncertainty around implementation of the measure. The developers noted that CMS is considering use of this measure in public reporting in the Inpatient Quality Reporting Program or Outpatient Quality Reporting Program.
- The Committee recognized that providing a breakdown of the anatomical procedures, instead of an overall vascular readmission rate would be helpful for quality improvement. The developers agreed and noted that in future iterations of the measures that could be a possibility.
- The Committee noted that timeliness of feedback provided by CMS was important for quality improvement. CMS commented that they are working on providing raw data (instead of waiting for risk-adjusted score) to the hospitals on a quarterly basis to hospitals.
- The Committee expressed concerns regarding the use of this measure for outpatient quality reporting. They questioned whether there is a difference in risk associated with performing an outpatient vs. inpatient procedure and noted that care setting was not included in the risk adjustment model. The developer noted that in order for the measure to be clinically coherent, inpatient and outpatient vascular procedures were included in this measure and that care setting would not be an appropriate risk factor to adjust for, as the procedure most often define the risk, not the setting. The developer further noted that

there is no additional risk undertaken during an outpatient procedure.
<b>5. Related and Competing Measures</b>
<ul style="list-style-type: none"> <li>No related or competing measures noted.</li> </ul>
<b>Standing Committee Recommendation for Endorsement: Y-14; N-6</b>
<b>6. Public and Member Comment</b>
<b>7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X</b>
<b>8. Board of Directors Vote: Y-X; N-X</b>
<b>9. Appeals</b>

<b>2514 Risk-Adjusted Coronary Artery Bypass Graft (CABG) Readmission Rate</b>
<a href="#">Submission</a>   <a href="#">Specifications</a>
<p><b>Description:</b> Risk-adjusted percentage of Medicare fee-for-service beneficiaries aged 65 and older who undergo isolated coronary artery bypass grafting (CABG) and are discharged alive but have a subsequent acute care hospital inpatient admission within 30 days of the date of discharge from the CABG hospitalization.</p> <p><b>Numerator Statement:</b> Number of Medicare fee-for-service beneficiaries aged 65 and older who undergo isolated coronary artery bypass grafting (CABG) and are discharged alive but have a subsequent acute care hospital inpatient admission within 30 days of the date of discharge from the CABG hospitalization.</p> <p><b>Denominator Statement:</b> Number of Medicare fee-for-service beneficiaries aged 65 and older who undergo isolated coronary artery bypass grafting (CABG) during the designated 3-year measurement period and are discharged alive.</p> <p><b>Exclusions:</b> Exclusion – Rationale</p> <ul style="list-style-type: none"> <li>The patient is age &lt;65 years on date of discharge according to CMS or STS data – Patients younger than 65 in the Medicare dataset represent a distinct population that qualifies for Medicare due to disability. The characteristics and outcomes of these patients may be less representative of the larger population of CABG patients.</li> <li>There is a CMS record but no matching STS record – STS data elements are required for identifying the cohort and for risk adjustment.</li> <li>There is an STS record but not matching CMS record – Medicare data are required for ascertaining 30-day readmission status, especially readmissions to a hospital other than the CABG hospital</li> <li>CABG is not a stand-alone procedure – Inclusion of combination procedures complicates risk adjustment by adding multiple relatively rare cohorts with potentially distinct characteristics and outcomes.</li> <li>The patient died prior to discharge from acute care setting – Patient is not at risk of subsequent readmission.</li> <li>The patient leaves against medical advice (AMA). – Physicians and hospitals do not have the opportunity to deliver the highest quality care.</li> <li>The patient does not retain Medicare fee-for-service (FFS) A and B for at least two months after discharge – Beneficiaries who switch to a Medicare advantage plan are unlikely to file inpatient claims which are required for ascertaining 30-day readmission status.</li> <li>The index CABG episode is &gt;365 days. – These patients were excluded for consistency with previous CMS readmission measures. These records may inaccurate admission and discharge dates. If not, including them would complicate risk adjustment by adding a relatively rare cohort with potentially distinct characteristics and outcomes.</li> <li>Not the first eligible CABG admission per patient per measurement period. – Simplifies statistical analysis. Also, repeat CABG procedures are very rare and so loss of information is minimal.</li> </ul> <p><b>Adjustment/Stratification:</b></p>

**Level of Analysis:** Facility

**Setting of Care:** Hospital/Acute Care Facility

**Type of Measure:** Outcome

**Data Source:** Administrative claims, Electronic Clinical Data : Registry

**Measure Steward:** The Society of Thoracic Surgeons

**STANDING COMMITTEE MEETING [05/05/2014-05/06/2014]**

**1. Importance to Measure and Report: The measure meets the Importance criteria**

(1a. Evidence, 1b. Performance Gap, 1c. High Impact)

1a. Evidence: **Y-22; N-0**; 1b. Performance Gap: **H-6; M-16; L-0; I-0**; 1c. Impact: **H-5; M-17; L-0; I-0**

**Rationale:**

- The Committee agreed that the rationale supporting the relationship that care processes for CABG can influence readmissions.
- Committee members noted a range in performance gap due to several determinants of health, showing that there is opportunity for improvement. The Committee agreed that this measure was important to measure and report noting that it is a procedure that incurs significant cost to Medicare program, and is a high volume procedure.

**2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria**

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

2a. Reliability: **H-8; M-14; L-0; I-0** 2b. Validity: **H-4; M-17; L-1; I-0**

**Rationale:**

- Committee members assessed that reliability was moderate noting that the signal to noise ratio for the measure is 0.47, which is within a generally acceptable range. The developers noted that as case volume increases— the reliability of the measure increases.
- One Committee member questioned developers on the specifications of the measure, which include patients who have a VAD (Ventricular Assist Device) implant during a CABG procedure. . The developer’s rationale for inclusion of VAD implantations was that these implantations are often unplanned during CABG and as such can impact the quality of the CABG procedure and subsequent perioperative care. The Committee agreed with this rationale, but noted that with high risk Heart Failure patients there is a very high likelihood that they will need a VAD placement, following CABG surgery.
- The Committee noted that patients who undergo a VAD procedure tend to have higher readmissions than those undergoing isolated CABG. Consequently, by including CABG plus VAD in this particular patient population, there is a high risk of penalizing tertiary and quaternary care centers that treat patients with advance heart failure.
- The developer noted that the STS database has been modified so that ventricular assist devices are now tracked as to whether it was a planned or unplanned insertion. The developer plans to update the measure once this data becomes available.
- Since the measure uses two different data sources, Committee Members questioned how many beneficiaries overlap across the two datasets, Medicare fee-for-service (FFS) and the STS clinical data registry. According to the developer, from the Medicare fee-for-service data to the STS data, there is high fidelity (in the high nineties) across the two data sources, however from the STS data to the Medicare fee-for-service data this number drops to 85 percent.

- The developer noted one reason there is not a direct 1:1 match is because not all patients in the STS dataset are Medicare fee-for-service beneficiaries (i.e., that claims information for Medicare Advantage patients does not exist)

### **3. Feasibility: H-11; M-11; L-0; I-0**

*(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Susceptibility to inaccuracies/unintended consequences identified 3d. Data collection strategy can be implemented)*

#### Rationale:

- The Committee assessed the feasibility to be quite reasonable and noted the minor issue with linking patients across the Medicare data and STS data. Committee members expressed a desire for direct linkages using Social Security Numbers to improve accuracy.
- One Committee member questioned the proprietary nature and potential fees of the STS database that could cause barriers for use by other organizations, specifically for the public or consumer organizations. The developers expressed that the Society of Thoracic Surgeons is an advocate of public reporting and described two ways to get the information: from the STS website ([www.sts.org](http://www.sts.org)) or Consumer Reports.

### **4. Use and Usability: H-13; M-9; L-0; I-0**

*(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability and 4b. Quality Improvement)*

#### Rationale:

- The Committee described the usability and use to be high, noting the potential for an elective procedure to not be performed. However, they did acknowledge that since STS has been reporting data for some time, it should not have any significant incremental impact on selecting cases based on a risk of readmissions.
- The Committee noted, this measure was developed under contract with CMS, and may be used for public reporting in conjunction with Measure 2512: Hospital 30-day, all-cause, unplanned, risk-standardized readmission rate (RSRR) following coronary artery bypass graft (CABG) surgery.

### **5. Related and Competing Measures**

- This measure directly competes with Measure 2515: Hospital 30-day, all-cause, unplanned, risk-standardized readmission rate (RSRR) following coronary artery bypass graft (CABG) surgery.
- The measure specifications for Measure 2514 and Measure 2515 were harmonized along several measure dimensions, including measure cohort, assessment of isolated CABG, and inclusion of VAD procedures.
- These two measures were funded by CMS to develop complementary measures that utilize a range of available data for quality measurements. The principal difference between these two measures is the data source. Measure 2514 uses registry data to calculate the measure cohort and the risk model and then uses administrative data to calculate the outcome of readmissions, while Measure 2515 uses administrative claims data for both the risk model and the readmissions outcome.
- Additionally, the developers note that while the risk adjustment differs for each data source, identical statistical approaches are used, both models use hierarchical logistic regression and produce similar c-statistics (correlation coefficients >0.91, depending upon statistic used).
- The developers of this measure agreed that the measure differences justify having 2 measures. They note, that having two fully harmonized measures will capture widest possible group of patients. Further,

<p>the use of both measures represents a natural progression to develop electronic measures using clinical-based data. Both developers further agreed that incorporating clinical data in quality measures, whenever appropriate and feasible, strengthens the face validity of a measure.</p> <ul style="list-style-type: none"> <li>The Committee agreed with this assessment and voted to recommend both measures 2514: Risk-Adjusted Coronary Artery Bypass Graft (CABG) Readmission Rate (STS) and 2515: Hospital 30-day, all-cause, unplanned, risk-standardized readmission rate (RSRR) following coronary artery bypass graft (CABG) surgery (CMS) for endorsement.</li> </ul>
<b>Standing Committee Recommendation for Endorsement: Y-22; N-0</b>
<b>6. Public and Member Comment</b>
<b>7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X</b>
<b>8. Board of Directors Vote: Y-X; N-X</b>
<b>9. Appeals</b>

<b>2515 Hospital 30-day, all-cause, unplanned, risk-standardized readmission rate (RSRR) following coronary artery bypass graft (CABG) surgery</b>
<a href="#">Submission</a>   <a href="#">Specifications</a>
<p><b>Description:</b> The measure estimates a hospital-level risk-standardized readmission rate (RSRR), defined as unplanned readmission for any cause within 30 days from the date of discharge of the index CABG procedure, for patients 18 years and older discharged from the hospital after undergoing a qualifying isolated CABG procedure. The measure was developed using Medicare Fee-for-Service (FFS) patients 65 years and older and was tested in all-payer patients 18 years and older.</p> <p>An index admission is the hospitalization for a qualifying isolated CABG procedure considered for the readmission outcome.</p> <p><b>Numerator Statement:</b> The outcome for this measure is 30-day all-cause readmission. We define all-cause readmission as an unplanned inpatient admission for any cause within 30 days after the date of discharge from the index admission for patients 18 years and older discharged from the hospital after undergoing isolated CABG surgery. If a patient has one or more unplanned admissions (for any reason) within 30 days after discharge from the index admission, only one is counted as a readmission.</p> <p><b>Denominator Statement:</b> This claims-based measure can be used in either of two patient cohorts: (1) patients aged 65 years or older or (2) patients aged 18 years or older. We have tested the measure in both age groups. The cohort includes admissions for patients who receive a qualifying isolated CABG procedure (see codes below) and with a complete claims history for the 12 months prior to admission. For simplicity of implementation and as testing demonstrated closely correlated patient-level and hospital-level results using models with or without age interaction terms, the only recommended modification to the measure for application to all-payer data sets is replacement of the “Age-65” variable with a fully continuous age variable.</p> <p><b>Exclusions:</b> In order to create a clinically coherent population for risk adjustment and in accordance with existing NQF-approved CABG measures and clinical expert opinion, the measure is intended to capture isolated CABG patients (i.e., patients undergoing CABG procedures without concomitant valve or other major cardiac or vascular procedures).</p> <p>For all cohorts, hospitalizations are excluded if they meet any of the following criteria. Hospitalizations for:</p> <ol style="list-style-type: none"> <li>1) Patients who leave the hospital against medical advice (AMA)</li> </ol> <p>Rationale: We exclude hospitalizations for patients who are discharged AMA because providers did not have the opportunity to deliver full care and prepare the patient for discharge.</p> <ol style="list-style-type: none"> <li>2) Patients with qualifying CABG procedures subsequent to another qualifying CABG procedure during the measurement period.</li> </ol>



Rationale: CABG procedures are expected to last for several years without the need for revision or repeat revascularization. A repeat CABG procedure during the measurement period very likely represents a complication of the original CABG procedure and is a clinically more complex and higher risk surgery. We, therefore, select the first CABG admission for inclusion in the measure and exclude subsequent CABG admissions from the cohort.

For Medicare FFS patients, the measure additionally excludes:

3) Patients without at least 30 days post-discharge enrollment in FFS Medicare.

Rationale: We exclude these hospitalizations because the 30-day readmission outcome cannot be assessed in this group.

**Adjustment/Stratification:**

**Level of Analysis:** Facility

**Setting of Care:** Hospital/Acute Care Facility

**Type of Measure:** Outcome

**Data Source:** Administrative claims

**Measure Steward:** Centers for Medicare & Medicaid Services (CMS)

#### **STANDING COMMITTEE MEETING [05/05/2014-05/06/2014]**

##### **1. Importance to Measure and Report: The measure meets the Importance criteria**

(1a. Evidence, 1b. Performance Gap, 1c. High Impact)

1a. Evidence: **Y-22; N-0; 1b. Performance Gap: H-9; M-13; L-0; I-0; 1c. Impact: H-18; M-4; L-0; I-0**

Rationale:

- The Committee observed the similarities between this measure and Measure 2514, both of which focus on readmissions following CABG. The Committee agreed with the rationale provided by the developer which stated that care processes within hospitals impact the rate of readmissions within 30 days following discharge. The Committee members noted that there is a range of readmissions rates between 12 and 21.1 percent, with a mean performance of 16.8 percent. This range represents a performance gap and opportunity for improvement.
- The Committee considered this measure to be high priority due to the large costs associated with CABG surgery, which could potentially be prevented. Data submitted by the developer cites the annual preventable CABG readmission costs to Medicare as \$151 million.

##### **2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria**

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

2a. Reliability: **H-1; M-21; L-0; I-0** 2b. Validity: **H-2; M-20; L-0; I-0**

Rationale:

- The evidence base for the measure included a test/retest split sample to assess the reliability of the measure. The developers noted an interclass correlation coefficient of 0.331, which is considered to be fair. During evaluation of the measure's validity, the Committee noted that the measures c-statistic was 0.63, which is similar to other outcome measures and measure 2514.
- One Committee member raised the question that since this is administrative data, the VAD patients could only be included or excluded, but not put into subsets of elective and non-elective, unlike measure 2514.
- Several Committee members questioned whether outpatient death prior to readmission is excluded and asked if additional analysis could be provided to determine how common death within 30 days is. The developer replied that those who die within 30 days in the hospital are excluded from this measure. However, there are small proportions that die after discharge from the hospital, which allows it to

capture a spectrum of quality outcomes and prevents any unintended consequences.

**3. Feasibility: H-20; M-2; L-0; I-0**

*(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Susceptibility to inaccuracies/unintended consequences identified 3d. Data collection strategy can be implemented)*

Rationale:

- Committee members noted the measure is based on claims data and is highly feasible. They noted that the measure uses Medicare Part A inpatient and outpatient and part B outpatient claims and the data elements are readily available.

**4. Use and Usability: H-3; M-18; L-1; I-0**

*(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability and 4b. Quality Improvement)*

Rationale:

- One Committee member raised concern on whether this measure would be able to sufficiently distinguish between high and low performance. Methods used to report this measure should ensure that differences are statistically different from one another.
- Committee members evaluated this measure to be comprehensive enough to use for public reporting, and noted that CMS is considering use of this measure in public reporting.

**5. Related and Competing Measures**

- This measure directly competes with Measure 2515: Hospital 30-day, all-cause, unplanned, risk-standardized readmission rate (RSRR) following coronary artery bypass graft (CABG) surgery.
- The measure specifications for Measure 2514 and Measure 2515 were harmonized along several measure dimensions, including measure cohort, assessment of isolated CABG, and inclusion of VAD procedures.
- These two measures were funded by CMS to develop complementary measures that utilize a range of available data for quality measurements. The principal difference between these two measures is the data source. Measure 2514 uses registry data to calculate the measure cohort and the risk model and then uses administrative data to calculate the outcome of readmissions, while Measure 2515 uses administrative claims data for both the risk model and the readmissions outcome.
- Additionally, the developers note that while the risk adjustment differs for each data source, identical statistical approaches are used, both models use hierarchical logistic regression and produce similar c-statistics (correlation coefficients >0.91, depending upon statistic used).
- The developers of this measure agreed that the measure differences justify having 2 measures. They note, that having two fully harmonized measures will capture widest possible group of patients. Further, the use of both measures represents a natural progression to develop electronic measures using clinical-based data. Both developers further agreed that incorporating clinical data in quality measures, whenever appropriate and feasible, strengthens the face validity of a measure.
- The Committee agreed with this assessment and voted to recommend both Measures 2514: Risk-Adjusted Coronary Artery Bypass Graft (CABG) Readmission Rate (STS) and Measure 2515: Hospital 30-day, all-cause, unplanned, risk-standardized readmission rate (RSRR) following coronary artery bypass graft (CABG) surgery (CMS) for endorsement.

**Standing Committee Recommendation for Endorsement: Y-21; N-1**

<b>6. Public and Member Comment</b>
<b>7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X</b>
<b>8. Board of Directors Vote: Y-X; N-X</b>
<b>9. Appeals</b>

<b>2539 Facility 7-Day Risk-Standardized Hospital Visit Rate after Outpatient Colonoscopy</b>
<a href="#">Submission</a>   <a href="#">Specifications</a>
<p><b>Description:</b> Rate of risk-standardized, all-cause, unplanned hospital visits within 7 days of an outpatient colonoscopy among Medicare fee-for-service (FFS) patients aged 65 years and older.</p> <p><b>Numerator Statement:</b> The outcome for this measure is all-cause, unplanned hospital visits within 7 days of an outpatient colonoscopy. We define a hospital visit as any emergency department (ED) visit, observation stay, or unplanned inpatient admission.</p> <p><b>Denominator Statement:</b> Colonoscopies performed at hospital outpatient departments (HOPDs) and ambulatory surgical centers (ASCs) for Medicare FFS patients aged 65 years and older.</p> <p><b>Exclusions:</b> We established the following exclusion criteria after reviewing the literature, examining existing measures, and discussing alternatives with the working group and technical expert panel (TEP) members. The goal was to be as inclusive as possible; we excluded only those high-risk procedures and patient groups for which risk adjustment would not be adequate or for which hospital visits were not typically a quality signal. The exclusions, based on clinical rationales, prevent unfair distortion of performance results.</p> <p>1) Colonoscopies for patients who lack continuous enrollment in Medicare FFS Parts A and B in the 1 month after the procedure. Rationale: We exclude these patients to ensure full data availability for outcome assessment.</p> <p>2) Colonoscopies that occur concurrently with high-risk upper gastrointestinal (GI) endoscopy procedures. Rationale: Patients undergoing concurrent high-risk upper GI endoscopy procedures, such as upper GI endoscopy procedures for the control of bleeding or treatment of esophageal varices, are often unwell and have a higher risk profile than typical colonoscopy patients. Therefore these patients have a disproportionately higher risk for the outcome.</p> <p>3) Colonoscopies for patients with a history of inflammatory bowel disease (IBD). Rationale: We exclude these patients because:  <ul style="list-style-type: none"> <li>-IBD is a chronic condition; patients with IBD undergo colonoscopy for both surveillance due to increased cancer risk and for evaluation of acute symptoms. IBD is likely to be coded as the primary diagnosis prompting the procedure irrespective of whether the patients are undergoing a screening procedure or a diagnostic procedure in the setting of an acute exacerbation of IBD. Therefore, we may not be able to adequately risk adjust for these patients as we cannot identify relatively well versus acutely unwell patients among visits coded as IBD.</li> <li>-Our aim is to capture hospital visits which reflect the quality of care. Admissions for acutely ill IBD patients who are evaluated with an outpatient colonoscopy and are subsequently admitted for medical treatment of an IBD flare do not reflect the quality of the colonoscopy. In our 2010 Medicare 20% FFS Full Development Sample (see Measure Testing Form Section 1.2 and 1.7 for full description of the dataset), more than one third of IBD patients admitted to the hospital with colonoscopy had a discharge diagnosis of IBD, indicating their admission was for medical treatment of their IBD. We therefore excluded this group so that providers who treat a disproportionate number of IBD patients will not be disadvantaged in the measure.</li> </ul> </p> <p>4) Colonoscopies for patients with a history of diverticulitis. Rationale: We exclude these patients because:  <ul style="list-style-type: none"> <li>-It is unclear what the health status is of patients coded with a history of diverticulitis, making it difficult to fully risk adjust for patients' health. Colonoscopies performed on patients with a history of diverticulitis are likely to be coded as diverticulitis as the primary diagnosis irrespective of whether the patients are undergoing a screening procedure or a diagnostic procedure (i.e., are acutely unwell with active disease). Furthermore, the codes for diverticulitis and diverticulosis may not be consistently used; patients with diverticulosis may be</li> </ul> </p>

erroneously coded as diverticulitis. Therefore, we may not be able to adequately risk adjust as we cannot identify relatively well versus acutely unwell patients among visits coded as diverticulitis.

-Admissions for acutely ill patients with a history of diverticulitis who are evaluated with an outpatient colonoscopy and are subsequently admitted for medical treatment of do not reflect the quality of the colonoscopy. In our 2010 Medicare 20% FFS Full Development Sample (see Measure Testing Form Section 1.2 and 1.7 for full description of the dataset) more than one quarter of patients with a history of diverticulitis admitted to the hospital post colonoscopy had a discharge diagnosis of diverticulitis, indicating they were admitted for medical treatment of the condition. These admissions are likely unrelated to the quality of the colonoscopy. We therefore excluded this group so that providers who treat a disproportionate number of diverticulitis patients will not be disadvantaged in the measure.

**Adjustment/Stratification:**

**Level of Analysis:** Facility

**Setting of Care:** Ambulatory Care : Ambulatory Surgery Center (ASC), Ambulatory Care : Clinician Office/Clinic, Other

**Type of Measure:** Outcome

**Data Source:** Administrative claims

**Measure Steward:** The Centers for Medicare & Medicaid Services (CMS)

**STANDING COMMITTEE MEETING [05/05/2014-05/06/2014]**

**1. Importance to Measure and Report: The measure meets the Importance criteria**

(1a. Evidence, 1b. Performance Gap, 1c. High Impact)

1a. Evidence: **Y-14; N-4**; 1b. Performance Gap: **H-7; M-11; L-0; I-0**; 1c. Impact: **H-12; M-6; L-0; I-0**

**Rationale:**

- The Committee noted that colonoscopy is the most common procedure performed in the outpatient or ASC setting.
- The Committee noted that there is significant variation from 8.3 to 20.1 per 1,000 beneficiaries and agreed there is opportunity for improvement.
- The Committee agreed with the evidence in support of the rationale. They noted that most patients return to the hospital with potentially preventable complications (e.g., abdominal pain, bleeding, perforation, aspiration because of the anesthesia).
  - The developer further stressed there is evidence suggesting that providers in the outpatient setting are unaware of these events, citing a study which suggested that in about 80 percent of readmissions the provider is unaware of any complication. The developer suggested that there are legal limitations around follow-up care by ambulatory surgical centers.

**2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria**

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

2a. Reliability: **H-1; M-17; L-0; I-0** 2b. Validity: **H-0; M-18; L-0; I-0**

**Rationale:**

- The Committee noted, that the interclass correlation coefficient (ICC) provided by the developer (0.335, interpreted as fair agreement) was comparable to other outcome measures of quality. The developer noted, that the split sample which was used to conduct reliability testing contained 2-years of data, rather than 3-years (as the measure is specified), as such when extrapolating the data to 3-years the ICC increased to 0.43, interpreted as moderate agreement.
- The Committee agreed the systematic face validity testing provided by the developer demonstrated the

TEP agreed with overall validity of the measure as specified, concluding the measure could be used to distinguish quality.

- The Committee noted that the model has good discrimination, with a C-statistic of 0.67, when the development sample was compared to the validation sample.
- The Committee questioned why polypectomy was included in the risk adjustment model. The developers explained that polypectomy was included in the model because while polypectomy is a risk factor for GI bleeding, removal is discretionary the developers did not want to penalize providers who excised polyps during colonoscopy.
  - Committee members warned that was possible then that the polypectomy could cause the readmission and that the model might adjust that away. The Committee further recommended that this measure should be compared to another measure of polypectomy rates or adenoma detection rates.
- The Committee questioned the 7-day time window and asked the developer to provide insight as to why they chose that time period. The developer explained that while there is a range of side effects that could occur after a colonoscopy, the literature suggests that a majority of complications or adverse events occur within 7 days. The developers empirically tested this looking at the number of hospital visit per each day post procedure, and noticed the number of visits levels off to after about 7 days.
- The Committee questioned whether there was any other measure in use that would be able to externally validate this quality measure (i.e., looking at volume or detection of abnormalities). The developer noted that finding other measures to validate against was difficult as there are not many outcome measures for ASC.
- Some Committee Members noted similar issues with Measure 2496: Standardized Readmission Ratio (SRR) for dialysis facilities, where the skill of the provider is not easily distinguished from the facility, while other Committee members noted the measure was well specified and precise in determining a linkage between the physician doing the colonoscopy, the procedure, and the outcome.
  - The developer explained that the reason the measure is specified at the facility level is because the measure is dependent on the number of cases in order to get a reliable estimate, but also that there is a component of facility care that the developers think contributes to the outcome such as anesthesia care, post-op care, and discharge.

### **3. Feasibility: H-14; M-4; L-0; I-0**

*(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Susceptibility to inaccuracies/unintended consequences identified 3d. Data collection strategy can be implemented)*

#### Rationale:

- All data elements are in defined fields in electronic claims and that these data are routinely collected as part of the billing process.

### **4. Use and Usability: H-1; M-16; L-1; I-0**

*(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability and 4b. Quality Improvement)*

#### Rationale:

- The Committee noted that the measure developers acknowledge that there are many situations where a component of primary care or first contact care can happen someplace besides a primary care clinician's

<p>practice, such as an ED, and cautioned against potential unintended consequences of using this measure as a metric for ED visits.</p> <ul style="list-style-type: none"> <li>• The Committee warned against potential misattribution of risk if the ASC is one where a single provider in a small group is driving poor outcomes; there is a potential for the ASC to become an outlier.</li> <li>• The developers noted that CMS is considering use of this measure in public reporting in the Hospital Outpatient Quality Reporting Program and/or Ambulatory Surgery Center Quality Reporting Program. During workgroup discussion of this measure the Committee cautioned that overlap of this measure within two programs could cause “double jeopardy.”</li> </ul>
<b>5. Related and Competing Measures</b> <ul style="list-style-type: none"> <li>• No related or competing measures noted.</li> </ul>
<b>Standing Committee Recommendation for Endorsement: Y-17; N-1</b>
<b>6. Public and Member Comment</b>
<b>7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X</b>
<b>8. Board of Directors Vote: Y-X; N-X</b>
<b>9. Appeals</b>

## Measures Where Consensus Is Not Yet Reached

### 0327 Risk-Adjusted Average Length of Inpatient Hospital Stay

[Submission](#) | [Specifications](#)

**Description:** The average (geometric mean) hospital length of stay in days relative to the expected geometric mean length of stay of any well defined population of inpatients over a specified time interval

**Numerator Statement:** Risk-adjusted in-hospital days average for any defined and observable inpatient population in the form of days above the average that would be expected purely based on patient risk factors of the defined patient population

**Denominator Statement:** Patients admitted to a hospital. Patient population can be aggregated as any grouping of patients (e.g., by hospital, physician, diagnosis code, procedure, DRG, etc.)

**Exclusions:** The only exclusions are those limited by the parameters set for a specific population and are not limited by diagnosis

**Adjustment/Stratification:**

**Level of Analysis:** Facility

**Setting of Care:** Hospital/Acute Care Facility, Behavioral Health/Psychiatric : Inpatient, Post Acute/Long Term Care Facility : Inpatient Rehabilitation Facility, Post Acute/Long Term Care Facility : Long Term Acute Care Hospital, Post Acute/Long Term Care Facility : Nursing Home/Skilled Nursing Facility

**Type of Measure:** Outcome

**Data Source:** Administrative claims

**Measure Steward:** Premier, Inc

#### STANDING COMMITTEE MEETING [05/05/2014-05/06/2014]

##### 1. Importance to Measure and Report: The measure meets the Importance criteria

(1a. Evidence, 1b. Performance Gap, 1c. High Impact)

1a. Evidence: **Y-23; N-1**; 1b. Performance Gap: **H-10; M-11; L-3; I-0**; 1c. Impact: **H-12; M-10; L-1; I-0**

Rationale:

- The Committee noted a performance gap and large variations across hospitals.
- The Committee agreed that length of stay represents a high priority area, as defined by the evaluation criteria.

##### 2. Scientific Acceptability of Measure Properties: The measure failed to reach consensus on the Scientific Acceptability criteria

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

2a. Reliability: **H-1; M-11; L-6; I-6** 2b. Validity: **H-3; M-16; L-4; I-1**

Rationale:

- Some members expressed concern that there was limited testing information provided by the developer, including limited R squared values and c-statistics. The Committee noted a gap in data and references to correlate the reliability statistic provided by the developer. This limited information made the assessment of validity and reliability testing challenging for the Committee.
- The Committee noted that the risk adjustment model includes factors related to socioeconomic status. They expressed concern that this is not consistent with current NQF guidance. It was noted that the guidance in question was updated after this measure's initial endorsement in May 2008. Some agreed that adjustment for sociodemographic factors was conceptually appropriate for this measure and that there could be an adequate rationale for departing from NQF's guidance in this instance.



<ul style="list-style-type: none"> <li>Committee members noted that longer hospital stays might be indicated, and that no data was provided to support the cut off of 100 days. The developer explained that hospital stays of more than 100 days represents less than 0.5 percent of the population.</li> </ul>
<p><b>3. Feasibility: H-22; M-2; L-0; I-0</b>  <i>(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Susceptibility to inaccuracies/unintended consequences identified 3d. Data collection strategy can be implemented)</i>  <b>Rationale:</b></p> <ul style="list-style-type: none"> <li>Committee members agreed that the measure is feasible, given its use of administrative claims data that is routinely collected as a part of care delivery.</li> </ul>
<p><b>4. Use and Usability: H-1; M-14; L-6; I-2</b>  <i>(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability and 4b. Quality Improvement)</i>  <b>Rationale:</b></p> <ul style="list-style-type: none"> <li>To-date, this measure has been used primarily for quality improvement purposes, and it is not currently used in public reporting. The developer noted that CMS and Premier have had discussions about how the measure may be publicly reported; however, there are currently no definite plans to do so.</li> </ul>
<p><b>5. Related and Competing Measures</b></p> <ul style="list-style-type: none"> <li>No related or competing measures noted.</li> </ul>
<p><b>Standing Committee Recommendation for Endorsement: Y-13; N-10</b></p>
<p><b>6. Public and Member Comment</b></p>
<p><b>7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X</b></p>
<p><b>8. Board of Directors Vote: Y-X; N-X</b></p>
<p><b>9. Appeals</b></p>

<p><b>2496 Standardized Readmission Ratio (SRR) for dialysis facilities</b></p>
<p><a href="#">Submission</a>   <a href="#">Specifications</a></p>
<p><b>Description:</b> The Standardized Readmission Ratio (SRR) is defined to be the ratio of the number of index discharges from acute care hospitals that resulted in an unplanned readmission to an acute care hospital within 30 days of discharge for Medicare-covered dialysis patients treated at a particular dialysis facility to the number of readmissions that would be expected given the discharging hospitals and the characteristics of the patients as well as the national norm for dialysis facilities. Note that in this document, “hospital” always refers to acute care hospital.</p> <p><b>Numerator Statement:</b> Each facility’s observed number of hospital discharges that are followed by an unplanned hospital readmission within 30 days of discharge</p> <p><b>Denominator Statement:</b> The expected number of unplanned readmissions in each facility, which is derived from a model that accounts for patient characteristics and discharging acute care hospitals.</p> <p><b>Exclusions:</b> Hospital discharges that:</p> <ul style="list-style-type: none"> <li>Are not live discharges</li> <li>Result in a patient dying within 30 days with no readmission</li> </ul>

- Are against medical advice
- Include a primary diagnosis for cancer, mental health or rehabilitation
- Occur after a patient's 12th admission in the calendar year
- Are from a PPS-exempt cancer hospital
- Result in a transfer to another hospital on the same day

**Adjustment/Stratification:**

**Level of Analysis:** Facility

**Setting of Care:** Dialysis Facility

**Type of Measure:** Outcome

**Data Source:** Administrative claims

**Measure Steward:** Centers for Medicare and Medicaid Services

**STANDING COMMITTEE MEETING [05/05/2014-05/06/2014]**

**1. Importance to Measure and Report: The measure meets the Importance criteria**

(1a. Evidence, 1b. Performance Gap, 1c. High Impact)

1a. Evidence: **Y-17; N-6**; 1b. Performance Gap: **H-15; M-8; L-0; I-0**; 1c. Impact: **H-20; M-3; L-0; I-0**

**Rationale:**

- There was general agreement that this is a high impact area of measurement and there is opportunity for improvement, with the overall readmissions rate at approximately 30 percent and the readmissions rate for hemodialysis patients at approximately 36 percent.
- The Committee agreed that certain post-discharge assessments and changes in treatment at the dialysis facility may be associated with a reduced risk of readmissions.
- One committee member was concerned that the cause of the reduced risk of admissions had more to do with interventions by nephrologists, rather than the dialysis unit. Further, the member noted that NQF guidance regarding evidence for outcome measures was not strong enough, suggesting that the quality, quantity, and consistency of the evidence should be evaluated even for outcome measures.

**2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria**

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

2a. Reliability: **H-5; M-17; L-1; I-0** 2b. Validity: **H-1; M-16; L-7; I-0**

**Rationale:**

- The Standing Committee discussed a number of threats to validity of the measure – mainly focusing on whether the dialysis unit was the accountable entity for 30-day readmissions back to acute care facilities.
- One member argued that there are limited interventions a dialysis unit can implement that would influence this particular measure. This member noted that there are limited structures that allow the medical director or the governing body of the dialysis unit to compel nephrologists to see patients immediately after discharge from an acute care facility.
- Other Committee members noted that while the locus of control may not be solely the dialysis facility, this measure and improvement efforts tied to it may be the type of impetus needed to improve care for this population. These members also noted that with patients spending nine to 12 hours in these units during the week, more could be done to improve care for these patients.

<b>3. Feasibility: H-11; M-9; L-4; I-0</b> <i>(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Susceptibility to inaccuracies/unintended consequences identified 3d. Data collection strategy can be implemented)</i> <b>Rationale:</b> <ul style="list-style-type: none"> <li>The required data elements are routinely generated and used during care delivery and all data elements are in defined fields in electronic claims</li> </ul>
<b>4. Use and Usability: H-3; M-11; L-10; I-0</b> <i>(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability and 4b. Quality Improvement)</i> <b>Rationale:</b> <ul style="list-style-type: none"> <li>Some members were concerned that there may be unintended consequences with the use of this measure in public reporting or accountability applications; however, there was limited evidence of unintended consequences identified.</li> </ul>
<b>5. Related and Competing Measures</b> <ul style="list-style-type: none"> <li>No related or competing measures noted.</li> </ul>
<b>Standing Committee Recommendation for Endorsement: Y-13; N-11</b>
<b>6. Public and Member Comment</b>
<b>7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X</b>
<b>8. Board of Directors Vote: Y-X; N-X</b>
<b>9. Appeals</b>

<b>2503 Hospitalizations per 1000 Medicare fee-for-service (FFS) Beneficiaries</b>
<a href="#">Submission</a>   <a href="#">Specifications</a>
<b>Description:</b> Number of hospital discharges from an acute care hospital (PPS or CAH) per 1000 FFS Medicare beneficiaries at the state and community level by quarter and year. <b>Numerator Statement:</b> Number of hospital discharges from an acute care hospital (PPS or CAH) <b>Denominator Statement:</b> Medicare FFS beneficiaries, prorated based on the number of days of FFS eligibility in the time period (quarter or year). <b>Exclusions:</b> None <b>Adjustment/Stratification:</b> <b>Level of Analysis:</b> Population : Community, Population : State <b>Setting of Care:</b> Other <b>Type of Measure:</b> Outcome <b>Data Source:</b> Administrative claims, Other <b>Measure Steward:</b> Centers for Medicare & Medicaid Services
<b>STANDING COMMITTEE MEETING [05/05/2014-05/06/2014]</b> <b>1. Importance to Measure and Report: <u>The measure meets the Importance criteria</u></b> (1a. Evidence, 1b. Performance Gap, 1c. High Impact) 1a. Evidence: <b>Y-22; N-2</b> ; 1b. Performance Gap: <b>H-19; M-3; L-2; I-0</b> ; 1c. Impact: <b>H-20; M-3; L-1; I-0</b> <b>Rationale:</b>

- The Committee found the rationale to be clear, with data drawn from prior work on readmissions. Committee members acknowledged the importance of community events as compared to hospital events with respect to hospitalization rates; thus the need for a community-based measure.
- Committee members noted a wide variation in hospitalization rates among the Medicare FFS population.
- The Committee considered this to be a high-priority and high-impact measure given its impact on resource utilization, particularly in terms of the Medicare population. A study cited by the developer found that in 2004, almost 12 million Medicare fee-for-service (FFS) beneficiaries were hospitalized and one in five of these were readmitted within 30 days.

## **2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria**

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

2a. Reliability: **H-18; M-6; L-0; I-0**; 2b. Validity: **H-2; M-13; L-8; I-1**

### Rationale:

- The reliability methods used by the developer included split-sample and test/retest approaches. According to data cited by the developer, correlation coefficients and quintile agreements suggested high reliability for annual and quarterly hospitalizations per 1000 beneficiaries when computed both at the state/territory and community levels.
- Committee members noted that admission rates are seasonal, with significant variation. The Committee expressed concerns about the validity results relying on Atul Gawande's article on variation between Miami, McAllen, El Paso, and Grand Junction. Since there was no other validity data provided, the measure was assessed to be moderate in terms of validity.
- Committee members expressed concern over the lack of risk adjustment for the measure. They noted that there are significant disparities in terms of race and ethnicity between communities.
- Several Committee members were concerned about how this measure would be used, specifically because this measure focuses on one community comparing to itself over time. Committee members were concerned that if the measure were to be NQF-endorsed and publicly-reported, there would inevitably be comparisons made between communities.

## **3. Feasibility: H-22; M-1; L-0; I-0**

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Susceptibility to inaccuracies/unintended consequences identified 3d. Data collection strategy can be implemented)

### Rationale:

- Because this measure is specified for administrative claims data, the Committee agreed that it meets NQF's feasibility criterion.

## **4. Use and Usability: H-5; M-7; L-12; I-0**

(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability and 4b. Quality Improvement)

### Rationale:

- The Committee had concerns about this measure being used without risk-adjustment, specifically because this would mean that all communities could improve the same amount without a standard. In addition, a few Committee members noted the issues of rural-urban accessibility and a needs assessment for each community. Developers explained that they did not risk-adjust because they did not want to set

parameters around what a community can and cannot solve.
<b>5. Related and Competing Measures</b>
<ul style="list-style-type: none"> <li>No related or competing measures noted.</li> </ul>
<b>Standing Committee Recommendation for Endorsement: Y-12; N-12</b>
<b>6. Public and Member Comment</b>
<b>7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X</b>
<b>8. Board of Directors Vote: Y-X; N-X</b>
<b>9. Appeals</b>

<b>2504 30-day Rehospitalizations per 1000 Medicare fee-for-service (FFS) Beneficiaries</b>
<a href="#">Submission</a>   <a href="#">Specifications</a>
<p><b>Description:</b> Number of rehospitalizations occurring within 30 days of discharge from an acute care hospital (prospective payment system (PPS) or critical access hospital (CAH)) per 1000 FFS Medicare beneficiaries at the state and community level by quarter and year.</p> <p><b>Numerator Statement:</b> Number of rehospitalizations within 30 days of discharge from an acute care hospital (PPS or CAH).</p> <p><b>Denominator Statement:</b> Medicare FFS beneficiaries, prorated based on the number of days of FFS eligibility in the time period (quarter or year).</p> <p><b>Exclusions:</b> None</p> <p><b>Adjustment/Stratification:</b></p> <p><b>Level of Analysis:</b> Population : Community, Population : State</p> <p><b>Setting of Care:</b> Other</p> <p><b>Type of Measure:</b> Outcome</p> <p><b>Data Source:</b> Administrative claims, Other</p> <p><b>Measure Steward:</b> Centers for Medicare &amp; Medicaid Services</p>
<p><b>STANDING COMMITTEE MEETING [05/05/2014-05/06/2014]</b></p> <p><b>1. Importance to Measure and Report: <u>The measure meets the Importance criteria</u></b> (1a. Evidence, 1b. Performance Gap, 1c. High Impact) 1a. Evidence: <b>Y-21; N-1</b>; 1b. Performance Gap: <b>H-17; M-4; L-2; I-0</b>; 1c. Impact: <b>H-15; M-6; L-2; I-0</b></p> <p><b><u>Rationale:</u></b></p> <ul style="list-style-type: none"> <li>Committee members noted that there is evidence to support the rationale at the hospital level, but less evidence to support the rationale at the population level. However, they acknowledged that multiple entities in the community have a responsibility to help reduce the rates of readmissions back to the hospital.</li> <li>According to one study cited by the developer, there is substantial geographic variability suggesting significant opportunity for improvement.</li> <li>Committee members acknowledged that this is a high-priority issue due to the large number of patients affected and the high costs associated with re-hospitalizations among Medicare beneficiaries.</li> </ul> <p><b>2. Scientific Acceptability of Measure Properties: <u>The measure meets the Scientific Acceptability criteria</u></b> (2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)</p>

## 2504 30-day Rehospitalizations per 1000 Medicare fee-for-service (FFS) Beneficiaries

2a. Reliability: **H-18; M-6; L-0; I-0** 2b. Validity: **H-4; M-12; L-7; I-1**

### Rationale:

- The Committee noted that the measure was specified with an appropriate level of detail, with a clear numerator and denominator. In addition, members acknowledged that the measure has high reliability due to large sample sizes.
- Committee members expressed concern over the lack of risk adjustment for the measure. They noted that there are significant disparities in terms of race and ethnicity between communities.
- A few Committee members observed that admission and readmission rates are related and explained that admission rates, not readmissions rates, were decreasing with community intervention. Developers explained that in the 14 community pilots, admission and readmission rates correlated almost exactly.

### **3. Feasibility: H-20; M-2; L-2; I-0**

*(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Susceptibility to inaccuracies/unintended consequences identified 3d. Data collection strategy can be implemented)*

### Rationale:

- Because this measure is specified for electronic claims data, the Committee agreed that it meets NQF's feasibility criterion.

### **4. Use and Usability: H-4; M-11; L-9; I-0**

*(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability and 4b. Quality Improvement)*

### Rationale:

- Some Committee members argued that this measure should be limited to quality improvement interventions rather than accountability applications since the measure can only be used to compare communities to themselves over time. The Committee noted that planned admissions are not excluded from the measure. Members of the Committee were concerned that this may result in delays for needed care outside of the 30 day window.
- Similar to Measure 2503, the Committee had concerns about this measure being used without risk-adjustment, specifically because this would mean that all communities could improve the same amount without a standard.

### **5. Related and Competing Measures**

- No related or competing measures noted.

**Standing Committee Recommendation for Endorsement: Y-14; N-10**

### **6. Public and Member Comment**

**7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X**

**8. Board of Directors Vote: Y-X; N-X**

### **9. Appeals**

## 2512 All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Long-Term Care Hospitals (LTCHs)

### [Submission](#) | [Specifications](#)

**Description:** This measure estimates the risk-standardized rate of unplanned, all-cause readmissions for patients (Medicare fee-for-service [FFS] beneficiaries) discharged from a Long-Term Care Hospital (LTCH) who were readmitted to a short-stay acute-care hospital or a Long-Term Care Hospital (LTCH), within 30 days of an LTCH discharge. The measure is based on data for 24 months of LTCH discharges to non-hospital post-acute levels of care or to the community.

A risk-adjusted readmission rate for each facility is calculated as follows:

Step 1: Calculate the standardized risk ratio of the predicted number of readmissions at the facility divided by the expected number of readmissions for the same patients if treated at the average facility. The magnitude of the risk-standardized ratio is the indicator of a facility's effects on readmission rates.

Step 2: The standardized risk ratio is then multiplied by the mean rate of readmission in the population (i.e., all Medicare FFS patients included in the measure) to generate the facility-level standardized readmission rate.

For this measure, readmissions that are usually for planned procedures are excluded. Please refer to Appendix Tables A1-A5 for a list of planned procedures.

The measure specifications are designed to harmonize with CMS' hospital-wide readmission (HWR) measure to a great extent. The HWR (NQF #1789) estimates the hospital-level, risk-standardized rate of unplanned, all-cause readmissions within 30 days of a hospital discharge, similar to this LTCH readmission measure.

**Numerator Statement:** The numerator is mathematically related to the number of patients in the target population who have the event of an unplanned readmission in the 30-day post-discharge window. The measure does not have a simple form for the numerator and denominator—that is, the risk adjustment method used does not make the observed number of readmissions the numerator and a predicted number the denominator. Instead, the numerator is the risk-adjusted estimate of the number of unplanned readmissions that occurred within 30 days from discharge. This estimate includes risk adjustment for patient characteristics and a statistical estimate of the facility effect beyond patient mix.

**Denominator Statement:** The denominator is computed with the same model used for the numerator. It is the model developed using all non-excluded LTCH stays in the national data. For a particular facility the model is applied to the patient population, but the facility effect term is 0. In effect, it is the number of readmissions that would be expected for that patient population at the average LTCH. The measure includes all the LTCH stays in the measurement period that are observed in national Medicare FFS data and do not fall into an excluded category.

**Exclusions:** The measure excludes some LTCH patient stays; some of these exclusions result from data limitations.

The following are the measure's denominator exclusions, including the rationale for exclusion:

1. LTCH patients who died during the LTCH stay.

Rationale: A post-discharge readmission measure is not relevant for patients who died during their LTCH stay.

2. LTCH patients less than 18 years old.

Rationale: LTCH patients under 18 years old are not included in the target population for this measure. Pediatric patients are relatively few and may have different patterns of care from adults.

3. LTCH patients who were transferred at the end of a stay to another LTCH or short-term acute-care hospital.

Rationale: Patients who were transferred to another LTCH or short-term acute-care hospital are excluded from this measure because the transfer suggests that either their LTCH treatment has not been completed or that their condition worsened, requiring a transfer back to the acute care setting. The intent of the measure is to follow patients deemed well enough to be discharged to a less intensive care setting (i.e., discharged to less intense levels of care or to the community).

4. Patients who were not continuously enrolled in Part A FFS Medicare for the 12 months prior to the LTCH stay admission date, and at least 30 days after LTCH stay discharge date.

Rationale: The adjustment for certain comorbid conditions in the measure requires information on acute inpatient bills for 1 year prior to the LTCH admission, and readmissions must be observable in the observation window following discharge. Patients without Part A coverage or who are enrolled in Medicare Advantage plans will not



have complete inpatient claims in the system.

5. Patients who did not have a short-term acute-care stay within 30 days prior to an LTCH stay admission date.

Rationale: This measure requires information from the prior short-term acute-care stay in the elements used for risk adjustment.

6. LTCH patients discharged against medical advice (AMA).

Rationale: Patients discharged AMA are excluded because these patients have not completed their full course of treatment in the opinion of the facility.

7. LTCH patients for whom the prior short-term acute-care stay was for nonsurgical treatment of cancer.

Rationale: Consistent with the HWR Measure, patients for whom the prior short-term acute-care stay was for nonsurgical treatment of cancer are excluded because these patients were identified as following a very different trajectory after discharge, with a particularly high mortality rate.

8. LTCH stays with data that are problematic (e.g., anomalous records for hospital stays that overlap wholly or in part or are otherwise erroneous or contradictory).

Rationale: This measure requires accurate information from the LTCH stay and prior short-term acute-care stays in the elements used for risk adjustment. No-pay LTCH stays involving exhaustion of Part A benefits are also excluded.

**Adjustment/Stratification:**

**Level of Analysis:** Facility

**Setting of Care:** Post Acute/Long Term Care Facility : Long Term Acute Care Hospital

**Type of Measure:** Outcome

**Data Source:** Administrative claims, Other

**Measure Steward:** Centers for Medicare & Medicaid Services (CMS)

**STANDING COMMITTEE MEETING [05/05/2014-05/06/2014]**

**1. Importance to Measure and Report: The measure meets the Importance criteria**

(1a. Evidence, 1b. Performance Gap, 1c. High Impact)

1a. Evidence: **Y-20; N-4**; 1b. Performance Gap: **H-14; M-10; L-0; I-0**; 1c. Impact: **H-12; M-12; L-0; I-0**

**Rationale:**

- The Committee noted that the evidence provided by the developer in support of the rationale was based on Hospital readmissions as opposed to Long Term Care Facility readmissions. The developer explained that the evidence base around readmissions after post-acute care is very limited, noting that this measure is a first step in providing insight into how care transitions occur for this patient population.
- The Committee agreed that the measure addresses a high-priority issue, noting that data provided by the developer showed the unadjusted readmission rate was 26 percent for patients readmitted from a Long-Term Care Hospital (LTCH).

**2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria**

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

2a. Reliability: **H-4; M-19; L-1; I-0** 2b. Validity: **H-0; M-17; L-7; I-0**

**Rationale:**

- The Committee raised concerns about why the measure is specified to include readmissions to both short-stay acute-care hospitals and LTCHs. There was concern that these are two different patient populations and not conceptually aligned.
- The Committee questioned whether the appropriate time frame for this patient population was 30-days. As one Committee Member noted, LTCH patients are typically sicker and may have fewer short term

episodes.

- The developers provided split sample reliability testing, which involved calculating the level of agreement between scores calculated for different samples from the same facilities. Agreement was evaluated using an intraclass correlation coefficient (ICC), and the developers calculated an ICC of 0.57, indicating a modest level of consistency in the standardized risk ratios assigned to facilities.
- It was noted during workgroup discussion that the developer cited their Technical Expert Panel (TEP)'s agreement on the measurement approach as a demonstration of face validity; however, no description or systematic account of the TEP's assessment was provided to the Committee. The Committee agreed that the validity of the measure construct was moderate based on prior validity testing for similar readmission measures.
- The Committee noted that observation stays to an ED would not be counted in this measure.
- Committee members questioned whether patients who were discharged to Hospice would be counted in this measure. The developer confirmed that hospice patients would be captured, as the measure logic does not distinguish between final care settings. The developer noted that patients who are in Hospice are less likely to be readmitted and should not have a negative effect on performance scores.

### **3. Feasibility: H-13; M-10; L-1; I-0**

*(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Susceptibility to inaccuracies/unintended consequences identified 3d. Data collection strategy can be implemented)*

#### Rationale:

- Committee members agreed that in future iterations of the measure, it would be desirable to provide the outcome following discharge from a LTCH facility, as doing so would provide more information for facilities to use in quality improvement activities.
- The Committee agreed that all data elements are in defined fields in electronic claims and that these data are routinely collected as part of the billing process.

### **4. Use and Usability: H-0; M-9; L-10; I-5**

*(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability and 4b. Quality Improvement)*

#### Rationale:

- The Committee identified several potential unintended consequences that should be monitored as the measure is implemented:
  - LTCHs may redirect certain patients with higher acuity or greater complexity that may be more likely to have a subsequent readmission post LTCH discharge in order to avoid penalties.
  - Another potential unintended consequence is that LTCHs could increase the rate at which they transfer patients back to the acute care setting in order to exclude these transfers from the measure denominator.
  - The Committee noted that a readmission from an LTCH has potential for "double jeopardy" due to the readmission being counted as part of both the Inpatient Quality Reporting Program and the LTCH Quality Reporting Program. The developer acknowledged the potential for this to occur; however, the developer considered this to be an unusual occurrence.
- CMS is developing this readmission measure in order to publicly report it as part of the Long Term Care Hospital Quality Reporting Program. The developers noted that CMS is working to establish procedures

for public reporting, providing the opportunity for LTCHs to review their data before it is made public.
<b>5. Related and Competing Measures</b> <ul style="list-style-type: none"> <li>No related or competing measures noted.</li> </ul>
<b>Standing Committee Recommendation for Endorsement: Y-10; N-14</b>
<b>6. Public and Member Comment</b>
<b>7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X</b>
<b>8. Board of Directors Vote: Y-X; N-X</b>
<b>9. Appeals</b>

## Measures Withdrawn from consideration

Five measures previously endorsed by NQF have not been re-submitted or withdrawn from maintenance of endorsement. The following measures are being retired from endorsement:

Measure	Reason for retirement
<b>0698: 30-Day Post-Hospital AMI Discharge Care Transition Composite Measure</b>	CMS has not implemented measure 0698 related to care transition since its endorsement by NQF. CMS contracted with Yale in October 2013 to conduct a comprehensive reevaluation of these measures; incorporating the findings from implementing the CMS readmissions for public reporting and payment programs. CMS will re-submit these measures for a comprehensive reevaluation once completed by Yale (YNHHSC/CORE/CMS).
<b>0699: 30-Day Post-Hospital HF Discharge Care Transition Composite Measure</b>	CMS has not implemented measure 0699 related to care transition since its endorsement by NQF. CMS contracted with Yale in October 2013 to conduct a comprehensive reevaluation of these measures; incorporating the findings from implementing the CMS readmissions for public reporting and payment programs. CMS will re-submit these measures for a comprehensive reevaluation once completed by Yale (YNHHSC/CORE/CMS).
<b>0707: 30-day Post-Hospital PNA (Pneumonia) Discharge Care Transition Composite Measure</b>	CMS has not implemented measure 0707 related to care transition since its endorsement by NQF. CMS contracted with Yale in October 2013 to conduct a comprehensive reevaluation of these measures; incorporating the findings from implementing the CMS readmissions for public reporting and payment programs. CMS will re-submit these measures for a comprehensive reevaluation once completed by Yale (YNHHSC/CORE/CMS).
<b>0328: Casemix-Adjusted Inpatient Hospital Average Length of Stay</b>	United Health Group indicated that they no longer have the capacity to maintain these measures in accordance with NQF's Maintenance. Their methods for risk-adjusting length of stay have evolved and now more closely mirror those put forth by Premier in measure 0327. Given the relative alignment of the endorsed Premier and internal UHG methodologies, the effort required to document our current process for risk-adjusted LOS is likely counterproductive. For this reason, they did not resubmit measure 0328 during this measure maintenance cycle.
<b>0331: Severity-Standardized Average Length of Stay -- Routine Care (risk adjusted)</b>	The Leapfrog Group indicated that they no longer have the capacity to maintain these measures in accordance with NQF's Maintenance Policy. Due to the staff-intensive resources that shepherding a measure through the NQF process requires, The Leapfrog Group has made the decision to no longer serve as measure steward on measure 0331.

## Appendix B: NQF All-Cause Admissions and Readmissions Portfolio and related measures

### All Cause/All Condition Specific Admissions

Measure Number	Measure Title
2503	Hospitalizations per 1000 Medicare fee-for-service (FFS) Beneficiaries [Colorado Foundation for Medical Care]
0171	Acute Care Hospitalization (Risk-Adjusted) [CMS]
0173	Emergent Care (Risk Adjusted)
0265	All-Cause Hospital Transfer/Admission [ASC Quality Collaboration]
1463	Standardized Hospitalization Ratio for Admissions [CMS]

### Admissions Measures for Prevention Quality Indicators

Measure Number	Measure Title
0272	Diabetes Short-Term Complications Admission Rate (PQI 1) [AHRQ]
0274	Diabetes Long-Term Complications Admission Rate (PQI 3) [AHRQ]
0638	Uncontrolled Diabetes Admission Rate (PQI 14) [AHRQ]
0279	Bacterial Pneumonia Admission Rate (PQI 11) [AHRQ]
0283	Asthma in Younger Adults Admission Rate (PQI 15) [AHRQ]

### Admissions Measures for Pediatric Quality Indicators

Measure Number	Measure Title
0727	Gastroenteritis Admission Rate (pediatric) [AHRQ]
0728	Asthma Admission Rate (Pediatric) [AHRQ]

### Length of Stay Measures

Measure Number	Measure Title
0334	PICU Severity-adjusted Length of Stay [Virtual PICU Systems, LLC]
0327	Risk-Adjusted Average Length of Inpatient Hospital Stay [Premier]
0702	Intensive Care Unit (ICU) Length-of-Stay (LOS) [Philip R. Lee Institute for Health Policy Studies]

## Hospital All-Cause/All-Condition Readmission Measures

Measure Number	Measure Title
0335	PICU Unplanned Readmission Rate [Virtual PICU Systems, LLC]
1768	Plan All-Cause Readmissions
1789	Hospital-Wide All-Cause Unplanned Readmission Measure (HWR)
2393	Pediatric All-Condition Readmission Measure [Center of Excellence for Pediatric Quality Measurement]
2504	30-day Rehospitalizations per 1000 Medicare fee-for-service (FFS) Beneficiaries [Colorado Foundation for Medical Care]

## Cardiovascular Condition-Specific Hospital Readmission Measures

Measure Number	Measure Title
0330	Hospital 30-day, all-cause, risk-standardized readmission rate following heart failure hospitalization for patients 18 and older
0505	Thirty-day all-cause risk standardized readmission rate following acute myocardial infarction (AMI) hospitalization [Yale]
0695	Hospital 30-Day Risk-Standardized Readmission Rates following Percutaneous Coronary Intervention (PCI) [American College of Cardiology]
2514	Risk-Adjusted Coronary Artery Bypass Graft (CABG) Readmission Rate [STS]
2514	Hospital 30-day, all-cause, unplanned, risk-standardized readmission rate (RSRR) following coronary artery bypass graft (CABG) surgery [Yale]
2515	Hospital 30-day, all-cause, unplanned, risk-standardized readmission rate (RSRR) following coronary artery bypass graft (CABG) surgery [Yale]

## Pulmonary Condition-Specific Hospital Readmission Measures

Measure Number	Measure Title
0506	Thirty-day all-cause risk standardized readmission rate following pneumonia hospitalization.
1891	Hospital 30-Day, All-Cause, Risk-Standardized Readmission Rate (RSRR) following Chronic Obstructive Pulmonary Disease (COPD) Hospitalization [CMS]
2414	Pediatric Lower Respiratory Infection Readmission Measure [Center of Excellence for Pediatric Quality Measurement]

## Surgical Condition-Specific Hospital Readmission Measures

Measure Number	Measure Title
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Measure Number	Measure Title
2513	Hospital 30-Day All-Cause Risk-Standardized Readmission Rate (RSRR) following Vascular Procedures [Yale]
1551	Hospital-level 30-day, all-cause risk-standardized readmission rate (RSRR) following elective primary total hip arthroplasty (THA) and/or total knee arthroplasty (TKA) [CMS]

## Setting-Specific Readmission Measures

Measure Number	Measure Title
2375	PointRight OnPoint-30 SNF Rehospitalizations [AHCA]
2510	Skilled Nursing Facility 30-Day All-Cause Readmission Measure (SNFRM) [RTI]
2380	Rehospitalization During the First 30 Days of Home Health [Acumen]
2505	Emergency Department Use without Hospital Readmission During the First 30 Days of Home Health [Acumen]
2512	All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Long-Term Care Hospitals (LTCHs) [RTI]
2502	All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Inpatient Rehabilitation Facilities [RTI]
2496	Standardized Readmission Ratio (SRR) for dialysis facilities [University of Michigan]
2539	Facility 7-Day Risk-Standardized Hospital Visit Rate after Outpatient Colonoscopy [Yale]



## Appendix C: All-Cause Admissions and Readmissions Portfolio—Use In Federal Programs

NQF #	Title	Federal Programs: Current Finalized 2013-2014
0505	Hospital 30-day all-cause risk-standardized readmission rate (RSRR) following acute myocardial infarction (AMI) hospitalization.	Hospital Inpatient Quality Reporting, Hospital Readmission Reduction Program
2502	All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Inpatient Rehabilitation Facility (IRF)	Inpatient Rehabilitation Facilities Quality Reporting
2512	30-Day All Cause Post Long-Term Care Hospital (LTCH) Discharge Hospital Readmission Measure	Long-term Care Hospital Quality Reporting
2505	Emergency Department Use without Hospital Readmission During the First 30 Days of Home Health	Home Health Quality Reporting

## Appendix D: Project Standing Committee and NQF Staff

### STANDING COMMITTEE

**Bruce Hall, MD, PhD, MBA (Co-Chair)**

BJC Healthcare,  
St. Louis, Missouri

**Sherrie Kaplan, PhD (Co-Chair)**

UC Irvine School of Medicine  
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**Katherine Auger, MD, MSc**

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**Frank Briggs, PharmD, MPH**

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**Jo Ann Brooks, PhD, RN**

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### NATIONAL QUALITY FORUM

NQF REVIEW DRAFT—Comments due by July 07, 2014 by 6:00 PM ET.

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## Appendix E: Comments Received

Comments received as of May 29, 2014

Topic	Commenter	Comment
0505: Hospital 30-day all-cause risk-standardized readmission rate (RSRR) following acute myocardial infarction (AMI) hospitalization.	Ms. Vipra Ghimire, MPH	<p>The following comment is from the Johns Hopkins Medicine Armstrong Institute for Patient Safety and Quality.</p> <p>Measure seems very reasonable. We would be interested in seeing what the “planned readmissions” are. We completely agree with excluding AMA and hospital transfers, as these patients are typically sicker or more problematic in some other respect (social, family support). We support the case-mix adjustment for the standard. One concern is academic medical centers may see sicker patients (i.e. patients are selectively taken to larger centers with more severe illness), so an adjustment for that may be necessary. An absolute rate would not be appropriate.</p>
0505: Hospital 30-day all-cause risk-standardized readmission rate (RSRR) following acute myocardial infarction (AMI) hospitalization.	Dr. Allison L. Jones, MD	<p>The point that I would make with the measure is that it does not take into consideration the cognitive status of the patient, nor does it take into consideration the socioeconomic factors which hospitals do not have control of. These factors are not routinely identified in the hospital setting, nor the outpatient arena, but certainly play a role in the possibility of the patient being readmitted.</p> <p>N. Knight, MD Member, Champaign County Medical Society</p>

Topic	Commenter	Comment
0695: Hospital 30-Day Risk-Standardized Readmission Rates following Percutaneous Coronary Intervention (PCI)	Dr. Allison L. Jones, MD	As with other readmission measure I would make the comment that they do not take into consideration the socioeconomic circumstances of the patient, nor do they take into consideration the cognitive status of the patient which determines the ability of the patient to take control and steer the complex care needs that occur for themselves after this procedure.  N. Knight, MD Member, Champaign County Medical Society
2393: Pediatric All-Condition Readmission Measure	Dr. Ellen Schwalenstocker, PhD, MBA	This comment can be found on the NQF website. <a href="http://www.qualityforum.org/WorkArea/linkit.aspx?LinkIdentifier=id&amp;ItemID=76657">http://www.qualityforum.org/WorkArea/linkit.aspx?LinkIdentifier=id&amp;ItemID=76657</a>
2393: Pediatric All-Condition Readmission Measure	John Muldoon, 3M HIS; Submitted by Ms. Lisa J. Turner	This comment can be found on the NQF website. <a href="http://www.qualityforum.org/WorkArea/linkit.aspx?LinkIdentifier=id&amp;ItemID=76152">http://www.qualityforum.org/WorkArea/linkit.aspx?LinkIdentifier=id&amp;ItemID=76152</a>
2414: Pediatric Lower Respiratory Infection Readmission Measure	John Muldoon, 3M HIS; Submitted by Ms. Lisa J. Turner	This comment can be found on the NQF website. <a href="http://www.qualityforum.org/WorkArea/linkit.aspx?LinkIdentifier=id&amp;ItemID=76153">http://www.qualityforum.org/WorkArea/linkit.aspx?LinkIdentifier=id&amp;ItemID=76153</a>

Topic	Commenter	Comment
2414: Pediatric Lower Respiratory Infection Readmission Measure	Dr. Ellen Schwalenstocker, PhD, MBA	This comment can be found on the NQF website. <a href="http://www.qualityforum.org/WorkArea/linkit.aspx?LinkIdentifier=id&amp;ItemID=76657">http://www.qualityforum.org/WorkArea/linkit.aspx?LinkIdentifier=id&amp;ItemID=76657</a>
2496: Standardized Readmission Ratio (SRR) for dialysis facilities	Linda Keegan, Kidney Care Partners (KCP); Submitted by Dr. Lisa McGonigal, MD, MPH	This comment can be found on the NQF website. <a href="http://www.qualityforum.org/WorkArea/linkit.aspx?LinkIdentifier=id&amp;ItemID=76154">http://www.qualityforum.org/WorkArea/linkit.aspx?LinkIdentifier=id&amp;ItemID=76154</a>



Topic	Commenter	Comment
<p>2496: Standardized Readmission Ratio (SRR) for dialysis facilities</p>		<p>DaVita Healthcare Partners treats nearly 170,000 ESRD patients in 2200 clinics. We are opposed to the suggested measure 2496, SRR for dialysis clinics. While we believe that readmissions are important in ESRD, the dialysis unit has limited ability to impact those outcomes for all causes. Based on 2011 Medicare Claims data, ESRD patients had an admission rate of 1.88 admits/pt/yr. The percentage of those admissions due to factors the dialysis unit can control were low, with 5% for vascular access infection, and 27% for ALL CV disease including fluid overload as well as CAD, AMI, and many others. The majority then of admissions and readmissions are due to other end organ manifestations of chronic disease, most of which are beyond the ability of the dialysis unit to manage. Further, 17% of patients had a readmission within 3 days post discharge, before even the first post discharge outpatient dialysis session. In our Special Needs Plan, a program with significantly more resources than a dialysis unit, we are able to affect all cause readmissions but only after expending considerable expense on IT and care coordination. The proposed measure, intended to join a host of other measures in the Quality Incentive Program, would compete for resources amongst the 2% of payment withheld as part of that program. This is simply not feasible.</p> <p>All cause readmission markers are appropriate for hospitals where care coordination and data are available. Dialysis units do not receive timely data, nor or hospitals required to provide data to dialysis units to coordinate care. Despite a large program to acquire every discharge summary for all of our patients, we were unable to obtain a significant amount of that data after a year following discharge, let alone within the few days required to coordinate care. This issue will be likely reflected in the comments to the dry run conducted by CMS and its contractor. There, our units were unable to ascertain the validity of the data given the lack of data mentioned above.</p> <p>The statistical model used to risk adjust this measure has never been subjected to peer review. Recently the NQF noted that socioeconomic status may affect quality outcomes. This is not taken into account in the model. We have trended public data for Readmission rates currently distributed by KECC on behalf of CMS against census data for income a measure of socioeconomic status (SES). There dialysis units in high poverty locations were more likely to have higher readmit rates for each decile, while units in lower poverty locations were more likely to have lower rates.</p> <p>We believe that this measure may better as a SES risk adjusted hospital measure not a</p>

Topic	Commenter	Comment
2514: Risk-Adjusted Coronary Artery Bypass Graft (CABG) Readmission Rate	Submitted by Paul Kurlansky, MD	In view of the fact that current risk-adjustment models for this parameter have a disappointing c-statistic in the 0.60 to 0.65 range, and given that CMS has elected not to include vital socioeconomic factors in the models, and given that there is wide variability in the risk factors for readmission amongst hospitals, it does not appear as the risk adjustment technology at this point is sufficiently well-developed to apply effectively or meaningfully for this parameter.
2539: Facility 7-Day Risk-Standardized Hospital Visit Rate after Outpatient Colonoscopy	Submitted by Dr. Allison L. Jones, MD	Help me understand this. A patient has a screening colonoscopy planned. The physician tells the patient that there is a risk of death, perforation, bleeding, etc. The procedure is performed skillfully, and because of biologic variability the patient winds up with post-polypectomy syndrome, which is a common recognized complication for this procedure, which the patient has accepted. Look at the possible downside of this measure. Lesions which are difficult to remove, or are in tough anatomical positions, will the proceduralist given this measure, remove the lesion or not?? I think a wiser position on this would be to make sure that the patient is appropriately advised of the possible risks.

## Appendix F: Measure Specifications

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	<b>0327 Risk-Adjusted Average Length of Inpatient Hospital Stay</b>
Status	Standing Committee Review
Steward	Premier, Inc
Description	The average (geometric mean) hospital length of stay in days relative to the expected geometric mean length of stay of any well defined population of inpatients over a specified time interval
Type	Outcome
Data Source	Administrative claims
Level	Facility
Setting	Hospital/Acute Care Facility, Behavioral Health/Psychiatric : Inpatient, Post Acute/Long Term Care Facility : Inpatient Rehabilitation Facility, Post Acute/Long Term Care Facility : Long Term Acute Care Hospital, Post Acute/Long Term Care Facility : Nursing Home/Skilled Nursing Facility Hospital/Acute Care Facility, Behavioral Health/Psychiatric : Inpatient, Post Acute/Long Term Care Facility : Inpatient Rehabilitation Facility, Post Acute/Long Term Care Facility : Long Term Acute Care Hospital, Post Acute/Long Term Care Facility : Nursing Home/Skilled Nursing Facility
Time Window	
Numerator Statement	Risk-adjusted in-hospital days average for any defined and observable inpatient population in the form of days above the average that would be expected purely based on patient risk factors of the defined patient population
Numerator Details	The observed outcome is each patient's number of days of hospitalization. Same day discharges are counted as 1-day stays.
Denominator Statement	Patients admitted to a hospital. Patient population can be aggregated as any grouping of patients (e.g., by hospital, physician, diagnosis code, procedure, DRG, etc.)
Denominator Details	The target population is any observable subset of patients admitted to a hospital. Patient population can be identified as any grouping of patients (e.g., by hospital, physician, diagnosis code, procedure, DRG, etc.)
Exclusions	The only exclusions are those limited by the parameters set for a specific population and are not limited by diagnosis
Exclusion details	The only exclusions are those limited by the parameters set for a specific population and are not limited by diagnosis
Copyright / Disclaimer	5.1 Identified measures: 0327 5a.1 Are specs completely harmonized? 5a.2 If not completely harmonized, identify difference, rationale, impact: 0327 5b.1 If competing, why superior or rationale for additive value:

	<b>0505 Hospital 30-day all-cause risk-standardized readmission rate (RSRR) following acute myocardial infarction (AMI) hospitalization.</b>
Status	Standing Committee Review
Steward	Centers for Medicare & Medicaid
Description	The measure estimates a hospital-level 30-day risk-standardized readmission rate (RSRR) for patients discharged from the hospital with a principal diagnosis of acute myocardial infarction (AMI). The outcome is defined as unplanned readmission for any cause within 30 days of the discharge date for the index admission. A specified set of planned readmissions do not count as readmissions. The target population is patients aged 18 years and older. CMS annually reports the measure for individuals who are 65 years and older and are either Medicare fee-for-service (FFS) beneficiaries hospitalized in non-federal hospitals or patients hospitalized in Department of Veterans Affairs (VA) facilities.
Type	Outcome
Data Source	Administrative claims
Level	Facility
Setting	Hospital/Acute Care Facility Hospital/Acute Care Facility
Time Window	
Numerator Statement	The outcome for this measure is 30-day readmission. We define readmission as an inpatient admission for any cause, with the exception of certain planned readmissions, within 30 days from the date of discharge from the index AMI admission. If a patient has more than one unplanned admission within 30 days of discharge from the index admission, only the first one is counted as a readmission. The measure looks for a dichotomous yes or no outcome of whether each admitted patient has an unplanned readmission within 30 days. However, if the first readmission after discharge is considered planned, then no readmission is counted, regardless of whether a subsequent unplanned readmission takes place. This is because it is not clear whether such readmissions are appropriately attributed to the original index admission or the intervening planned readmission.
Numerator Details	<p>The measure counts readmissions to any acute care hospital for any cause within 30 days of the date of discharge of the index AMI admission, excluding planned readmissions as defined below.</p> <p><b>Planned Readmission Algorithm</b></p> <p>The Planned Readmission Algorithm is a set of criteria for classifying readmissions as planned among the general Medicare population using Medicare administrative claims data. The algorithm identifies admissions that are typically planned and may occur within 30 days of discharge from the hospital.</p> <p>The Planned Readmission Algorithm has three fundamental principles:</p> <ol style="list-style-type: none"> <li>1. A few specific, limited types of care are always considered planned (obstetric delivery, transplant surgery, maintenance chemotherapy/radiotherapy/ immunotherapy, rehabilitation);</li> <li>2. Otherwise, a planned readmission is defined as a non-acute readmission for a scheduled procedure; and</li> <li>3. Admissions for acute illness or for complications of care are never planned.</li> </ol> <p>The algorithm was developed in 2011 as part of the Hospital-Wide Readmission measure. In 2013, CMS applied the algorithm to its other readmission measures. The Planned Readmission Algorithm replaced the definition of planned readmissions in the original AMI measure because the algorithm uses a more comprehensive definition. In applying the algorithm to condition- and procedure-specific measures, teams of clinical experts reviewed the algorithm in the context of each measure-specific patient cohort and, where clinically indicated, adapted the content of the algorithm to better reflect the likely clinical experience of each measure's</p>

	<p>patient cohort. For the AMI readmission measure, CMS used the Planned Readmission Algorithm without making any changes.</p> <p>Analyzing Medicare FFS data from July 2009-June 2012, 2.4% of index hospitalizations after AMI were followed by a planned readmission within 30 days of discharge.</p> <p>The Planned Readmission Algorithm and associated code tables are attached in data field S.2b (Data Dictionary or Code Table). For more details on the Planned Readmission Algorithm, please see the report titled “2013 Measures Updates and Specifications Report: Hospital-Level 30-Day Risk-Standardized Readmission Measures for Acute Myocardial Infarction, Heart Failure, and Pneumonia (Version 6.0)” posted on the web page provided in data field S.1.</p>
Denominator Statement	<p>The target population for this measure is patients aged 18 years and older hospitalized for AMI. The measure is currently publicly reported by CMS for those 65 years and older who are either Medicare FFS beneficiaries admitted to non-federal hospitals or patients admitted to VA hospitals.</p> <p>The measure includes admissions for patients discharged from the hospital with a principal diagnosis of AMI and with a complete claims history for the 12 months prior to admission.</p> <p>As noted above, this measure can also be used for an all-payer population aged 18 years and older. We have explicitly tested the measure in both patients aged 18+ years and those aged 65+ years.</p>
Denominator Details	<p>This outcome measure does not have a traditional numerator and denominator like a core process measure (e.g., percentage of adult patients with diabetes aged 18-75 years receiving one or more hemoglobin A1c tests per year); thus, we use this field to define the measure cohort.</p> <p>The denominator includes patients aged 18 years and older with a principal discharge diagnosis of AMI (defined by the ICD-9 or ICD-10 codes below). The measure is currently publicly reported by CMS for those 65 years and older who are either Medicare FFS beneficiaries admitted to non-federal hospitals or patients admitted to VA hospitals. To be included in the measure cohort used in public reporting, patients must meet the following additional inclusion criteria: enrolled in Part A and Part B Medicare for the 12 months prior to the date of admission, and enrolled in Part A during the index admission (this criterion does not apply to patients discharged from VA hospitals); not transferred to another acute care facility; and alive at discharge.</p> <p>ICD-9-CM codes that define the patient cohort:</p> <ul style="list-style-type: none"> <li>410.00 AMI (anterolateral wall) – episode of care unspecified</li> <li>410.01 AMI (anterolateral wall) – initial episode of care</li> <li>410.10 AMI (other anterior wall) – episode of care unspecified</li> <li>410.11 AMI (other anterior wall) – initial episode of care</li> <li>410.20 AMI (inferolateral wall) – episode of care unspecified</li> <li>410.21 AMI (inferolateral wall) – initial episode of care</li> <li>410.30 AMI (inferoposterior wall) – episode of care unspecified</li> <li>410.31 AMI (inferoposterior wall) – initial episode of care</li> <li>410.40 AMI (other inferior wall) – episode of care unspecified</li> <li>410.41 AMI (other inferior wall) – initial episode of care</li> <li>410.50 AMI (other lateral wall) – episode of care unspecified</li> <li>410.51 AMI (other lateral wall) – initial episode of care</li> <li>410.60 AMI (true posterior wall) – episode of care unspecified</li> <li>410.61 AMI (true posterior wall) – initial episode of care</li> <li>410.70 AMI (subendocardial) – episode of care unspecified</li> <li>410.71 AMI (subendocardial) – initial episode of care</li> <li>410.80 AMI (other specified site) – episode of care unspecified</li> </ul>

	<p>410.81 AMI (other specified site) – initial episode of care</p> <p>410.90 AMI (unspecified site) – episode of care unspecified</p> <p>410.91 AMI (unspecified site) – initial episode of care</p> <p>ICD-10 Codes that define the patient cohort:</p> <p>I2109 ST elevation (STEMI) myocardial infarction involving other coronary artery of anterior wall</p> <p>I2119 ST elevation (STEMI) myocardial infarction involving other coronary artery of inferior wall</p> <p>I2111 ST elevation (STEMI) myocardial infarction involving right coronary artery</p> <p>I2119 ST elevation (STEMI) myocardial infarction involving other coronary artery of inferior wall</p> <p>I2129 ST elevation (STEMI) myocardial infarction involving other sites</p> <p>I214 Non-ST elevation (NSTEMI) myocardial infarction</p> <p>I213 ST elevation (STEMI) myocardial infarction of unspecified site</p> <p>An ICD-9 to ICD-10 crosswalk is attached in field S.2b. (Data Dictionary or Code Table).</p>
Exclusions	<p>For all cohorts, the measure excludes admissions for patients:</p> <ul style="list-style-type: none"> <li>-discharged against medical advice (AMA) (because providers did not have the opportunity to deliver full care and prepare the patient for discharge);</li> <li>-admitted and then discharged on the same day (because it is unlikely these are clinically significant AMIs);</li> <li>-admitted with AMI within 30 days of discharge from a qualifying index admission (Admissions within 30 days of discharge of an index admission will be considered readmissions. No admission is counted as a readmission and an index admission. The next eligible admission after the 30-day time period following an index admission will be considered another index admission.)</li> </ul> <p>For Medicare FFS patients, the measure additionally excludes admissions for patients:</p> <ul style="list-style-type: none"> <li>-without at least 30 days post-discharge enrollment in FFS Medicare (because the 30-day readmission outcome cannot be assessed in this group).</li> </ul>
Exclusion details	<p>For all cohorts, the measure excludes admissions for patients:</p> <ul style="list-style-type: none"> <li>-discharged against medical advice (AMA) (because providers did not have the opportunity to deliver full care and prepare the patient for discharge);</li> <li>-admitted and then discharged on the same day (because it is unlikely these are clinically significant AMIs);</li> <li>-admitted with AMI within 30 days of discharge from a qualifying index admission (Admissions within 30 days of discharge of an index admission will be considered readmissions. No admission is counted as a readmission and an index admission. The next eligible admission after the 30-day time period following an index admission will be considered another index admission.)</li> </ul> <p>For Medicare FFS patients, the measure additionally excludes admissions for patients:</p> <ul style="list-style-type: none"> <li>-without at least 30 days post-discharge enrollment in FFS Medicare (because the 30-day readmission outcome cannot be assessed in this group).</li> </ul>
Risk Adjustment	
Stratification	
Type Score	
Algorithm	



	<b>0695 Hospital 30-Day Risk-Standardized Readmission Rates following Percutaneous Coronary Intervention (PCI)</b>
Status	Standing Committee Review
Steward	American College of Cardiology
Description	<p>This measure estimates a hospital-level risk-standardized readmission rate (RSRR) following PCI for Medicare Fee-for-Service (FFS) patients who are 65 years of age or older. The outcome is defined as unplanned readmission for any cause within 30 days following hospital stays. The measure includes both patients who are admitted to the hospital (inpatients) for their PCI and patients who undergo PCI without being admitted (outpatient or observation stay). A specified set of planned readmissions do not count as readmissions. The measure uses clinical data available in the National Cardiovascular Disease Registry (NCDR) CathPCI Registry for risk adjustment and Medicare claims to identify readmissions. Additionally, the measure uses direct patient identifiers including Social Security Number (SSN) and date of birth to link the datasets.</p> <p>A hospital stay is when a patient is admitted to the hospital (inpatient) for PCI or receives a procedure at a hospital, but is not admitted as an inpatient (outpatient).</p> <p>The primary update to this measure since it was last reviewed by the National Quality Forum (NQF) is a more comprehensive specification of planned readmission. Additionally, the updated measure includes a re-specification of variables to reflect changes in the data collection form that occurred when the CathPCI Registry was updated from Version 3.04 (Version 3) to Version 4.3.1 (Version 4). Finally, the measure has been updated to use direct identifiers including SSN and date of birth to link the CathPCI Registry data with corresponding administrative claims data. These updates are described within this application and in the accompanying report re-specifying Hospital 30-Day Readmission Following Percutaneous Coronary Intervention Measure (see Appendix attachment).</p>
Type	Outcome
Data Source	Administrative claims, Electronic Clinical Data : Registry
Level	Facility
Setting	Hospital/Acute Care Facility Hospital/Acute Care Facility
Time Window	
Numerator Statement	<p>The outcome for this measure is 30-day all-cause readmission. We define readmission as an acute care inpatient hospital admission for any cause, with the exception of certain planned readmissions, within 30 days from the discharge date of the index PCI hospitalization or PCI outpatient claim end date (hereafter referred to as discharge). If a patient has more than one unplanned admission within 30 days of discharge from the index admission, only the first one is counted as a readmission. The measure looks for a dichotomous yes or no outcome of whether each admitted patient has an unplanned readmission within 30 days. However, if the first readmission after discharge is considered planned, then no readmission is counted, regardless of whether a subsequent unplanned readmission takes place. We use this approach because it would potentially be unfair to attribute an unplanned readmission that follows a planned readmission back to the care received during the initial index admission. For more details on how planned readmissions were identified and removed from the outcome, please refer to the Specifications Report in the attached Appendix.</p>
Numerator Details	<p>The measure counts readmissions to any acute care hospital for any cause within 30 days of PCI discharge, excluding planned readmissions as defined below.</p> <p>Planned Readmission Algorithm:</p> <p>The Planned Readmission Algorithm is a set of criteria for classifying readmissions as planned among the general Medicare population using Medicare administrative claims data. The</p>

	<p><b>0695 Hospital 30-Day Risk-Standardized Readmission Rates following Percutaneous Coronary Intervention (PCI)</b></p>
	<p>algorithm identifies admissions that are typically planned and may occur within 30 days of discharge from the hospital.</p> <p>The Planned Readmission Algorithm has three fundamental principles:</p> <ol style="list-style-type: none"> <li>1. A few specific, limited types of care are always considered planned (obstetric delivery, transplant surgery, maintenance chemotherapy/radiotherapy/immunotherapy, rehabilitation);</li> <li>2. Otherwise, a planned readmission is defined as a non-acute readmission for a scheduled procedure; and</li> <li>3. Admissions for acute illness or for complications of care are never planned.</li> </ol> <p>The algorithm was developed in 2011 as part of the Hospital-Wide Readmission measure. In 2013, Centers for Medicare &amp; Medicaid Services (CMS) applied the algorithm to its other readmission measures. NQF reviewed and endorsed the planned readmission algorithm as applied to the AMI readmission measure during an Ad Hoc review completed in January 2013. The Planned Readmission Algorithm replaced the definition of planned readmissions in the original PCI measure because the algorithm uses a more comprehensive definition. In applying the algorithm to condition- and procedure-specific measures, teams of clinical experts reviewed the algorithm in the context of each measure-specific patient cohort and, where clinically indicated, adapted the content of the algorithm to better reflect the likely clinical experience of each measure's patient cohort. For the AMI readmission measure, CMS used the Planned Readmission Algorithm without making any changes.</p> <p>Customization for PCI Readmission Measure:</p> <p>Yale New Haven Health Service Corporation Center for Outcomes Research and Evaluation (YNHHSC/CORE) updated the approach to identifying planned readmissions in the PCI readmission measure by replacing the original NQF-endorsed approach, which only identified revascularization procedures as planned, with a more comprehensive planned readmission algorithm. The revised approach uses a modified version of the Planned Readmission Algorithm Version 2.1 – General Population that has been customized for the PCI patient population. The approach takes into account differences in the likelihood that a procedure is planned depending on whether a coronary stent was implanted during the index PCI procedure.</p> <p>A working group of YNHHSC/CORE cardiologists and clinicians that developed the Planned Readmission Algorithm reviewed the list of potentially planned procedures in the context of the PCI population. Patients who receive a stent during their PCI require at least four weeks of therapy with aspirin and a platelet inhibitor. During that time period, it is unusual to perform procedures that would require interruption of dual antiplatelet therapy. In contrast, if no stent is deployed, dual antiplatelet therapy is not required, and patients are more likely to undergo planned surgical procedures. Given these considerations, the working group developed different sets of potentially planned procedures for patients with and without stent implantation.</p> <p>For all readmissions, the measure first identifies readmissions for procedures that are always considered planned (e.g., chemotherapy or organ transplantation [Table PR1, Table PR2]). In the next step, the approach changes depending on whether or not a patient had a stent during the index PCI procedure. If a stent was deployed, the algorithm uses a smaller set of potentially planned procedures (Table PR3) than if a stent was not deployed (Table PR4). All potentially planned procedures identified in both patient populations are then checked for an accompanying primary discharge diagnosis that would more likely than not reflect an acute condition or complication of care (Table PR5).</p> <p>Analyzing Medicare Fee-For-Service data from July 2008 to June 2011, the crude 30-day measured readmission rate decreased by 0.5% to 11.8%, from 12.3% using the original</p>

	<b>0695 Hospital 30-Day Risk-Standardized Readmission Rates following Percutaneous Coronary Intervention (PCI)</b>
	<p>planned readmission methodology.</p> <p>Details of the Planned Readmission Algorithm and associated code tables (including Tables PR1-PR5) are attached in data field S.2b (Data Dictionary or Code Table). For more details on the Planned Readmission Algorithm, please see the report titled “2013 Measures Updates and Specifications Report: Hospital 30-Day Readmission Following Percutaneous coronary Intervention Measure” in the Appendix attachment.</p>
Denominator Statement	The target population for this includes hospital stays for patients who are 65 years of age or older who receive a PCI and who have matching records in the CathPCI Registry and Medicare claims.
Denominator Details	<p>This outcome measure does not have a traditional numerator and denominator like a core process measure (e.g., percentage of adult patients with diabetes aged 18-75 years receiving one or more hemoglobin A1c tests per year); thus, we use this field to define the measure cohort.</p> <p>The time window can be specified for two years. The index cohort includes hospital stays for patients aged 65 or older who receive a PCI and who have matching records in the CathPCI Registry and Medicare claims.</p> <p>In the CathPCI Registry, eligible admissions are identified with field 5305 (PCI=Yes).</p> <p>In the Medicare claims, the patient cohort is defined by having one or more of the ICD-9-CM procedure codes and Current Procedural Terminology (CPT) procedure codes listed below.</p> <p>ICD-9 codes that define the patient cohort:</p> <p>00.66 Percutaneous transluminal coronary angioplasty or coronary atherectomy</p> <p>17.55 Transluminal coronary atherectomy</p> <p>36.06 Insertion of non-drug-eluting coronary artery stent(s)</p> <p>36.07 Insertion of drug-eluting coronary artery stent (s)</p> <p>Note: An ICD-9 to ICD-10 crosswalk is attached in field S.2b. (Data Dictionary or Code Table).</p> <p>CPT codes:</p> <p>92973 Percutaneous transluminal coronary thrombectomy</p> <p>92980 Coronary Stents (single vessel)</p> <p>92981 Coronary Stents (each additional vessel)</p> <p>92982 Coronary Balloon Angioplasty (single vessel)</p> <p>92984 Coronary Balloon Angioplasty (each additional vessel)</p> <p>92995 Percutaneous Atherectomy</p> <p>92996 Percutaneous Atherectomy</p>
Exclusions	<p>The following exclusions were applied to data during the merging of NCDR CathPCI and Medicare datasets:</p> <ol style="list-style-type: none"> <li>1. Patients younger than 65 years of age. Rationale: Patients younger than 65 in the Medicare dataset represent a distinct population that qualifies for Medicare due to disability. The characteristics and outcomes of these patients may be less representative of the larger population of PCI patients. Additionally, patients younger than 65 in the NCDR CathPCI dataset will not have corresponding data in the Medicare claims dataset to obtain the readmission outcome.</li> <li>2. Patient stays with duplicate fields (NCDR CathPCI and Medicare datasets). Rationale: Two or more patient stays that have identical information for SSN, admission date, discharge date, and hospital MPN are excluded to avoid making matching errors upon merging of the two datasets.</li> <li>3. Unmatched patient stays.</li> </ol>

	<p><b>0695 Hospital 30-Day Risk-Standardized Readmission Rates following Percutaneous Coronary Intervention (PCI)</b></p> <p>Rationale: The measure requires information from both the CathPCI Registry and corresponding Medicare claims data. Accordingly, the measure cannot be applied to patient stays that are not matched in both datasets.</p> <p>Exclusions applied to the linked dataset:</p> <ol style="list-style-type: none"> <li>1. Patients not enrolled in Medicare FFS at the start of the episode of care.</li> </ol> <p>Rationale: Readmission data are currently available only for Medicare FFS patients.</p> <ol style="list-style-type: none"> <li>2. Not the first claim in the same claim bundle.</li> </ol> <p>Rationale: Multiple claims from an individual hospital can be bundled together. To ensure that the selected PCI is the index PCI, we exclude those PCI procedures that were not the first claim in a specific bundle. Inclusion of additional claims could lead to double counting of an index PCI procedure.</p> <ol style="list-style-type: none"> <li>3. Instances when PCI is performed more than 10 days following admission.</li> </ol> <p>Rationale: Patients who undergo PCI late into their hospitalization represent an unusual clinical situation in which it is less likely that the care delivered at the time of or following the PCI would be reasonably assumed to be associated with subsequent risk of readmission.</p> <ol style="list-style-type: none"> <li>4. Transfers out.</li> </ol> <p>Rationale: Patient stays in which the patient received a PCI and was then transferred to another hospital are excluded because the hospital that performed the PCI procedure does not provide discharge care and cannot fairly be held responsible for their outcomes following discharge.</p> <ol style="list-style-type: none"> <li>5. In-hospital deaths (the patient dies in the hospital).</li> </ol> <p>Rationale: Subsequent admissions (readmissions) are not possible.</p> <ol style="list-style-type: none"> <li>6. Discharges Against Medical Advice (AMA).</li> </ol> <p>Rationale: Physicians and hospitals do not have the opportunity to deliver the highest quality care.</p> <ol style="list-style-type: none"> <li>7. PCI in which 30-day follow-up is not available.</li> </ol> <p>Rationale: Patients who are not enrolled for 30 days in fee-for-service Medicare following their hospital stay are excluded because there is not adequate follow-up data to assess readmissions.</p> <ol style="list-style-type: none"> <li>8. Admissions with a PCI occurring within 30-days of a prior PCI already included in the cohort.</li> </ol> <p>Rationale: We do not want to count the same admission as both an index admission and an outcome.</p>
Exclusion details	<p>The following exclusions were applied to data during the merging of NCDR CathPCI and Medicare datasets:</p> <ol style="list-style-type: none"> <li>1. Patients younger than 65 years of age.</li> </ol> <p>Rationale: Patients younger than 65 in the Medicare dataset represent a distinct population that qualifies for Medicare due to disability. The characteristics and outcomes of these patients may be less representative of the larger population of PCI patients. Additionally, patients younger than 65 in the NCDR CathPCI dataset will not have corresponding data in the Medicare claims dataset to obtain the readmission outcome.</p> <ol style="list-style-type: none"> <li>2. Patient stays with duplicate fields (NCDR CathPCI and Medicare datasets).</li> </ol> <p>Rationale: Two or more patient stays that have identical information for SSN, admission date, discharge date, and hospital MPN are excluded to avoid making matching errors upon merging of the two datasets.</p> <ol style="list-style-type: none"> <li>3. Unmatched patient stays.</li> </ol> <p>Rationale: The measure requires information from both the CathPCI Registry and</p>

	<b>0695 Hospital 30-Day Risk-Standardized Readmission Rates following Percutaneous Coronary Intervention (PCI)</b>
	<p>corresponding Medicare claims data. Accordingly, the measure cannot be applied to patient stays that are not matched in both datasets.</p> <p>Exclusions applied to the linked dataset:</p> <ol style="list-style-type: none"> <li>1. Patients not enrolled in Medicare FFS at the start of the episode of care.</li> </ol> <p>Rationale: Readmission data are currently available only for Medicare FFS patients.</p> <ol style="list-style-type: none"> <li>2. Not the first claim in the same claim bundle.</li> </ol> <p>Rationale: Multiple claims from an individual hospital can be bundled together. To ensure that the selected PCI is the index PCI, we exclude those PCI procedures that were not the first claim in a specific bundle. Inclusion of additional claims could lead to double counting of an index PCI procedure.</p> <ol style="list-style-type: none"> <li>3. Instances when PCI is performed more than 10 days following admission.</li> </ol> <p>Rationale: Patients who undergo PCI late into their hospitalization represent an unusual clinical situation in which it is less likely that the care delivered at the time of or following the PCI would be reasonably assumed to be associated with subsequent risk of readmission.</p> <ol style="list-style-type: none"> <li>4. Transfers out.</li> </ol> <p>Rationale: Patient stays in which the patient received a PCI and was then transferred to another hospital are excluded because the hospital that performed the PCI procedure does not provide discharge care and cannot fairly be held responsible for their outcomes following discharge.</p> <ol style="list-style-type: none"> <li>5. In-hospital deaths (the patient dies in the hospital).</li> </ol> <p>Rationale: Subsequent admissions (readmissions) are not possible.</p> <ol style="list-style-type: none"> <li>6. Discharges Against Medical Advice (AMA).</li> </ol> <p>Rationale: Physicians and hospitals do not have the opportunity to deliver the highest quality care.</p> <ol style="list-style-type: none"> <li>7. PCI in which 30-day follow-up is not available.</li> </ol> <p>Rationale: Patients who are not enrolled for 30 days in fee-for-service Medicare following their hospital stay are excluded because there is not adequate follow-up data to assess readmissions.</p> <ol style="list-style-type: none"> <li>8. Admissions with a PCI occurring within 30-days of a prior PCI already included in the cohort.</li> </ol> <p>Rationale: We do not want to count the same admission as both an index admission and an outcome.</p>

	<b>2375 PointRight OnPoint-30 SNF Rehospitalizations</b>
Status	Standing Committee Review
Steward	American Health Care Association
Description	PointRight OnPoint-30 is an all-cause, risk adjusted rehospitalization measure. It provides the rate at which all patients (regardless of payer status or diagnosis) who enter skilled nursing facilities (SNFs) from acute hospitals and are subsequently rehospitalized during their SNF stay, within 30 days from their admission to the SNF.
Type	Outcome
Data Source	Electronic Clinical Data
Level	Facility
Setting	Post Acute/Long Term Care Facility : Nursing Home/Skilled Nursing Facility Post Acute/Long Term Care Facility : Nursing Home/Skilled Nursing Facility

	<b>2375 PointRight OnPoint-30 SNF Rehospitalizations</b>
Time Window	
Numerator Statement	The numerator is the number of patients sent back to any acute care hospital (excluding emergency room only visits) during their SNF stay within 30 days from a SNF admission, as indicated on the MDS 3.0 discharge assessment during the 12 month measurement period.
Numerator Details	The numerator is the number of patients that are discharged from a SNF to an acute hospital within 30 days of entry from an acute hospital as indicated by MDS item A2100=03 (indicating 'discharge to acute hospitals') and MDS item A0310F=10/11 (indicating discharge status). The length of stay before rehospitalization is calculated by subtracting MDS item A1600 (entry date) from MDS item A2000 (discharge date).
Denominator Statement	The denominator is the number of all admissions, regardless of payer status and diagnosis, with an MDS 3.0 admission assessment to a SNF from an acute hospital during the target rolling 12 month period.
Denominator Details	The total number of admissions to the facility, from an acute hospital, during the 12 month measure period are determined using the MDS item A1800=03, indicating 'entered from hospital'. The entry date is determined using 2 MDS variables: A1600 (entry date) and A0310F=01 (indicating 'entry tracking records').
Exclusions	The denominator has 2 different exclusions: individual level and provider level. At the individual level the exclusion is related to incomplete assessments. At the provider level the exclusion is related to the amount of data necessary to calculate the measure that is missing. Payer status and clinical conditions are not used for any exclusions.
Exclusion details	The denominator has 2 different exclusions: individual level and provider level. At the individual level the exclusion is related to incomplete assessments. At the provider level the exclusion is related to the amount of data necessary to calculate the measure that is missing. Payer status and clinical conditions are not used for any exclusions.

	<b>2380 Rehospitalization During the First 30 Days of Home Health</b>
Status	Standing Committee Review
Steward	Centers for Medicare and Medicaid Services
Description	Percentage of Home Health stays in which patients who had an acute inpatient hospitalization in the 5 days before the start of their Home Health stay were admitted to an acute care hospital during the 30 days following the start of the Home Health stay.
Type	Outcome
Data Source	Administrative claims
Level	Facility
Setting	Home Health Home Health
Time Window	
Numerator Statement	Number of Home Health stays for patients who have a Medicare claim for an admission to an acute care hospital in the 30 days following the start of the Home Health stay.
Numerator Details	The 30 day time window is calculated by adding 30 days to the "from" date in the first Home Health claim in the series of Home Health claims that comprise the Home Health stay. If the patient has at least one Medicare inpatient claim from short term or critical access hospitals (identified by the CMS Certification Number ending in 0001-0879, 0800-0899, or 1300-1399) during the 30 day window, then the stay is included in the measure numerator.

	<b>2380 Rehospitalization During the First 30 Days of Home Health</b>
	<p>Numerator Exclusions: Inpatient claims for planned hospitalizations are excluded from the rehospitalization measure numerator. Planned hospitalizations are defined using the same criteria as the Hospital-Wide All-Cause Unplanned Readmission Measure as of January 2013. Specifically, a small set of readmissions, defined using Agency for Healthcare Research and Quality (AHRQ) Procedure and Diagnosis Clinical Classification Software (CCS), are always considered “planned.” An additional set of admissions are categorized as “potentially planned” and are also excluded from being counted as unplanned admissions in the measure numerator unless they have a discharge condition category considered “acute or complication of care,” which is defined using AHRQ Diagnosis CCS.</p>
Denominator Statement	<p>Number of Home Health stays that begin during the relevant observation period for patients who had an acute inpatient hospitalization in the five days prior to the start of the Home Health stay. A Home Health stay is a sequence of Home Health payment episodes separated from other Home Health payment episodes by at least 60 days.</p>
Denominator Details	<p>The algorithm for computing patient-level outcomes is based on a 12-month observation period and produces both monthly and yearly numerator and denominator counts; to include all valid Home Health stays over a three-year period for public reporting purposes, CMS will merge the data for the most recent 12-month observation period with the data from the preceding two 12-month observation periods.</p> <p>A Home Health stay is a sequence of Home Health payment episodes separated from other Home Health payment episodes by at least 60 days. Each Home Health payment episode is associated with a Medicare Home Health claim, so Home Health stays are constructed from claims data using the following procedure:</p> <ol style="list-style-type: none"> <li>1. First, retrieve Home Health claims with a “from” date (FROM_DT) during the 12-month observation period or the 120 days prior to the beginning of the observation period and sequence these claims by “from” date for each beneficiary.</li> <li>2. Second, drop claims with the same “from” date and “through” date (THROUGH_DT) and claims listing no visits and no payment. Additionally, if multiple claims have the same “from” date, keep only the claim with the most recent process date.</li> <li>3. Third, set Stay_Start_Date(1) equal to the “from” date on the beneficiary’s first claim. Step through the claims sequentially to determine which claims begin new Home Health stays. If the claim “from” date is more than 60 days after the “through” date on the previous claim, then the claim begins a new stay. If the claim “from” date is within 60 days of the “through” date on the previous claim, then the claim continues the stay associated with the previous claim.</li> <li>4. Fourth, for each stay, set Stay_Start_Date(n) equal to the “from” date of the first claim in the sequence of claims defining that stay. Set Stay_End_Date(n) equal to the “through” date on the last claim in that stay. Confirm that Stay_Start_Date(n) minus Stay_End_Date(n-1) is greater than 60 days for all adjacent stays.</li> <li>5. Fifth, drop stays that begin before the 12-month observation window.</li> <li>6. Finally, only stays that begin within 5 days of discharge from a short-term inpatient hospital are included in the denominator as follows: <ol style="list-style-type: none"> <li>i. Link to Part A claims for 6 months prior to Stay_Start_Date for each beneficiary.</li> <li>ii. Define Hosp_Discharge_DT = Thru_Dt of the inpatient claim with the latest through date (thru_Dt) prior to Stay_Start_Date,.</li> <li>iii. Limit to Home Health stays where the Stay_Start_Date minus the Hosp_Discharge_DT is equal to or less than 5. Exclude stays where the IP claim is from a provider type that is not a short stay hospital . Short term hospitals are defined using the following CCN ranges in the third through sixth positions: 0001-0879, 0880-0899, and 1300-1399.</li> </ol> </li> </ol>



	<b>2380 Rehospitalization During the First 30 Days of Home Health</b>
	Note the examining claims from the 120 days before the beginning of the 12-month observation period is necessary to ensure that stays beginning during the observation period are in fact separated from previous Home Health claims by at least 60 days.
Exclusions	<p>The measure denominator excludes several types of Home Health stays:</p> <p>First, the measure denominator for the Rehospitalization During the First 30 Days of Home Health measure excludes the following Home Health stays that are also excluded from the all-patient claims-based NQF 0171 Acute Care Hospitalization measure: (i) Stays for patients who are not continuously enrolled in fee-for-service Medicare during the measure numerator window; (ii) Stays that begin with a Low-Utilization Payment Adjustment (LUPA). Stays with four or fewer visits to the beneficiary qualify for LUPAs; (iii) Stays in which the patient is transferred to another Home Health agency within a Home Health payment episode (60 days); and (iv) Stays in which the patient is not continuously enrolled in Medicare fee-for-service during the previous six months.</p> <p>Second, to be consistent with the Hospital-Wide All-Cause Unplanned Readmission measure (as of January 2013), the measure denominator excludes stays in which the hospitalization occurring within 5 days of the start of Home Health care is not a qualifying inpatient stay. Hospitalizations that do not qualify as index hospitalizations include admissions for the medical treatment of cancer, primary psychiatric disease, or rehabilitation care, and admissions ending in patient discharge against medical advice.</p> <p>Third, the measure denominator excludes stays in which the patient receives treatment in another setting in the 5 days between hospital discharge and the start of Home Health.</p> <p>Finally, stays with missing payment-episode authorization strings (needed for risk-adjustment) are excluded.</p>
Exclusion details	<p>The measure denominator excludes several types of Home Health stays:</p> <p>First, the measure denominator for the Rehospitalization During the First 30 Days of Home Health measure excludes the following Home Health stays that are also excluded from the all-patient claims-based NQF 0171 Acute Care Hospitalization measure: (i) Stays for patients who are not continuously enrolled in fee-for-service Medicare during the measure numerator window; (ii) Stays that begin with a Low-Utilization Payment Adjustment (LUPA). Stays with four or fewer visits to the beneficiary qualify for LUPAs; (iii) Stays in which the patient is transferred to another Home Health agency within a Home Health payment episode (60 days); and (iv) Stays in which the patient is not continuously enrolled in Medicare fee-for-service during the previous six months.</p> <p>Second, to be consistent with the Hospital-Wide All-Cause Unplanned Readmission measure (as of January 2013), the measure denominator excludes stays in which the hospitalization occurring within 5 days of the start of Home Health care is not a qualifying inpatient stay. Hospitalizations that do not qualify as index hospitalizations include admissions for the medical treatment of cancer, primary psychiatric disease, or rehabilitation care, and admissions ending in patient discharge against medical advice.</p> <p>Third, the measure denominator excludes stays in which the patient receives treatment in another setting in the 5 days between hospital discharge and the start of Home Health.</p> <p>Finally, stays with missing payment-episode authorization strings (needed for risk-adjustment) are excluded.</p>

	<b>2393 Pediatric All-Condition Readmission Measure</b>
Status	Standing Committee Review
Steward	Center of Excellence for Pediatric Quality Measurement
Description	This measure calculates case-mix-adjusted readmission rates, defined as the percentage of admissions followed by 1 or more readmissions within 30 days, for patients less than 18 years old. The measure covers patients discharged from general acute care hospitals, including children's hospitals.
Type	Outcome
Data Source	Administrative claims
Level	Facility
Setting	Hospital/Acute Care Facility Hospital/Acute Care Facility
Time Window	
Numerator Statement	<p>The numerator consists of hospitalizations at general acute care hospitals for patients less than 18 years old that are followed by 1 or more readmissions to general acute care hospitals within 30 days. Readmissions are excluded from the numerator if the readmission was for a planned procedure or for chemotherapy.</p> <p>The measure outcome is a readmission rate, defined as the percentage of index admissions with 1 or more readmissions within 30 days. The readmission rate, unadjusted for case-mix, is calculated as follows:</p> $\frac{\text{number of index admissions with 1 or more readmissions within 30 days/}}{\text{total number of index admissions}}$
Numerator Details	<p>A readmission is operationalized as the first unplanned admission to any acute care hospital within 30 days of discharge from a prior hospitalization at an acute care hospital. This prior admission, which serves as the reference point for enumerating 30-day readmissions, is the index admission. Additional admissions within 30 days from discharge from an index admission are not counted as index admissions. An admission more than 30 days from discharge from an index admission is counted as a new index admission.</p> <p>We chose 30 days as the follow-up period during which to evaluate readmissions for multiple reasons. Readmissions within 30 days seem likely to reflect the quality of care provided both in the hospital and following discharge, which is consistent with the measure's intended purpose of assessing quality not just for a hospital but also for its wider health system. A follow-up period of 30 days is consistent with many readmission measures already in use, including the CMS readmission measures for adults. In addition, when we used a time-to-event curve to evaluate the proportion of readmissions within 1 year that occur within timeframes from 1 day up to 365 days, we observed a smooth curve with no obvious break to suggest an alternative follow-up period.</p> <p>Readmissions are excluded if they are for a planned procedure or for chemotherapy. Readmissions for planned procedures and for chemotherapy are part of a patient's intended course of care and thus unlikely to be related to health system quality. This measure therefore focuses on unplanned readmissions because they are more likely to be related to a defect in quality of care during the index admission or during the interval between the index admission and readmission. In adult and pediatric medicine, most planned readmissions are for planned procedures or chemotherapy; therefore, these exclusions are intended to capture the majority of planned readmissions.</p> <p>We identify planned procedures using an algorithm based on primary procedure codes. Expert pediatric clinicians in 15 different procedure-oriented specialties reviewed procedures typically performed by their specialty. The reviewers indicated which procedures (1) are usually planned (defined as planned in more than 80% of cases) and (2) could require</p>

	<b>2393 Pediatric All-Condition Readmission Measure</b>
	<p>hospitalization. Admissions for which the primary International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) procedure code or the principal International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) procedure code for a planned procedure coded was 1 of these procedures are excluded from readmissions. ICD-9-CM codes will henceforth be referred to as ICD-9 codes. ICD-10-CM diagnosis codes and ICD-10 Procedure Coding System (PCS) codes will be referred to as ICD-10 diagnosis and ICD-10 procedure codes, respectively.</p> <p>EXCLUSIONS FROM THE NUMERATOR (READMISSIONS):</p> <ul style="list-style-type: none"> <li>• Hospitalizations with a primary ICD-9 code or a principal ICD-10 code for a planned procedure (i.e., planned = 1).</li> <li>• Hospitalizations with a primary ICD-9 or a principal ICD-10 diagnosis or procedure code for chemotherapy (i.e., chemo = 1).</li> </ul> <p>These exclusions are applied without deleting the records from the dataset as these hospitalizations may still meet criteria for index admissions, detailed in Section S.10. Variable definitions and ICD-9 or ICD-10 codes for identifying readmissions for planned procedures and for chemotherapy are provided in the Data Dictionary.</p> <p>If a planned readmission occurs within 30 days of an index admission, it does not count as a readmission against the index admission, and no subsequent admissions occurring within 30 days of discharge from the index admission count as readmissions against the index admission. After 30 days from discharge from the index admission, a new index admission can be counted.</p>
Denominator Statement	Hospitalizations at general acute care hospitals for patients less than 18 years old.
Denominator Details	All index hospitalizations are included in the denominator unless excluded based on 1 of the criteria in Sections S.10 and S.11 below.
Exclusions	<p>EXCLUSIONS FROM THE NUMERATOR (READMISSIONS) AND DENOMINATOR (INDEX HOSPITALIZATIONS)</p> <p>We exclude certain hospitalizations from the measure entirely (i.e., from the numerator and denominator) based on clinical criteria or for issues of data completeness or quality that could prevent assessment of eligibility for the measure cohort or compromise the accuracy of readmission rates. Hospitalizations are excluded from the measure if they meet any of the following criteria:</p> <ol style="list-style-type: none"> <li>1. The hospitalization was at a specialty or non-acute care hospital.</li> </ol> <p>Rationale: The focus of the measure is admissions to hospitals that provide general pediatric acute care. Records for admissions to specialty and non-acute care hospitals are therefore omitted from the dataset. Because hospital type cannot be determined for records with missing data in the hospital type variable, these records are also removed from the dataset.</p> <ol style="list-style-type: none"> <li>2. Records for the hospitalization contain incomplete data for variables needed to assess eligibility for the measure or calculate readmission rates, including hospital type, patient identifier, admission date, discharge date, disposition status, date of birth, primary ICD-9 or principal ICD-10 diagnosis codes, or gender.</li> </ol> <p>Rationale: Complete and valid information for the variables listed above is needed to define the measure cohort and calculate case-mix-adjusted readmission rates. Identifying readmissions within 30 days requires information on dates of admission and end-of-service dates and the ability to link unique patient identifiers across inpatient claims records. Hospital identifiers are needed to determine the hospital at which index admissions occurred. The disposition status is needed to determine whether a patient was discharged or experienced</p>

	2393 Pediatric All-Condition Readmission Measure
	<p>some other outcome (e.g., was transferred to another acute care hospital, left against medical advice, died). Establishing a patient’s eligibility for membership in the pediatric cohort and performing case-mix adjustment requires an accurate date of birth and end-of-service date. Because gender is 1 of the variables used for case-mix adjustment, episodes of care with missing or inconsistent gender cannot be evaluated in the measure.</p> <p>3. Records for the hospitalization contain data of questionable quality for calculating readmission rates, including</p> <ol style="list-style-type: none"> <li>Inconsistent date of birth across records for a patient.</li> <li>Discharge date prior to admission date.</li> <li>Admission or discharge date prior to date of birth.</li> <li>Admission date after a disposition status of death during a prior hospitalization.</li> </ol> <p>Rationale: Complete and valid information for the variables listed above is needed to define the measure cohort and calculate case-mix-adjusted readmission rates. Identifying readmissions within 30 days requires information on dates of admission and end-of-service. A valid disposition status is needed to determine whether a patient was discharged or experienced some other outcome (e.g., was transferred to another acute care hospital, left against medical advice, died). Establishing a patient’s eligibility for membership in the pediatric cohort and performing case-mix adjustment requires an accurate date of birth and end-of-service date.</p> <p>4. Codes other than ICD-9 or ICD-10 codes are used for the primary procedure.</p> <p>Rationale: ICD-9 or ICD-10 procedure codes are necessary for applying clinical exclusions.</p> <p>5. The patient was older than 18 years, 29 days at the time of admission.</p> <p>Rationale: This age exclusion limits the population to pediatric patients and prevents inclusion of records that overlap with adult readmission measures. Age eligibility for inclusion in the measure is based on age at the time of discharge from the index admission. Because the focus of the measure is pediatric patients, a patient’s hospitalization is ineligible for inclusion in the measure as an index admission if the patient was 18 years old or greater at the time of discharge. Because the subsequent observation period for readmissions is 30 days, a patient’s hospitalization is ineligible for inclusion in the measure as a readmission if the patient was older than 18 years, 29 days at the start of the readmission.</p> <p>6. The hospitalization was for obstetric care, including labor and delivery.</p> <p>Rationale: Hospitalizations for obstetric conditions are excluded because care related to pregnancy does not generally fall within the purview of pediatric providers.</p> <p>7. The primary ICD-9 or principal ICD-10 diagnosis code was for a mental health condition.</p> <p>Rationale: Hospitalizations for mental health conditions are excluded because we found that hospitals with high readmission rates for mental health hospitalizations tend to have low readmission rates for hospitalizations for other conditions, and vice versa. We describe this analysis in detail in Section 2b.3 of the Measure Testing Submission Form.</p> <p>8. The hospitalization was for birth of a healthy newborn.</p> <p>Rationale: Hospitalizations for birth of healthy newborns are excluded because these hospitalizations, unlike all others, are not for evaluation and management of disease.</p> <p><b>EXCLUSIONS FROM THE DENOMINATOR ONLY (INDEX HOSPITALIZATIONS ONLY)</b></p> <p>We also apply further exclusions to the denominator only (i.e., these hospitalizations are excluded from index hospitalizations but could still meet criteria for readmissions). Hospitalizations are excluded from the denominator only if they meet any of the following criteria:</p> <p>9. The patient was 18 years old or older at the time of discharge.</p> <p>Rationale: Age eligibility for inclusion in the measure is based on age at the time of discharge</p>

	<p><b>2393 Pediatric All-Condition Readmission Measure</b></p> <p>from the index admission. Because the measure covers pediatric patients, a patient's hospitalization is ineligible for inclusion in the measure as an index admission if the patient was 18 years old or greater at the time of discharge.</p> <p>10. The discharge disposition was death. Rationale: A patient must be discharged alive from an index admission in order to be readmitted. Therefore, any record with a discharge disposition of death cannot serve as an index admission.</p> <p>11. The discharge disposition was leaving the hospital against medical advice. Rationale: A discharge disposition of leaving against medical advice indicates that a patient left care before the hospital determined that the patient was ready to leave.</p> <p>12. The hospital has less than 80% of records with complete patient identifier, admission date, and discharge date or less than 80% of records with complete primary ICD-9 or principal ICD-10 diagnosis codes. (Records for these hospitals are still assessed as possible readmissions, but readmission rates are not calculated for these hospitals due to their lack of complete data.) Rationale: Readmission rates are not calculated for hospitals missing large amounts of data for the above variables because these hospitals have limited data to accurately apply measure cohort exclusions and calculate case-mix-adjusted readmission rates. Assessing eligibility for the measure cohort and performing case-mix adjustment requires information on admission dates, end-of-service dates, and diagnosis codes. Identifying readmissions requires information on admission dates and end-of-service dates and the ability to link unique patient identifiers across inpatient claims records.</p> <p>13. The hospital is in a state not being analyzed. Rationale: A claims database used for readmission analysis may contain records for hospitals located in states that are not included in the database (because covered patients may sometimes be admitted to out-of-state hospitals). Records for these out-of-state hospital admissions are not excluded from the measure dataset because these records may meet criteria for being counted as readmissions as part of an in-state hospital's readmission rate. However, readmission rates are not calculated for out-of-state hospitals due to the lack of complete data for these hospitals.</p> <p>14. Thirty days of follow-up data are not available for assessing readmissions. Rationale: Identifying readmissions within 30 days requires a full 30 days of follow-up data.</p>
Exclusion details	<p><b>EXCLUSIONS FROM THE NUMERATOR (READMISSIONS) AND DENOMINATOR (INDEX HOSPITALIZATIONS)</b></p> <p>We exclude certain hospitalizations from the measure entirely (i.e., from the numerator and denominator) based on clinical criteria or for issues of data completeness or quality that could prevent assessment of eligibility for the measure cohort or compromise the accuracy of readmission rates. Hospitalizations are excluded from the measure if they meet any of the following criteria:</p> <p>1. The hospitalization was at a specialty or non-acute care hospital. Rationale: The focus of the measure is admissions to hospitals that provide general pediatric acute care. Records for admissions to specialty and non-acute care hospitals are therefore omitted from the dataset. Because hospital type cannot be determined for records with missing data in the hospital type variable, these records are also removed from the dataset.</p> <p>2. Records for the hospitalization contain incomplete data for variables needed to assess eligibility for the measure or calculate readmission rates, including hospital type, patient identifier, admission date, discharge date, disposition status, date of birth, primary ICD-9 or principal ICD-10 diagnosis codes, or gender.</p>

	<p><b>2393 Pediatric All-Condition Readmission Measure</b></p>
	<p>Rationale: Complete and valid information for the variables listed above is needed to define the measure cohort and calculate case-mix-adjusted readmission rates. Identifying readmissions within 30 days requires information on dates of admission and end-of-service dates and the ability to link unique patient identifiers across inpatient claims records. Hospital identifiers are needed to determine the hospital at which index admissions occurred. The disposition status is needed to determine whether a patient was discharged or experienced some other outcome (e.g., was transferred to another acute care hospital, left against medical advice, died). Establishing a patient's eligibility for membership in the pediatric cohort and performing case-mix adjustment requires an accurate date of birth and end-of-service date. Because gender is 1 of the variables used for case-mix adjustment, episodes of care with missing or inconsistent gender cannot be evaluated in the measure.</p> <p>3. Records for the hospitalization contain data of questionable quality for calculating readmission rates, including</p> <ol style="list-style-type: none"> <li>Inconsistent date of birth across records for a patient.</li> <li>Discharge date prior to admission date.</li> <li>Admission or discharge date prior to date of birth.</li> <li>Admission date after a disposition status of death during a prior hospitalization.</li> </ol> <p>Rationale: Complete and valid information for the variables listed above is needed to define the measure cohort and calculate case-mix-adjusted readmission rates. Identifying readmissions within 30 days requires information on dates of admission and end-of-service. A valid disposition status is needed to determine whether a patient was discharged or experienced some other outcome (e.g., was transferred to another acute care hospital, left against medical advice, died). Establishing a patient's eligibility for membership in the pediatric cohort and performing case-mix adjustment requires an accurate date of birth and end-of-service date.</p> <p>4. Codes other than ICD-9 or ICD-10 codes are used for the primary procedure.</p> <p>Rationale: ICD-9 or ICD-10 procedure codes are necessary for applying clinical exclusions.</p> <p>5. The patient was older than 18 years, 29 days at the time of admission.</p> <p>Rationale: This age exclusion limits the population to pediatric patients and prevents inclusion of records that overlap with adult readmission measures. Age eligibility for inclusion in the measure is based on age at the time of discharge from the index admission. Because the focus of the measure is pediatric patients, a patient's hospitalization is ineligible for inclusion in the measure as an index admission if the patient was 18 years old or greater at the time of discharge. Because the subsequent observation period for readmissions is 30 days, a patient's hospitalization is ineligible for inclusion in the measure as a readmission if the patient was older than 18 years, 29 days at the start of the readmission.</p> <p>6. The hospitalization was for obstetric care, including labor and delivery.</p> <p>Rationale: Hospitalizations for obstetric conditions are excluded because care related to pregnancy does not generally fall within the purview of pediatric providers.</p> <p>7. The primary ICD-9 or principal ICD-10 diagnosis code was for a mental health condition.</p> <p>Rationale: Hospitalizations for mental health conditions are excluded because we found that hospitals with high readmission rates for mental health hospitalizations tend to have low readmission rates for hospitalizations for other conditions, and vice versa. We describe this analysis in detail in Section 2b.3 of the Measure Testing Submission Form.</p> <p>8. The hospitalization was for birth of a healthy newborn.</p> <p>Rationale: Hospitalizations for birth of healthy newborns are excluded because these hospitalizations, unlike all others, are not for evaluation and management of disease.</p> <p><b>EXCLUSIONS FROM THE DENOMINATOR ONLY (INDEX HOSPITALIZATIONS ONLY)</b></p>

	<b>2393 Pediatric All-Condition Readmission Measure</b>
	<p>We also apply further exclusions to the denominator only (i.e., these hospitalizations are excluded from index hospitalizations but could still meet criteria for readmissions). Hospitalizations are excluded from the denominator only if they meet any of the following criteria:</p> <p>9. The patient was 18 years old or older at the time of discharge. Rationale: Age eligibility for inclusion in the measure is based on age at the time of discharge from the index admission. Because the measure covers pediatric patients, a patient's hospitalization is ineligible for inclusion in the measure as an index admission if the patient was 18 years old or greater at the time of discharge.</p> <p>10. The discharge disposition was death. Rationale: A patient must be discharged alive from an index admission in order to be readmitted. Therefore, any record with a discharge disposition of death cannot serve as an index admission.</p> <p>11. The discharge disposition was leaving the hospital against medical advice. Rationale: A discharge disposition of leaving against medical advice indicates that a patient left care before the hospital determined that the patient was ready to leave.</p> <p>12. The hospital has less than 80% of records with complete patient identifier, admission date, and discharge date or less than 80% of records with complete primary ICD-9 or principal ICD-10 diagnosis codes. (Records for these hospitals are still assessed as possible readmissions, but readmission rates are not calculated for these hospitals due to their lack of complete data.) Rationale: Readmission rates are not calculated for hospitals missing large amounts of data for the above variables because these hospitals have limited data to accurately apply measure cohort exclusions and calculate case-mix-adjusted readmission rates. Assessing eligibility for the measure cohort and performing case-mix adjustment requires information on admission dates, end-of-service dates, and diagnosis codes. Identifying readmissions requires information on admission dates and end-of-service dates and the ability to link unique patient identifiers across inpatient claims records.</p> <p>13. The hospital is in a state not being analyzed. Rationale: A claims database used for readmission analysis may contain records for hospitals located in states that are not included in the database (because covered patients may sometimes be admitted to out-of-state hospitals). Records for these out-of-state hospital admissions are not excluded from the measure dataset because these records may meet criteria for being counted as readmissions as part of an in-state hospital's readmission rate. However, readmission rates are not calculated for out-of-state hospitals due to the lack of complete data for these hospitals.</p> <p>14. Thirty days of follow-up data are not available for assessing readmissions. Rationale: Identifying readmissions within 30 days requires a full 30 days of follow-up data.</p>

	<b>2414 Pediatric Lower Respiratory Infection Readmission Measure</b>
Status	Standing Committee Review
Steward	Center of Excellence for Pediatric Quality Measurement
Description	This measure calculates case-mix-adjusted readmission rates, defined as the percentage of admissions followed by 1 or more readmissions within 30 days, following hospitalization for lower respiratory infection (LRI) in patients less than 18 years old. The measure covers patients discharged from general acute care hospitals, including children's hospitals.



	<b>2414 Pediatric Lower Respiratory Infection Readmission Measure</b>
Type	Outcome
Data Source	Administrative claims
Level	Facility
Setting	Hospital/Acute Care Facility Hospital/Acute Care Facility
Time Window	
Numerator Statement	<p>The numerator consists of hospitalizations at general acute care hospitals for LRI in patients less than 18 years old that are followed by 1 or more readmissions to general acute care hospitals within 30 days. Readmissions are excluded from the numerator if the readmission was for a planned procedure or for chemotherapy.</p> <p>The measure outcome is a readmission rate, defined as the percentage of index admissions with 1 or more readmissions within 30 days. The readmission rate, unadjusted for case-mix, is calculated as follows:</p> $\frac{\text{number of index admissions with 1 or more readmissions within 30 days}}{\text{total number of index admissions}}$
Numerator Details	<p>A readmission is operationalized as the first unplanned admission to any acute care hospital within 30 days of discharge from a prior hospitalization at an acute care hospital. This prior admission, which serves as the reference point for enumerating 30-day readmissions, is the index admission. Additional admissions within 30 days from discharge from an index admission are not counted as index admissions. An admission more than 30 days from discharge from an index admission is counted as a new index admission.</p> <p>We chose 30 days as the follow-up period during which to evaluate readmissions for multiple reasons. Readmissions within 30 days seem likely to reflect the quality of care provided both in the hospital and following discharge, which is consistent with the measure's intended purpose of assessing quality not just for a hospital but also for its wider health system. A follow-up period of 30 days is consistent with many readmission measures already in use, including the CMS readmission measures for adults. In addition, when we used a time-to-event curve to evaluate the proportion of readmissions within 1 year that occur within timeframes from 1 day up to 365 days, we observed a smooth curve with no obvious break to suggest an alternative follow-up period.</p> <p>Readmissions are excluded if they are for a planned procedure or for chemotherapy. Readmissions for planned procedures and for chemotherapy are part of a patient's intended course of care and thus unlikely to be related to health system quality. This measure therefore focuses on unplanned readmissions because they are more likely to be related to a defect in quality of care during the index admission or during the interval between the index admission and readmission. In adult and pediatric medicine, most planned readmissions are for planned procedures or chemotherapy; therefore, these exclusions are intended to capture the majority of planned admissions.</p> <p>We identify planned procedures using an algorithm based on primary procedure codes. Expert pediatric clinicians in 15 different procedure-oriented specialties reviewed procedures typically performed by their specialty. The reviewers indicated which procedures (1) are usually planned (defined as planned in more than 80% of cases) and (2) could require hospitalization. Admissions for which the primary International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) procedure code or the principal International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) procedure code for a planned procedure coded was 1 of these procedures are excluded from readmissions. ICD-9-CM codes will henceforth be referred to as ICD-9 codes. ICD-10-CM diagnosis codes and ICD-10 Procedure Coding System (PCS) codes will be referred to as ICD-10 diagnosis and ICD-10 procedure codes, respectively.</p>

	<b>2414 Pediatric Lower Respiratory Infection Readmission Measure</b>
	<p><b>EXCLUSIONS FROM THE NUMERATOR (READMISSIONS):</b></p> <ul style="list-style-type: none"> <li>• Hospitalizations with a primary ICD-9 code or a principal ICD-10 code for a planned procedure (i.e., planned = 1).</li> <li>• Hospitalizations with a primary ICD-9 or a principal ICD-10 diagnosis or procedure code for chemotherapy (i.e., chemo = 1).</li> </ul> <p>These exclusions are applied without deleting the records from the dataset as these hospitalizations may still meet criteria for index admissions, detailed in Section S.10. Variable definitions and ICD-9 or ICD-10 codes for identifying readmissions for planned procedures and for chemotherapy are provided in the Data Dictionary.</p> <p>If a planned readmission occurs within 30 days of an index admission, it does not count as a readmission against the index admission, and no subsequent admissions occurring within 30 days of discharge from the index admission count as readmissions against the index admission. After 30 days from discharge from the index admission, a new index admission can be counted.</p>
Denominator Statement	Hospitalizations at general acute care hospitals for LRI in patients less than 18 years old.
Denominator Details	Index hospitalizations are identified by applying a case definition for LRI and the exclusion criteria detailed in Sections S.10 and S.11. The LRI case definition requires either a primary ICD-9 or principal ICD-10 diagnosis code for bronchiolitis, influenza, or community-acquired pneumonia (CAP) or a secondary ICD-9 or additional ICD-10 diagnosis code for one of these LRIs plus a primary ICD-9 or additional ICD-10 diagnosis code for asthma, respiratory failure, or sepsis/bacteremia. The variable definition and ICD-9 or ICD-10 codes for the case definition are provided in the ICD-9 or ICD-10 Data Dictionary.
Exclusions	<p><b>EXCLUSIONS FROM THE NUMERATOR (READMISSIONS) AND DENOMINATOR (INDEX HOSPITALIZATIONS)</b></p> <p>We exclude certain hospitalizations from the measure entirely (i.e., from the numerator and denominator) based on clinical criteria or for issues of data completeness or quality that could prevent assessment of eligibility for the measure cohort or compromise the accuracy of readmission rates. Hospitalizations are excluded from the measure if they meet any of the following criteria:</p> <ol style="list-style-type: none"> <li>1. The hospitalization was at a specialty or non-acute care hospital.</li> </ol> <p>Rationale: The focus of the measure is admissions to hospitals that provide general pediatric acute care. Records for admissions to specialty and non-acute-care hospitals are therefore omitted from the dataset. Because hospital type cannot be determined for records with missing data in the hospital type variable, these records are also removed from the dataset.</p> <ol style="list-style-type: none"> <li>2. Records for the hospitalization contain incomplete data for variables needed to assess eligibility for the measure or calculate readmission rates, including hospital type, patient identifier, admission date, discharge date, disposition status, date of birth, primary ICD-9 or principal ICD-10 diagnosis codes, and gender.</li> </ol> <p>Rationale: Complete and valid information for the variables listed above is needed to define the measure cohort and calculate case-mix-adjusted readmission rates. Identifying readmissions within 30 days requires information on dates of admission and end-of-service dates and the ability to link unique patient identifiers across inpatient claims records. Hospital identifiers are needed to determine the hospital at which index admissions occurred. The disposition status is needed to determine whether a patient was discharged or experienced some other outcome (e.g., was transferred to another acute care hospital, left against medical advice, died). Establishing a patient's eligibility for membership in the pediatric cohort and</p>

	2414 Pediatric Lower Respiratory Infection Readmission Measure
	<p>performing case-mix adjustment requires an accurate date of birth and end-of-service date. Because gender is 1 of the variables used for case-mix adjustment, episodes of care with missing or inconsistent gender cannot be evaluated in the measure.</p> <p>3. Records for the hospitalization contain data of questionable quality for calculating readmission rates, including</p> <ol style="list-style-type: none"> <li>Inconsistent date of birth across records for a patient.</li> <li>Discharge date prior to admission date.</li> <li>Admission or discharge date prior to date of birth.</li> <li>Admission date after a disposition status of death during a prior hospitalization.</li> </ol> <p>Rationale: Complete and valid information for the variables listed above is needed to define the measure cohort and calculate case-mix-adjusted readmission rates. Identifying readmissions within 30 days requires information on dates of admission and end-of-service. A valid disposition status is needed to determine whether a patient was discharged or experienced some other outcome (e.g., was transferred to another acute care hospital, left against medical advice, died). Establishing a patient's eligibility for membership in the pediatric cohort and performing case-mix adjustment requires an accurate date of birth and end-of-service date.</p> <p>4. Codes other than ICD-9 or ICD-10 codes are used for the primary procedure.</p> <p>Rationale: ICD-9 or ICD-10 procedure codes are necessary for applying clinical exclusions.</p> <p>5. The patient was older than 18 years, 29 days at the time of admission.</p> <p>Rationale: This age exclusion limits the population to pediatric patients and prevents inclusion of records that overlap with adult readmission measures. Age eligibility for inclusion in the measure is based on age at the time of discharge from the index admission. Because the focus of the measure is pediatric patients, a patient's hospitalization is ineligible for inclusion in the measure as an index admission if the patient was 18 years old or greater at the time of discharge. Because the subsequent observation period for readmissions is 30 days, a patient's hospitalization is ineligible for inclusion in the measure as a readmission if the patient was older than 18 years, 29 days at the start of the readmission.</p> <p>6. The hospitalization was for obstetric care, including labor and delivery.</p> <p>Rationale: Hospitalizations for obstetric conditions are excluded because care related to pregnancy does not generally fall within the purview of pediatric providers.</p> <p>7. The primary ICD-9 or principal ICD-10 diagnosis code was for a mental health condition.</p> <p>Rationale: Hospitalizations for mental health conditions are excluded because we found that hospitals with high readmission rates for mental health hospitalizations tend to have low readmission rates for hospitalizations for other conditions, and vice versa. We describe this analysis in detail in Section 2b.3 of the Measure Testing Submission Form.</p> <p>8. The hospitalization was for birth of a healthy newborn.</p> <p>Rationale: Hospitalizations for birth of healthy newborns are excluded because these hospitalizations, unlike all others, are not for evaluation and management of disease.</p> <p><b>EXCLUSIONS FROM THE DENOMINATOR ONLY (INDEX HOSPITALIZATIONS ONLY)</b></p> <p>We also apply further exclusions to the denominator only (i.e., these hospitalizations are excluded from index hospitalizations but could still meet criteria for readmissions). Hospitalizations are excluded from the denominator only if they meet any of the following criteria:</p> <p>9. The patient was 18 years old or greater at the time of discharge.</p> <p>Rationale: Age eligibility for inclusion in the measure is based on age at the time of discharge from the index admission. Because the measure covers pediatric patients, a patient's hospitalization is ineligible for inclusion in the measure as an index admission if the patient</p>

	2414 Pediatric Lower Respiratory Infection Readmission Measure
	<p>was 18 years old or greater at the time of discharge.</p> <p>10. The discharge disposition was death. Rationale: A patient must be discharged alive from an index admission in order to be readmitted. Therefore, any record with a discharge disposition of death cannot serve as an index admission.</p> <p>11. The discharge disposition was leaving the hospital against medical advice. Rationale: A discharge disposition of leaving against medical advice indicates that a patient left care before the hospital determined that the patient was ready to leave.</p> <p>12. The hospital has less than 80% of records with complete patient identifier, admission date, and discharge date or less than 80% of records with complete primary ICD-9 or principal ICD-10 diagnosis codes. (Records for these hospitals are still assessed as possible readmissions, but readmission rates are not calculated for these hospitals due to their lack of complete data.) Rationale: Readmission rates are not calculated for hospitals missing large amounts of data for the above variables because these hospitals have limited data to accurately apply measure cohort exclusions and calculate case-mix-adjusted readmission rates. Assessing eligibility for the measure cohort and performing case-mix adjustment requires information on admission dates, end-of-service dates, and diagnosis codes. Identifying readmissions requires information on admission dates and end-of-service dates and the ability to link unique patient identifiers across inpatient claims records.</p> <p>13. The hospital is in a state not being analyzed. Rationale: A claims database used for readmission analysis may contain records for hospitals located in states that are not included in the database (because covered patients may sometimes be admitted to out-of-state hospitals). Records for these out-of-state hospital admissions are not excluded from the measure dataset because these records may meet criteria for being counted as readmissions as part of an in-state hospital's readmission rate. However, readmission rates are not calculated for out-of-state hospitals due to the lack of complete data for these hospitals.</p> <p>14. Thirty days of follow-up data are not available for assessing readmissions. Rationale: Identifying readmissions within 30 days requires a full 30 days of follow-up data.</p> <p>15. The hospitalization does not have a primary ICD-9 or principal ICD-10 LRI diagnosis or does not have a secondary ICD-9 or additional ICD-10 LRI diagnosis plus a primary ICD-9 or principal ICD-10 diagnosis of asthma, respiratory failure, or sepsis/bacteremia. Rationale: This measure focuses on readmissions following hospitalization for LRI. Episodes of care that do not meet the case definition for an LRI hospitalization are therefore excluded from index admissions.</p>
Exclusion details	<p><b>EXCLUSIONS FROM THE NUMERATOR (READMISSIONS) AND DENOMINATOR (INDEX HOSPITALIZATIONS)</b></p> <p>We exclude certain hospitalizations from the measure entirely (i.e., from the numerator and denominator) based on clinical criteria or for issues of data completeness or quality that could prevent assessment of eligibility for the measure cohort or compromise the accuracy of readmission rates. Hospitalizations are excluded from the measure if they meet any of the following criteria:</p> <p>1. The hospitalization was at a specialty or non-acute care hospital. Rationale: The focus of the measure is admissions to hospitals that provide general pediatric acute care. Records for admissions to specialty and non-acute-care hospitals are therefore omitted from the dataset. Because hospital type cannot be determined for records with missing data in the hospital type variable, these records are also removed from the dataset.</p>

	2414 Pediatric Lower Respiratory Infection Readmission Measure
	<p>2. Records for the hospitalization contain incomplete data for variables needed to assess eligibility for the measure or calculate readmission rates, including hospital type, patient identifier, admission date, discharge date, disposition status, date of birth, primary ICD-9 or principal ICD-10 diagnosis codes, and gender.</p> <p>Rationale: Complete and valid information for the variables listed above is needed to define the measure cohort and calculate case-mix-adjusted readmission rates. Identifying readmissions within 30 days requires information on dates of admission and end-of-service dates and the ability to link unique patient identifiers across inpatient claims records. Hospital identifiers are needed to determine the hospital at which index admissions occurred. The disposition status is needed to determine whether a patient was discharged or experienced some other outcome (e.g., was transferred to another acute care hospital, left against medical advice, died). Establishing a patient's eligibility for membership in the pediatric cohort and performing case-mix adjustment requires an accurate date of birth and end-of-service date. Because gender is 1 of the variables used for case-mix adjustment, episodes of care with missing or inconsistent gender cannot be evaluated in the measure.</p> <p>3. Records for the hospitalization contain data of questionable quality for calculating readmission rates, including</p> <ol style="list-style-type: none"> <li>Inconsistent date of birth across records for a patient.</li> <li>Discharge date prior to admission date.</li> <li>Admission or discharge date prior to date of birth.</li> <li>Admission date after a disposition status of death during a prior hospitalization.</li> </ol> <p>Rationale: Complete and valid information for the variables listed above is needed to define the measure cohort and calculate case-mix-adjusted readmission rates. Identifying readmissions within 30 days requires information on dates of admission and end-of-service. A valid disposition status is needed to determine whether a patient was discharged or experienced some other outcome (e.g., was transferred to another acute care hospital, left against medical advice, died). Establishing a patient's eligibility for membership in the pediatric cohort and performing case-mix adjustment requires an accurate date of birth and end-of-service date.</p> <p>4. Codes other than ICD-9 or ICD-10 codes are used for the primary procedure.</p> <p>Rationale: ICD-9 or ICD-10 procedure codes are necessary for applying clinical exclusions.</p> <p>5. The patient was older than 18 years, 29 days at the time of admission.</p> <p>Rationale: This age exclusion limits the population to pediatric patients and prevents inclusion of records that overlap with adult readmission measures. Age eligibility for inclusion in the measure is based on age at the time of discharge from the index admission. Because the focus of the measure is pediatric patients, a patient's hospitalization is ineligible for inclusion in the measure as an index admission if the patient was 18 years old or greater at the time of discharge. Because the subsequent observation period for readmissions is 30 days, a patient's hospitalization is ineligible for inclusion in the measure as a readmission if the patient was older than 18 years, 29 days at the start of the readmission.</p> <p>6. The hospitalization was for obstetric care, including labor and delivery.</p> <p>Rationale: Hospitalizations for obstetric conditions are excluded because care related to pregnancy does not generally fall within the purview of pediatric providers.</p> <p>7. The primary ICD-9 or principal ICD-10 diagnosis code was for a mental health condition.</p> <p>Rationale: Hospitalizations for mental health conditions are excluded because we found that hospitals with high readmission rates for mental health hospitalizations tend to have low readmission rates for hospitalizations for other conditions, and vice versa. We describe this analysis in detail in Section 2b.3 of the Measure Testing Submission Form.</p>

	2414 Pediatric Lower Respiratory Infection Readmission Measure
	<p>8. The hospitalization was for birth of a healthy newborn.  Rationale: Hospitalizations for birth of healthy newborns are excluded because these hospitalizations, unlike all others, are not for evaluation and management of disease.  <b>EXCLUSIONS FROM THE DENOMINATOR ONLY (INDEX HOSPITALIZATIONS ONLY)</b>  We also apply further exclusions to the denominator only (i.e., these hospitalizations are excluded from index hospitalizations but could still meet criteria for readmissions).  Hospitalizations are excluded from the denominator only if they meet any of the following criteria:</p> <p>9. The patient was 18 years old or greater at the time of discharge.  Rationale: Age eligibility for inclusion in the measure is based on age at the time of discharge from the index admission. Because the measure covers pediatric patients, a patient's hospitalization is ineligible for inclusion in the measure as an index admission if the patient was 18 years old or greater at the time of discharge.</p> <p>10. The discharge disposition was death.  Rationale: A patient must be discharged alive from an index admission in order to be readmitted. Therefore, any record with a discharge disposition of death cannot serve as an index admission.</p> <p>11. The discharge disposition was leaving the hospital against medical advice.  Rationale: A discharge disposition of leaving against medical advice indicates that a patient left care before the hospital determined that the patient was ready to leave.</p> <p>12. The hospital has less than 80% of records with complete patient identifier, admission date, and discharge date or less than 80% of records with complete primary ICD-9 or principal ICD-10 diagnosis codes. (Records for these hospitals are still assessed as possible readmissions, but readmission rates are not calculated for these hospitals due to their lack of complete data.)  Rationale: Readmission rates are not calculated for hospitals missing large amounts of data for the above variables because these hospitals have limited data to accurately apply measure cohort exclusions and calculate case-mix-adjusted readmission rates. Assessing eligibility for the measure cohort and performing case-mix adjustment requires information on admission dates, end-of-service dates, and diagnosis codes. Identifying readmissions requires information on admission dates and end-of-service dates and the ability to link unique patient identifiers across inpatient claims records.</p> <p>13. The hospital is in a state not being analyzed.  Rationale: A claims database used for readmission analysis may contain records for hospitals located in states that are not included in the database (because covered patients may sometimes be admitted to out-of-state hospitals). Records for these out-of-state hospital admissions are not excluded from the measure dataset because these records may meet criteria for being counted as readmissions as part of an in-state hospital's readmission rate. However, readmission rates are not calculated for out-of-state hospitals due to the lack of complete data for these hospitals.</p> <p>14. Thirty days of follow-up data are not available for assessing readmissions.  Rationale: Identifying readmissions within 30 days requires a full 30 days of follow-up data.</p> <p>15. The hospitalization does not have a primary ICD-9 or principal ICD-10 LRI diagnosis or does not have a secondary ICD-9 or additional ICD-10 LRI diagnosis plus a primary ICD-9 or principal ICD-10 diagnosis of asthma, respiratory failure, or sepsis/bacteremia.  Rationale: This measure focuses on readmissions following hospitalization for LRI. Episodes of care that do not meet the case definition for an LRI hospitalization are therefore excluded from index admissions.</p>



	<b>2496 Standardized Readmission Ratio (SRR) for dialysis facilities</b>
Status	Standing Committee Review
Steward	Centers for Medicare and Medicaid Services
Description	The Standardized Readmission Ratio (SRR) is defined to be the ratio of the number of index discharges from acute care hospitals that resulted in an unplanned readmission to an acute care hospital within 30 days of discharge for Medicare-covered dialysis patients treated at a particular dialysis facility to the number of readmissions that would be expected given the discharging hospitals and the characteristics of the patients as well as the national norm for dialysis facilities. Note that in this document, “hospital” always refers to acute care hospital.
Type	Outcome
Data Source	Administrative claims
Level	Facility
Setting	Dialysis Facility Dialysis Facility
Time Window	
Numerator Statement	Each facility’s observed number of hospital discharges that are followed by an unplanned hospital readmission within 30 days of discharge
Numerator Details	<p>Hospitalizations are counted as events in the numerator if they met the definition of unplanned readmission that (a) occurred within 30 days of a hospital discharge and (b) was not preceded by a “planned” readmission that also occurred within 30 days of discharge. In summary, a readmission is considered “planned” under two scenarios [1]:</p> <ol style="list-style-type: none"> <li>1. The patient undergoes a procedure that is always considered planned (e.g., bone marrow transplant) or has a primary diagnosis that always indicates the hospitalization is planned (e.g., maintenance chemotherapy).</li> <li>2. The patient undergoes a procedure that MAY be considered planned if it is not accompanied by an acute diagnosis. For example, a hospitalization involving a heart valve procedure accompanied by a primary diagnosis of diabetes would be considered planned, whereas a hospitalization involving a heart valve procedure accompanied by a primary diagnosis of acute myocardial infarction (AMI) would be considered unplanned.</li> </ol> <p>1. Centers for Medicaid and Medicare Services. Hospital Quality Initiative: Measure Methodology website. “Planned Readmission Algorithm” [ZIP file]. Available at: <a href="http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/HospitalQualityInits/Measure-Methodology.html">http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/HospitalQualityInits/Measure-Methodology.html</a>. Accessed February 3, 2014.</p>
Denominator Statement	The expected number of unplanned readmissions in each facility, which is derived from a model that accounts for patient characteristics and discharging acute care hospitals.
Denominator Details	<p>All Medicare live discharges of dialysis patients from a hospital in a calendar year are considered eligible for this measure.</p> <p>We calculate the expected number of unplanned readmissions by fitting a model with random effects for discharging hospitals, fixed effects for facilities and regression adjustments for a set of patient-level characteristics, including measures of patient comorbidities. The expectation for the given facility is computed assuming readmission rates corresponding to an “average” facility with the same patient characteristics and same discharging hospitals as this facility. Model details are provided in the Risk Standardization section below.</p>
Exclusions	<p>Hospital discharges that:</p> <ul style="list-style-type: none"> <li>• Are not live discharges</li> <li>• Result in a patient dying within 30 days with no readmission</li> </ul>

	<b>2496 Standardized Readmission Ratio (SRR) for dialysis facilities</b>
	<ul style="list-style-type: none"> <li>• Are against medical advice</li> <li>• Include a primary diagnosis for cancer, mental health or rehabilitation</li> <li>• Occur after a patient's 12th admission in the calendar year</li> <li>• Are from a PPS-exempt cancer hospital</li> <li>• Result in a transfer to another hospital on the same day</li> </ul>
Exclusion details	<p>Hospital discharges that:</p> <ul style="list-style-type: none"> <li>• Are not live discharges</li> <li>• Result in a patient dying within 30 days with no readmission</li> <li>• Are against medical advice</li> <li>• Include a primary diagnosis for cancer, mental health or rehabilitation</li> <li>• Occur after a patient's 12th admission in the calendar year</li> <li>• Are from a PPS-exempt cancer hospital</li> <li>• Result in a transfer to another hospital on the same day</li> </ul>

	<b>2502 All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Inpatient Rehabilitation Facilities (IRFs)</b>
Status	Standing Committee Review
Steward	Centers for Medicare & Medicaid Services (CMS)
Description	<p>This measure estimates the risk-standardized rate of unplanned, all-cause readmissions for patients (Medicare fee-for-service [FFS] beneficiaries) discharged from an Inpatient Rehabilitation Facility (IRF) who were readmitted to a short-stay acute-care hospital or a Long-Term Care Hospital (LTCH), within 30 days of an IRF discharge. The measure is based on data for 24 months of IRF discharges to non-hospital post-acute levels of care or to the community. A risk-adjusted readmission rate for each facility is calculated as follows:</p> <p>Step 1: Calculate the standardized risk ratio of the predicted number of readmissions at the facility divided by the expected number of readmissions for the same patients if treated at the average facility. The magnitude of the risk-standardized ratio is the indicator of a facility's effects on readmission rates.</p> <p>Step 2: The standardized risk ratio is then multiplied by the mean rate of readmission in the population (i.e., all Medicare FFS patients included in the measure) to generate the facility-level standardized readmission rate.</p> <p>For this measure, readmissions that are usually for planned procedures are excluded. Please refer to Appendix Tables A1-A5 for a list of planned procedures.</p> <p>The measure specifications are designed to harmonize with CMS' hospital-wide readmission (HWR) measure to a great extent. The HWR (NQF #1789) estimates the hospital-level, risk-standardized rate of unplanned, all-cause readmissions within 30 days of a hospital discharge, similar to this IRF readmission measure.</p>
Type	Outcome
Data Source	Administrative claims, Other
Level	Facility
Setting	Post Acute/Long Term Care Facility : Inpatient Rehabilitation Facility Post Acute/Long Term Care Facility : Inpatient Rehabilitation Facility
Time Window	



	<b>2502 All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Inpatient Rehabilitation Facilities (IRFs)</b>
Numerator Statement	The numerator is mathematically related to the number of patients in the target population who have the event of an unplanned readmission in the 30- day post-discharge window. The measure does not have a simple form for the numerator and denominator—that is, the risk adjustment method used does not make the observed number of readmissions the numerator and a predicted number the denominator. Instead, the numerator is the risk-adjusted estimate of the number of unplanned readmissions that occurred within 30 days from discharge. This estimate includes risk adjustment for patient characteristics and a statistical estimate of the facility effect beyond patient mix.
Numerator Details	<p>The numerator is the risk-adjusted estimate of the number of unplanned readmissions that occurred within 30 days after discharge from an IRF. This estimate includes risk adjustment for patient characteristics and a statistical estimate of the facility effect beyond patient mix. The numerator uses a model estimated on full national data; it is applied to the facility's patients and includes the facility effect term for that facility.</p> <p>Planned readmissions are not counted in the numerator. The planned readmissions (Appendix Tables A1-A4) are defined largely by the definition used for the CMS Hospital-Wide Readmission (HWR) measure (NQF #1789), and were revised to include additional procedures determined as suitable for IRFs with input from a Technical Expert Panel convened by CMS contractor RTI International.</p> <p>International Classification of Diseases (ICD-9) codes for these additional procedures were identified by a certified coder. The definition is based on the claim from the readmission having a code for a procedure that is frequently planned, but if a principal diagnosis in a specified list of acute diagnoses is present, the readmission is reclassified as unplanned. Appendix Table A5 presents the list of codes for procedures identified as “planned” for IRFs, which are not in the HWR list. These procedures and diagnoses are currently defined by ICD-9 procedure and diagnosis codes grouped by the Clinical Classification Software (CCS), developed by the AHRQ, where large clusters were appropriate and by individual codes, if necessary. Readmissions to psychiatric hospitals or units are also classified as planned readmissions.</p> <p>The prediction equation is based on a logistic statistical model with a 2-level hierarchical structure. The patient stays in the model have an indicator as to which IRF they are discharged from and the effect of the facility is measured as a positive or negative shift in the intercept term of the equation. The facility effects are modeled as belonging to a normal (Gaussian) distribution centered at 0, and are estimated along with the effects of patient characteristics in the model.</p> <p>The data are from Medicare FFS inpatient claims and eligibility and enrollment data. See section 2a1.26 for more details on the data sources.</p> <p>Note: This measure was developed with ICD-9 procedure and diagnosis codes. RTI is currently revising Appendix Table A5 with ICD-10 procedure codes. The provisional mapping is provided in Appendix Table A6. We are awaiting the ICD-10 versions of the HWR planned readmissions codes. Please refer to Section 2b2.3 for more details.</p>
Denominator Statement	The denominator is computed with the same model used for the numerator. It is the model developed using all non-excluded IRF stays in the national data. For a particular facility the model is applied to the patient population, but the facility effect term is 0. In effect, it is the number of readmissions that would be expected for that patient population at the average IRF. The measure includes all the IRF stays in the measurement period that are observed in national Medicare FFS data and do not fall into an excluded category.
Denominator Details	The observation window is 30 days after being discharged from an IRF; this window of observation excludes the day of discharge and the day thereafter (the 30 days starts on discharge day plus 2). Stays ending in transfers to IRFs or acute hospitals are excluded. For this

	<p><b>2502 All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Inpatient Rehabilitation Facilities (IRFs)</b></p>
	<p>purpose, the term “acute hospitals” includes short-stay acute-care hospitals, critical access hospitals, long-term care hospitals (LTCHs), or psychiatric hospitals and units. (The psychiatric facilities were included because transfers to or readmissions to such facilities are likely for reasons other than IRF care.) These transfer patients are not included in the post-IRF discharge measure. The measure is based on data for 24 months of IRF discharges to less intense levels of care or to the community.</p> <p>For the includable IRF stays at each facility, the measure denominator is the risk-adjusted expected number of readmissions. This estimate includes risk adjustment for patient characteristics with the facility effect removed. The “expected” number of readmissions is the predicted number of risk-adjusted readmissions if the patients were treated at the average IRF.</p> <p>This population, like that for the numerator, is the group of Medicare FFS IRF patients who are not excluded for the reasons below. Because some information for risk adjustment comes from a prior short-stay inpatient record, having such a discharge within the prior 30 days is an important requirement. Fewer than 10% of IRF stays do not meet this requirement.</p>
Exclusions	<p>The measure excludes some IRF patient stays; some of these exclusions result from data limitations.</p> <p>The following are the measure’s denominator exclusions, including the rationale for exclusion:</p> <ol style="list-style-type: none"> <li>1. IRF patients who died during the IRF stay. Rationale: A post-discharge readmission measure is not relevant for patients who died during their IRF stay.</li> <li>2. IRF patients less than 18 years old. Rationale: IRF patients under 18 years old are not included in the target population for this measure. Pediatric patients are relatively few and may have different patterns of care from adults.</li> <li>3. IRF patients who were transferred at the end of a stay to another IRF or short-term acute care hospital. Rationale: Patients who were transferred to another IRF or short-term acute-care hospital are excluded from this measure because the transfer suggests that either their IRF treatment has not been completed or that their condition worsened, requiring a transfer back to the acute care setting. The intent of the measure is to follow patients deemed well enough to be discharged to a less intensive care setting (i.e., discharged to less intense levels of care or to the community).</li> <li>4. Patients who were not continuously enrolled in Part A FFS Medicare for the 12 months prior to the IRF stay admission date, and at least 30 days after IRF stay discharge date. Rationale: The adjustment for certain comorbid conditions in the measure requires information on acute inpatient bills for 1 year prior to the IRF admission, and readmissions must be observable in the observation window following discharge. Patients without Part A coverage or who are enrolled in Medicare Advantage plans will not have complete inpatient claims in the system.</li> <li>5. Patients who did not have a short-term acute-care stay within 30 days prior to an IRF stay admission date. Rationale: This measure requires information from the prior short-term acute-care stay in the elements used for risk adjustment.</li> <li>6. IRF patients discharged against medical advice (AMA). Rationale: Patients discharged AMA are excluded because these patients have not completed their full course of treatment in the opinion of the facility.</li> <li>7. IRF patients for whom the prior short-term acute-care stay was for nonsurgical</li> </ol>

	<p><b>2502 All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Inpatient Rehabilitation Facilities (IRFs)</b></p>
	<p>treatment of cancer.</p> <p>Rationale: Consistent with the HWR Measure, patients for whom the prior short-term acute-care stay was for nonsurgical treatment of cancer are excluded because these patients were identified as following a very different trajectory after discharge, with a particularly high mortality rate.</p> <p>8. IRF stays with data that are problematic (e.g., anomalous records for hospital stays that overlap wholly or in part or are otherwise erroneous or contradictory).</p> <p>Rationale: This measure requires accurate information from the IRF stay and prior short-term acute-care stays in the elements used for risk adjustment. No-pay IRF stays involving exhaustion of Part A benefits are also excluded.</p>
Exclusion details	<p>The measure excludes some IRF patient stays; some of these exclusions result from data limitations.</p> <p>The following are the measure’s denominator exclusions, including the rationale for exclusion:</p> <p>1. IRF patients who died during the IRF stay.</p> <p>Rationale: A post-discharge readmission measure is not relevant for patients who died during their IRF stay.</p> <p>2. IRF patients less than 18 years old.</p> <p>Rationale: IRF patients under 18 years old are not included in the target population for this measure. Pediatric patients are relatively few and may have different patterns of care from adults.</p> <p>3. IRF patients who were transferred at the end of a stay to another IRF or short-term acute care hospital.</p> <p>Rationale: Patients who were transferred to another IRF or short-term acute-care hospital are excluded from this measure because the transfer suggests that either their IRF treatment has not been completed or that their condition worsened, requiring a transfer back to the acute care setting. The intent of the measure is to follow patients deemed well enough to be discharged to a less intensive care setting (i.e., discharged to less intense levels of care or to the community).</p> <p>4. Patients who were not continuously enrolled in Part A FFS Medicare for the 12 months prior to the IRF stay admission date, and at least 30 days after IRF stay discharge date.</p> <p>Rationale: The adjustment for certain comorbid conditions in the measure requires information on acute inpatient bills for 1 year prior to the IRF admission, and readmissions must be observable in the observation window following discharge. Patients without Part A coverage or who are enrolled in Medicare Advantage plans will not have complete inpatient claims in the system.</p> <p>5. Patients who did not have a short-term acute-care stay within 30 days prior to an IRF stay admission date.</p> <p>Rationale: This measure requires information from the prior short-term acute-care stay in the elements used for risk adjustment.</p> <p>6. IRF patients discharged against medical advice (AMA).</p> <p>Rationale: Patients discharged AMA are excluded because these patients have not completed their full course of treatment in the opinion of the facility.</p> <p>7. IRF patients for whom the prior short-term acute-care stay was for nonsurgical treatment of cancer.</p> <p>Rationale: Consistent with the HWR Measure, patients for whom the prior short-term acute-care stay was for nonsurgical treatment of cancer are excluded because these patients were identified as following a very different trajectory after discharge, with a particularly high</p>

	<b>2502 All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Inpatient Rehabilitation Facilities (IRFs)</b>
	<p>mortality rate.</p> <p>8. IRF stays with data that are problematic (e.g., anomalous records for hospital stays that overlap wholly or in part or are otherwise erroneous or contradictory).</p> <p>Rationale: This measure requires accurate information from the IRF stay and prior short-term acute-care stays in the elements used for risk adjustment. No-pay IRF stays involving exhaustion of Part A benefits are also excluded.</p>

	<b>2503 Hospitalizations per 1000 Medicare fee-for-service (FFS) Beneficiaries</b>
Status	Standing Committee Review
Steward	Centers for Medicare & Medicaid Services
Description	Number of hospital discharges from an acute care hospital (PPS or CAH) per 1000 FFS Medicare beneficiaries at the state and community level by quarter and year.
Type	Outcome
Data Source	Administrative claims, Other
Level	Population : Community, Population : State
Setting	Other
Time Window	
Numerator Statement	Number of hospital discharges from an acute care hospital (PPS or CAH)
Numerator Details	<p>Inclusions:</p> <p>Any discharge from a PPS or CAH</p> <p>Exclusions:</p> <p>Hospitalizations having a discharge date that is the same as the admission date on a subsequent claim</p>
Denominator Statement	Medicare FFS beneficiaries, prorated based on the number of days of FFS eligibility in the time period (quarter or year).
Denominator Details	To calculate the denominator, count the days each beneficiary was enrolled in FFS Medicare in the time period (quarter or year). For each beneficiary, the number of days of FFS Medicare eligibility is determined by evaluating HMO enrollment (BENE_HMO_IND_XX) and time to death (BENE_DEATH_DT). Days enrolled in HMO and days after death are not counted. Eligible days for each beneficiary are summed over all beneficiaries. The total number of eligible days is then divided by the number of days in the time period to obtain the prorated number of beneficiaries. The denominator is the prorated number of beneficiaries divided by 1,000.
Exclusions	None
Exclusion details	None

	<b>2504 30-day Rehospitalizations per 1000 Medicare fee-for-service (FFS) Beneficiaries</b>
Status	Standing Committee Review

	<b>2504 30-day Rehospitalizations per 1000 Medicare fee-for-service (FFS) Beneficiaries</b>
Steward	Centers for Medicare & Medicaid Services
Description	Number of rehospitalizations occurring within 30 days of discharge from an acute care hospital (prospective payment system (PPS) or critical access hospital (CAH)) per 1000 FFS Medicare beneficiaries at the state and community level by quarter and year.
Type	Outcome
Data Source	Administrative claims, Other
Level	Population : Community, Population : State
Setting	Other
Time Window	
Numerator Statement	Number of rehospitalizations within 30 days of discharge from an acute care hospital (PPS or CAH).
Numerator Details	<p>Inclusions:</p> <p>Any hospitalization to a PPS or CAH occurring within 30 days of the most recent prior hospitalization discharge from a PPS or CAH.</p> <p>Exclusions:</p> <p>Same-day hospital transfers; transfers are defined as any hospitalization, whether to the same hospital or not, where discharge date is the same as hospitalization date and are treated as one continuous long stay; the 30-day period starts at the end of the combined stay.</p>
Denominator Statement	Medicare FFS beneficiaries, prorated based on the number of days of FFS eligibility in the time period (quarter or year).
Denominator Details	To calculate the denominator, count the days each beneficiary was enrolled in FFS Medicare in the time period (quarter or year). For each beneficiary, number of days of FFS Medicare eligibility is determined by evaluating HMO enrollment (BENE_HMO_IND_XX) and time to death (BENE_DEATH_DT). Days enrolled in HMO and days after death are not counted. Eligible days for each beneficiary are summed over all beneficiaries. The total number of eligible days is then divided by the number of days in the time period to obtain the prorated number of beneficiaries. The denominator is the prorated number of beneficiaries divided by 1,000.
Exclusions	None
Exclusion details	None

	<b>2505 Emergency Department Use without Hospital Readmission During the First 30 Days of Home Health</b>
Status	Standing Committee Review
Steward	Centers for Medicare and Medicaid Services
Description	Percentage of Home Health stays in which patients who had an acute inpatient hospitalization in the 5 days before the start of their Home Health stay used an emergency department but were not admitted to an acute care hospital during the 30 days following the start of the Home Health stay.
Type	Outcome
Data Source	Administrative claims
Level	Facility
Setting	Home Health Home Health

	<b>2505 Emergency Department Use without Hospital Readmission During the First 30 Days of Home Health</b>
Numerator Statement	Number of Home Health stays for patients who have a Medicare claim for outpatient emergency department use and no claims for acute care hospitalization in the 30 days following the start of the Home Health stay.
Numerator Details	<p>The 30 day time window is calculated by adding 30 days to the “from” date in the first Home Health claim in the series of Home Health claims that comprise the Home Health stay. If the patient has any Medicare outpatient claims with any emergency department revenue center codes (0450-0459, 0981) during the 30 day window AND if the patient has no Medicare inpatient claims for admission to an acute care hospital (identified by the CMS Certification Number on the IP claim ending in 0001-0879, 0800-0899, or 1300-1399) during the 30 day window, then the stay is included in the measure numerator.</p> <p>Numerator Exclusions: None.</p>
Denominator Statement	Number of Home Health stays that begin during the relevant observation period for patients who had an acute inpatient hospitalization in the five days prior to the start of the Home Health stay. A Home Health stay is a sequence of Home Health payment episodes separated from other Home Health payment episodes by at least 60 days.
Denominator Details	<p>The algorithm for computing patient-level outcomes is based on a 12-month observation period and produces both monthly and yearly numerator and denominator counts; to include all valid Home Health stays over a three-year period for public reporting purposes, CMS will merge the data for the most recent 12-month observation period with the data from the preceding two 12-month observation periods.</p> <p>A Home Health stay is a sequence of Home Health payment episodes separated from other Home Health payment episodes by at least 60 days. Each Home Health payment episode is associated with a Medicare Home Health (HH) claim, so Home Health stays are constructed from claims data using the following procedure:</p> <ol style="list-style-type: none"> <li>1. First, retrieve Home Health claims with a “from” date (FROM_DT) during the 12-month observation period or the 120 days prior to the beginning of the observation period and sequence these claims by “from” date for each beneficiary.</li> <li>2. Second, drop claims with the same “from” date and “through” date (THROUGH_DT) and claims listing no visits and no payment. Additionally, if multiple claims have the same “from” date, keep only the claim with the most recent process date.</li> <li>3. Third, set Stay_Start_Date(1) equal to the “from” date on the beneficiary’s first claim. Step through the claims sequentially to determine which claims begin new Home Health stays. If the claim “from” date is more than 60 days after the “through” date on the previous claim, then the claim begins a new stay. If the claim “from” date is within 60 days of the “through” date on the previous claim, then the claim continues the stay associated with the previous claim.</li> <li>4. Fourth, for each stay, set Stay_Start_Date(n) equal to the “from” date of the first claim in the sequence of claims defining that stay. Set Stay_End_Date(n) equal to the “through” date on the last claim in that stay. Confirm that Stay_Start_Date(n) minus Stay_End_Date(n-1) is greater than 60 days for all adjacent stays.</li> <li>5. Fifth, drop stays that begin before the 12-month observation window.</li> <li>6. Finally, only stays that begin within 5 days of discharge from a short-term inpatient hospital are included in the denominator as follows: <ol style="list-style-type: none"> <li>i. Link to Part A claims for 6 months prior to Stay_Start_Date for each beneficiary.</li> <li>ii. Define Hosp_Discharge_DT = Thru_Dt of the inpatient claim with the latest through date (thru_Dt) prior to Stay_Start_Date,.</li> <li>iii. Limit to Home Health stays where the Stay_Start_Date minus the Hosp_Discharge_DT is equal to or less than 5. Exclude stays where the IP claim is from a provider type that is not a</li> </ol> </li> </ol>

	<b>2505 Emergency Department Use without Hospital Readmission During the First 30 Days of Home Health</b>
	<p>short stay hospital . Short term hospitals are defined using the following CCN ranges in the third through sixth positions: 001-0879, 0880-0899, and 1300-1399.</p> <p>Note the examining claims from the 120 days before the beginning of the 12-month observation period is necessary to ensure that stays beginning during the observation period are in fact separated from previous Home Health claims by at least 60 days.</p>
Exclusions	<p>The measure denominator excludes several types of Home Health stays:</p> <p>First, the measure denominator for the Rehospitalization During the First 30 Days of Home Health measure excludes the following Home Health stays that are also excluded from the all-patient claims-based NQF 0171 Acute Care Hospitalization measure: (i) Stays for patients who are not continuously enrolled in fee-for-service Medicare during the measure numerator window; (ii) Stays that begin with a Low-Utilization Payment Adjustment (LUPA). Stays with four or fewer visits to the beneficiary qualify for LUPAs; (iii) Stays in which the patient is transferred to another Home Health agency within a Home Health payment episode (60 days); and (iv) Stays in which the patient is not continuously enrolled in Medicare fee-for-service during the previous six months.</p> <p>Second, to be consistent with the Hospital-Wide All-Cause Unplanned Readmission measure (as of January 2013), the measure denominator excludes stays in which the hospitalization occurring within 5 days of the start of Home Health care is not a qualifying inpatient stay. Hospitalizations that do not qualify as index hospitalizations include admissions for the medical treatment of cancer, primary psychiatric disease, or rehabilitation care, and admissions ending in patient discharge against medical advice.</p> <p>Third, the measure denominator excludes stays in which the patient receives treatment in another setting in the 5 days between hospital discharge and the start of Home Health.</p> <p>Finally, stays with missing payment-episode authorization strings (needed for risk-adjustment) are excluded.</p>
Exclusion details	<p>The measure denominator excludes several types of Home Health stays:</p> <p>First, the measure denominator for the Rehospitalization During the First 30 Days of Home Health measure excludes the following Home Health stays that are also excluded from the all-patient claims-based NQF 0171 Acute Care Hospitalization measure: (i) Stays for patients who are not continuously enrolled in fee-for-service Medicare during the measure numerator window; (ii) Stays that begin with a Low-Utilization Payment Adjustment (LUPA). Stays with four or fewer visits to the beneficiary qualify for LUPAs; (iii) Stays in which the patient is transferred to another Home Health agency within a Home Health payment episode (60 days); and (iv) Stays in which the patient is not continuously enrolled in Medicare fee-for-service during the previous six months.</p> <p>Second, to be consistent with the Hospital-Wide All-Cause Unplanned Readmission measure (as of January 2013), the measure denominator excludes stays in which the hospitalization occurring within 5 days of the start of Home Health care is not a qualifying inpatient stay. Hospitalizations that do not qualify as index hospitalizations include admissions for the medical treatment of cancer, primary psychiatric disease, or rehabilitation care, and admissions ending in patient discharge against medical advice.</p> <p>Third, the measure denominator excludes stays in which the patient receives treatment in another setting in the 5 days between hospital discharge and the start of Home Health.</p> <p>Finally, stays with missing payment-episode authorization strings (needed for risk-adjustment) are excluded.</p>



	<b>2510 Skilled Nursing Facility 30-Day All-Cause Readmission Measure (SNFRM)</b>
Status	Standing Committee Review
Steward	Centers for Medicare and Medicaid Services
Description	<p>This measure estimates the risk-standardized rate of all-cause, unplanned, hospital readmissions for patients who have been admitted to a Skilled Nursing Facility (SNF) (Medicare fee-for-service [FFS] beneficiaries) within 30 days of discharge from their prior proximal hospitalization. The prior proximal hospitalization is defined as an admission to an IPPS, CAH, or a psychiatric hospital. The measure is based on data for 12 months of SNF admissions.</p> <p>A risk-adjusted readmission rate for each facility is calculated as follows:</p> <p>Step 1: Calculate the standardized risk ratio of the predicted number of readmissions at the facility divided by the expected number of readmissions for the same patients if treated at the average facility. The magnitude of the risk-standardized ratio is the indicator of a facility's effects on readmission rates.</p> <p>Step 2: The standardized risk ratio is then multiplied by the mean rate of readmission in the population (i.e., all Medicare FFS patients included in the measure) to generate the facility-level standardized readmission rate.</p> <p>For this measure, readmissions that are usually for planned procedures are excluded. Please refer to the Appendix, Tables 1 - 5 for a list of planned procedures.</p> <p>The measure specifications are designed to harmonize with CMS' hospital-wide readmission (HWR) measure to the greatest extent possible. The HWR (NQF #1789) estimates the hospital-level, risk-standardize rate of unplanned, all-cause readmissions within 30 days of a hospital discharge and uses the same 30-day risk window as the SNFRM.</p>
Type	Outcome
Data Source	Administrative claims, Other
Level	Facility
Setting	Post Acute/Long Term Care Facility : Nursing Home/Skilled Nursing Facility Post Acute/Long Term Care Facility : Nursing Home/Skilled Nursing Facility
Numerator Statement	<p>This measure is designed to capture the outcome of unplanned all-cause hospital readmissions (IPPS or CAH) of SNF patients occurring within 30 days of discharge from the patient's prior proximal acute hospitalization.</p> <p>The numerator is more specifically defined as the risk-adjusted estimate of the number of unplanned readmissions that occurred within 30 days from discharge from the prior proximal acute hospitalization. The numerator is mathematically related to the number of SNF stays where there was hospitalization readmission, but the measure does not have a simple form for the numerator and denominator—that is, the risk adjustment method used does not make the observed number of readmissions the numerator and a predicted number the denominator. The numerator, as defined, includes risk adjustment for patient characteristics and a statistical estimate of the facility effect beyond patient mix.</p> <p>Hospital readmissions that occur after discharge from the SNF stay but within 30 days of the proximal hospitalization are also included in the numerator. Readmissions identified using the Planned Readmission algorithm (see Section S.6) are excluded from the numerator. This measure does not include observation stays as a readmission (see Section S.6).</p>
Numerator Details	<p>The numerator is the risk-adjusted estimate of the number of all-cause, unplanned readmissions to an acute care or critical access hospital that occurred within 30 days of discharge from an eligible prior proximal hospitalization. In addition, the patient will be required to have been admitted to a SNF within one day after discharge from an eligible hospitalization. This estimate includes risk adjustment for patient characteristics and a</p>



	<b>2510 Skilled Nursing Facility 30-Day All-Cause Readmission Measure (SNFRM)</b>
	<p>statistical estimate of the facility effect beyond patient mix. The numerator uses a model estimated on full national data; it is applied to the facility's patients and includes the facility effect term for that facility.</p> <p>The prediction equation is based on a logistic statistical model with a 2-level hierarchical structure. The SNF stays in the model have an indicator as to which SNF they were admitted and the effect of the facility is measured as a positive or negative shift in the intercept term of the equation. The facility effects are modeled as belonging to a normal (Gaussian) distribution centered at 0, and are estimated along with the effects of patient characteristics in the model.</p> <p>The data are from Medicare inpatient claims and eligibility and enrollment data. See section 2a1.26 for more details on the data sources.</p> <p>Observation stays: This measure does not include observation stays as a readmission. Rationale: In a recently published analysis, researchers at Brown University evaluated how frequently SNF patients had observation stays with and without formal admission to the hospital (Feng et al., 2012). In 2009, of the approximately 2.5 million SNF stays among FFS Medicare beneficiaries aged 65+ nationwide, there were roughly 18,000 observation stays (0.7%) and few readmissions within 30 days after the observation stay (Feng 2012). The results indicated that the vast majority of hospital observation stays in 2009 (over one million in total) originated from the community (83% from community without Home Health and 8% from community with Home Health care). Only a small number and proportion of observation stays were originated from a SNF (i.e. preceded immediately by a SNF stay): N=17,731 or 1.7 percent of all observation stays, nationally. Consistent with the pattern of their origins, the vast majority of hospital observation stays were discharged to the community (80% without Home Health and 11 percent with Home Health care). Again, only a small number and proportion of observation stays were discharged to a SNF (regardless of their origin): N=25,884 or 2.6 percent of all observations stays (Feng 2012). These results suggest that excluding hospital observation stays from the SNF hospital readmission measure will not make a meaningful difference in the SNF facility-level rate of hospital readmissions or in the relative ranking of SNF providers according to this measure.</p> <p>Second, although the overall prevalence of hospital observation stays has been on the rise, raising legitimate concerns about their causes and consequences, the number of observation stays that originated from and subsequently discharged to SNF settings is very small relative to other settings (mostly communities). A recent report by the Office of Inspector General (OIG) shows that this trend has indeed continued in more recent years. According to this report, Medicare beneficiaries had 1.5 million observations stays in 2012, and an additional 1.4 million long outpatient stays that lasted at least one night but were not coded as observation stays (Office of Inspector General 2013). However, this study did not break down the data by setting, that is, the setting from which observation patients came. Based on our preliminary analysis results above, we want to emphasize again that despite an increasing number of Medicare beneficiaries held for observation in hospitals at the national level, the vast majority of them are from community settings and relatively few come from or are discharged to SNFs. We agree that the rising trend of hospital observation stays is an important issue that warrants continuous monitoring and policy attention.</p> <p>Third, and perhaps most importantly, mingling outpatient observation stays with inpatient admissions raises serious questions as to whether other types of hospital outpatient stays, such as emergency department (ED) visits or prolonged outpatient stays other than observation care in the hospital, should also be counted as admissions. RTI argues that this could introduce bias into the measure from a technical and conceptual perspective, and send a mixed signal to SNF providers and hospitals with the potential to compromise patient care. For SNFs, their 30-day readmission rate would increase, more or less, depending on how many</p>

	2510 Skilled Nursing Facility 30-Day All-Cause Readmission Measure (SNFRM)
	<p>of their patients were sent back to the hospital via the ED and held for observation there within the 30-day tracking window. Counting observation stays in the SNFRM measure could potentially increase perverse incentives already identified as a general concern with public reporting of any quality measure. Namely, SNFs may have an incentive to NOT send patients to the ED even though the patients truly require hospital care, or may deliberately postpone doing so, until after the 30-day measurement period ends to lower their publically reported readmission rate. Including observation stays in the measure could potentially contribute to these incentives.</p> <p>The increased use of hospital observation stays as outpatient care is an important issue which may have significant adverse impact on Medicare beneficiaries in terms of reducing eligibility for SNF services due to lack of a qualifying prior acute admission and therefore increase out-of-pocket spending. However, when looking at SNF readmissions, the absolute number and percentage share of observation stays involving Medicare beneficiaries in the SNF setting are small relative to other settings. Most importantly, there remain significant conceptual and practical challenges in the consideration of counting observation stays in the SNFRM measure. A decision to do so would require a better understanding of possible negative consequences, including postponing transfer of SNF patients to the ED.</p> <p>Planned readmissions: The SNFRM used a modified version of CMS' Hospital-Wide Readmission (HWR) planned readmissions algorithm to identify readmissions that are classified as planned, and should therefore not be included in the numerator. Planned readmissions should not be counted against facilities, because, as stated in the documentation for the HWR measure, "...planned readmissions are not a signal of quality of care." The algorithm is based on two main principles:</p> <ol style="list-style-type: none"> <li>1. Planned readmissions are those in which one of a pre-specified list of procedures took place or those for transplants (bone marrow, kidney, other); Cesarean section; forceps, vacuum, and breech delivery. Also planned diagnosis categories include maintenance chemotherapy, forceps delivery, normal pregnancy and/or delivery, and rehabilitation. Readmissions to psychiatric hospitals or units are also classified as planned readmissions.</li> <li>2. Admissions for acute illness or for complications of care are not 'planned.' Even a typically planned procedure performed during an admission for an acute illness would not likely have been planned. We used the principal diagnosis and all of the procedure codes from the readmission to identify planned readmissions.</li> </ol> <p>The algorithm developed to identify planned readmissions uses procedure codes and discharge diagnosis categories for each readmission coded using the Agency for Healthcare Research and Quality (AHRQ) Clinical Classification System (CCS) software. According to CMS' HWR planned readmission algorithm, a planned readmission is defined as any non-acute readmission in which one of a set of typically planned sets of procedures or diagnoses occurred (see Appendix, Tables 1 through 3). A subset of these procedures and diagnoses shown in Appendix Tables 1 and 2 are always considered planned. However, if any of the procedures denoted as "planned" in Table 3 occur in conjunction with a diagnosis that disqualifies a readmission from being considered planned (see Appendix, Table 4), the readmission will be considered unplanned.</p> <p>Additional procedures were added to the final HWR planned readmission algorithm special to post-acute care settings based on feedback from a convened by CMS contractor RTI International. These additional procedures were codified by a certified nosologist prior to use (see Appendix, Table 5). These procedures and diagnoses are currently defined by ICD-9 procedure and diagnosis codes grouped by the Clinical Classification Software (CCS), developed by the AHRQ, where large clusters were appropriate and by individual codes, if</p>

	<p><b>2510 Skilled Nursing Facility 30-Day All-Cause Readmission Measure (SNFRM)</b></p>
	<p>necessary. The provisional mapping of these ICD-9s to ICD-10s is provided in Section Sb.2, Table 9. We are awaiting the ICD-10 versions of the HWR planned readmissions codes. Readmissions to psychiatric hospitals or units are also classified as planned readmissions. Unless a readmission was considered planned, it was considered unplanned and counted as a readmission in the measure.</p> <p>In 2011, there were 2,215,398 SNF stays, of which 467,107 included an unplanned hospital readmission (21.1%). An additional 1.3 percent of SNF stays (or 27,956 stays) ended with readmissions that were classified as planned and not included in the numerator of the measure. These planned readmissions represented only 5.6 percent of all readmissions.</p> <p>References</p> <p>Feng Z, Wright B, Mor V. Sharp Rise in Medicare Enrollees Being Held in Hospitals for Observation Raises Concerns about Causes and Consequences. <i>Health Affairs</i> (2012). 31:6, 1251-1259.</p> <p>Feng Z. Hospital Observation Stays: Analysis Update. Memo prepared for the Centers for Medicare and Medicaid Services, 22 September 2012.</p> <p>Wright S. (2013). Memorandum Report: Hospitals' Use of Observation Stays and Short Inpatient Stays for Medicare Beneficiaries, OEI-02-12-00040. Department of Health and Human Services Office of the Inspector General, Washington, DC.</p>
Denominator Statement	<p>The denominator is computed with the same model used for the numerator. It is the model developed using all non-excluded SNF stays in the national data. For a particular facility the model is applied to the patient population, but the facility effect term is 0. In effect, it is the number of SNF admissions within 1 day of a prior proximal hospital discharge during a target year, taking denominator exclusions into account. Prior proximal hospitalizations are defined as admissions to an IPPS acute-care hospital, CAH, or psychiatric hospital.</p>
Denominator Details	<p>The denominator includes all patients who have been admitted to a SNF within 1 day of discharge from a prior proximal hospitalization, taking denominator exclusions into account. Patients with SNF stays in swing bed facilities are included in the measure. The prior proximal hospitalization must include admissions to an IPPS acute-care hospital, CAH, or a psychiatric hospital.</p>
Exclusions	<p>The following are excluded from the denominator:</p> <ol style="list-style-type: none"> <li>1. SNF stays where the patient had one or more intervening post-acute care (PAC) admissions (inpatient rehabilitation facility [IRF] or long-term care hospital [LTCH]) which occurred either between the prior proximal hospital discharge and SNF admission or after the SNF discharge, within the 30-day risk window. Also excluded are SNF admissions where the patient had multiple SNF admissions after the prior proximal hospitalization, within the 30-day risk window.</li> </ol> <p>Rationale: For patients who have IRF or LTCH admissions prior to their first SNF admission, these patients are starting their SNF admission later in the 30-day risk window and receiving other additional types of services as compared to patients admitted directly to the SNF from the prior proximal hospitalization. They are clinically different and their risk for readmission is different than the rest of SNF admissions. Additionally, when patients have multiple PAC admissions, evaluating quality of care coordination is confounded and even controversial in terms of attributing responsibility for a readmission among multiple PAC providers. Similarly, assigning responsibility for a readmission for patients who have multiple SNF admissions subsequent to their prior proximal hospitalization is also controversial.</p> <ol style="list-style-type: none"> <li>2. SNF stays with a gap of greater than 1 day between discharge from the prior proximal hospitalization and the SNF admission.</li> </ol> <p>Rationale: These patients are starting their SNF admissions later in the 30-day risk window</p>

	2510 Skilled Nursing Facility 30-Day All-Cause Readmission Measure (SNFRM)
	<p>than patients admitted directly to the SNF from the prior proximal hospitalization. They are clinically different and their risk for readmission is different than the rest of SNF admissions.</p> <p>3. SNF stays where the patient did not have at least 12 months of FFS Medicare enrollment prior to the proximal hospital discharge (measured as enrollment during the month of proximal hospital discharge and the for 11 months prior to that discharge). Rationale: FFS Medicare claims are used to identify comorbidities during the 12-month period prior to the proximal hospital discharge for risk adjustment. Multiple studies have shown that using lookback scans of a year or more of claims data provide superior predictive power for outcomes including rehospitalization as compared to using data from a single hospitalization (e.g., Klabunde et al., 2000; Preen et al, 2006; Zhang et al., 1999).</p> <p>4. SNF stays in which the patient did not have FFS Medicare enrollment for the entire risk period (measured as enrollment during the month of proximal hospital discharge and the month following the month of discharge). Rationale: Readmissions occurring within the 30-day risk window when the patient does not have FFS Medicare coverage cannot be detected using claims.</p> <p>5. SNF stays in which the principal diagnosis for the prior proximal hospitalization was for the medical treatment of cancer. Patients with cancer whose principal diagnosis from the prior proximal hospitalization was for other diagnoses or for surgical treatment of their cancer remain in the measure. Rationale: These admissions have a very different mortality and readmission risk than the rest of the Medicare population, and outcomes for these admissions do not correlate well with outcomes for other admissions.</p> <p>6. SNF stays where the patient was discharged from the SNF against medical advice. Rationale: The SNF was not able to complete care as needed.</p> <p>7. SNF stays in which the principal primary diagnosis for the prior proximal hospitalization was for “rehabilitation care; fitting of prostheses and for the adjustment of devices”. Rationale: Hospital admissions for these conditions are not for acute care.</p>
Exclusion details	<p>The following are excluded from the denominator:</p> <p>1. SNF stays where the patient had one or more intervening post-acute care (PAC) admissions (inpatient rehabilitation facility [IRF] or long-term care hospital [LTCH]) which occurred either between the prior proximal hospital discharge and SNF admission or after the SNF discharge, within the 30-day risk window. Also excluded are SNF admissions where the patient had multiple SNF admissions after the prior proximal hospitalization, within the 30-day risk window. Rationale: For patients who have IRF or LTCH admissions prior to their first SNF admission, these patients are starting their SNF admission later in the 30-day risk window and receiving other additional types of services as compared to patients admitted directly to the SNF from the prior proximal hospitalization. They are clinically different and their risk for readmission is different than the rest of SNF admissions. Additionally, when patients have multiple PAC admissions, evaluating quality of care coordination is confounded and even controversial in terms of attributing responsibility for a readmission among multiple PAC providers. Similarly, assigning responsibility for a readmission for patients who have multiple SNF admissions subsequent to their prior proximal hospitalization is also controversial.</p> <p>2. SNF stays with a gap of greater than 1 day between discharge from the prior proximal hospitalization and the SNF admission. Rationale: These patients are starting their SNF admissions later in the 30-day risk window than patients admitted directly to the SNF from the prior proximal hospitalization. They are</p>

	<b>2510 Skilled Nursing Facility 30-Day All-Cause Readmission Measure (SNFRM)</b>
	<p>clinically different and their risk for readmission is different than the rest of SNF admissions.</p> <p>3. SNF stays where the patient did not have at least 12 months of FFS Medicare enrollment prior to the proximal hospital discharge (measured as enrollment during the month of proximal hospital discharge and the for 11 months prior to that discharge). Rationale: FFS Medicare claims are used to identify comorbidities during the 12-month period prior to the proximal hospital discharge for risk adjustment. Multiple studies have shown that using lookback scans of a year or more of claims data provide superior predictive power for outcomes including rehospitalization as compared to using data from a single hospitalization (e.g., Klabunde et al., 2000; Preen et al, 2006; Zhang et al., 1999).</p> <p>4. SNF stays in which the patient did not have FFS Medicare enrollment for the entire risk period (measured as enrollment during the month of proximal hospital discharge and the month following the month of discharge). Rationale: Readmissions occurring within the 30-day risk window when the patient does not have FFS Medicare coverage cannot be detected using claims.</p> <p>5. SNF stays in which the principal diagnosis for the prior proximal hospitalization was for the medical treatment of cancer. Patients with cancer whose principal diagnosis from the prior proximal hospitalization was for other diagnoses or for surgical treatment of their cancer remain in the measure. Rationale: These admissions have a very different mortality and readmission risk than the rest of the Medicare population, and outcomes for these admissions do not correlate well with outcomes for other admissions.</p> <p>6. SNF stays where the patient was discharged from the SNF against medical advice. Rationale: The SNF was not able to complete care as needed.</p> <p>7. SNF stays in which the principal primary diagnosis for the prior proximal hospitalization was for “rehabilitation care; fitting of prostheses and for the adjustment of devices”. Rationale: Hospital admissions for these conditions are not for acute care.</p>

	<b>2512 All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Long-Term Care Hospitals (LTCHs)</b>
Status	Standing Committee Review
Steward	Centers for Medicare & Medicaid Services (CMS)
Description	<p>This measure estimates the risk-standardized rate of unplanned, all-cause readmissions for patients (Medicare fee-for-service [FFS] beneficiaries) discharged from a Long-Term Care Hospital (LTCH) who were readmitted to a short-stay acute-care hospital or a Long-Term Care Hospital (LTCH), within 30 days of an LTCH discharge. The measure is based on data for 24 months of LTCH discharges to non-hospital post-acute levels of care or to the community.</p> <p>A risk-adjusted readmission rate for each facility is calculated as follows:</p> <p>Step 1: Calculate the standardized risk ratio of the predicted number of readmissions at the facility divided by the expected number of readmissions for the same patients if treated at the average facility. The magnitude of the risk-standardized ratio is the indicator of a facility’s effects on readmission rates.</p> <p>Step 2: The standardized risk ratio is then multiplied by the mean rate of readmission in the population (i.e., all Medicare FFS patients included in the measure) to generate the facility-level standardized readmission rate.</p> <p>For this measure, readmissions that are usually for planned procedures are excluded. Please</p>

	<b>2512 All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Long-Term Care Hospitals (LTCHs)</b>
	<p>refer to Appendix Tables A1-A5 for a list of planned procedures.</p> <p>The measure specifications are designed to harmonize with CMS' hospital-wide readmission (HWR) measure to a great extent. The HWR (NQF #1789) estimates the hospital-level, risk-standardized rate of unplanned, all-cause readmissions within 30 days of a hospital discharge, similar to this LTCH readmission measure.</p>
Type	Outcome
Data Source	Administrative claims, Other
Level	Facility
Setting	Post Acute/Long Term Care Facility : Long Term Acute Care Hospital Post Acute/Long Term Care Facility : Long Term Acute Care Hospital
Time Window	
Numerator Statement	<p>The numerator is mathematically related to the number of patients in the target population who have the event of an unplanned readmission in the 30- day post-discharge window. The measure does not have a simple form for the numerator and denominator—that is, the risk adjustment method used does not make the observed number of readmissions the numerator and a predicted number the denominator. Instead, the numerator is the risk-adjusted estimate of the number of unplanned readmissions that occurred within 30 days from discharge. This estimate includes risk adjustment for patient characteristics and a statistical estimate of the facility effect beyond patient mix.</p>
Numerator Details	<p>The numerator is the risk-adjusted estimate of the number of unplanned readmissions that occurred within 30 days after discharge from an LTCH. This estimate includes risk adjustment for patient characteristics and a statistical estimate of the facility effect beyond patient mix. The numerator uses a model estimated on full national data; it is applied to the facility's patients and includes the facility effect term for that facility.</p> <p>Planned readmissions are not counted in the numerator. The planned readmissions (Appendix Tables A1-A4) are defined largely by the definition used for the CMS Hospital-Wide Readmission (HWR) measure (NQF #1789), and were revised to include additional procedures determined as suitable for LTCHs with input from a Technical Expert Panel convened by CMS contractor RTI International. International Classification of Diseases (ICD-9) codes for these additional procedures were identified by a certified coder. The definition is based on the claim from the readmission having a code for a procedure that is frequently planned, but if a principal diagnosis in a specified list of acute diagnoses is present, the readmission is reclassified as unplanned. Appendix Table A5 presents the list of codes for procedures identified as “planned” for LTCHs, which are not in the HWR list. These procedures and diagnoses are currently defined by ICD-9 procedure and diagnosis codes grouped by the Clinical Classification Software (CCS), developed by the AHRQ, where large clusters were appropriate and by individual codes, if necessary. Readmissions to psychiatric hospitals or units are also classified as planned readmissions.</p> <p>The prediction equation is based on a logistic statistical model with a 2-level hierarchical structure. The patient stays in the model have an indicator as to which LTCH they are discharged from and the effect of the facility is measured as a positive or negative shift in the intercept term of the equation. The facility effects are modeled as belonging to a normal (Gaussian) distribution centered at 0, and are estimated along with the effects of patient characteristics in the model.</p> <p>The data are from Medicare FFS inpatient claims and eligibility and enrollment data. See section 2a1.26 for more details on the data sources.</p> <p>Note: This measure was developed with ICD-9 procedure and diagnosis codes. RTI is currently revising Appendix Table A5 with ICD-10 procedure codes. The provisional mapping is provided</p>



	<b>2512 All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Long-Term Care Hospitals (LTCHs)</b>
	in Appendix Table A6. We are awaiting the ICD-10 versions of the HWR planned readmissions codes. Please refer to Section 2b2.3 for more details.
Denominator Statement	The denominator is computed with the same model used for the numerator. It is the model developed using all non-excluded LTCH stays in the national data. For a particular facility the model is applied to the patient population, but the facility effect term is 0. In effect, it is the number of readmissions that would be expected for that patient population at the average LTCH. The measure includes all the LTCH stays in the measurement period that are observed in national Medicare FFS data and do not fall into an excluded category.
Denominator Details	<p>The observation window is 30 days after being discharged from an LTCH; this window of observation excludes the day of discharge and the day thereafter (the 30 days starts on discharge day plus 2). Stays ending in transfers to LTCHs or acute hospitals are excluded. For this purpose, the term “acute hospitals” includes short-stay acute-care hospitals, critical access hospitals, LTCHs, or psychiatric hospitals and units. (The psychiatric facilities were included because transfers to or readmissions to such facilities are likely for reasons other than LTCH care.) These transfer patients are not included in the post-LTCH discharge measure. The measure is based on data for 24 months of LTCH discharges to less intense levels of care or to the community.</p> <p>For the includable LTCH stays at each facility, the measure denominator is the risk-adjusted expected number of readmissions. This estimate includes risk adjustment for patient characteristics with the facility effect removed. The “expected” number of readmissions is the predicted number of risk-adjusted readmissions if the patients were treated at the average LTCH.</p> <p>This population, like that for the numerator, is the group of Medicare FFS LTCH patients who are not excluded for the reasons below. Because some information for risk adjustment comes from a prior short-stay inpatient record, having such a discharge within the prior 30 days is an important requirement. Fewer than 10% of LTCH stays do not meet this requirement.</p>
Exclusions	<p>The measure excludes some LTCH patient stays; some of these exclusions result from data limitations.</p> <p>The following are the measure’s denominator exclusions, including the rationale for exclusion:</p> <ol style="list-style-type: none"> <li>1.LTCH patients who died during the LTCH stay. Rationale: A post-discharge readmission measure is not relevant for patients who died during their LTCH stay.</li> <li>2.LTCH patients less than 18 years old. Rationale: LTCH patients under 18 years old are not included in the target population for this measure. Pediatric patients are relatively few and may have different patterns of care from adults.</li> <li>3.LTCH patients who were transferred at the end of a stay to another LTCH or short-term acute-care hospital. Rationale: Patients who were transferred to another LTCH or short-term acute-care hospital are excluded from this measure because the transfer suggests that either their LTCH treatment has not been completed or that their condition worsened, requiring a transfer back to the acute care setting. The intent of the measure is to follow patients deemed well enough to be discharged to a less intensive care setting (i.e., discharged to less intense levels of care or to the community).</li> <li>4.Patients who were not continuously enrolled in Part A FFS Medicare for the 12 months prior to the LTCH stay admission date, and at least 30 days after LTCH stay discharge date. Rationale: The adjustment for certain comorbid conditions in the measure requires information on acute inpatient bills for 1 year prior to the LTCH admission, and readmissions</li> </ol>

	<p><b>2512 All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Long-Term Care Hospitals (LTCHs)</b></p>
	<p>must be observable in the observation window following discharge. Patients without Part A coverage or who are enrolled in Medicare Advantage plans will not have complete inpatient claims in the system.</p> <p>5. Patients who did not have a short-term acute-care stay within 30 days prior to an LTCH stay admission date.</p> <p>Rationale: This measure requires information from the prior short-term acute-care stay in the elements used for risk adjustment.</p> <p>6. LTCH patients discharged against medical advice (AMA).</p> <p>Rationale: Patients discharged AMA are excluded because these patients have not completed their full course of treatment in the opinion of the facility.</p> <p>7. LTCH patients for whom the prior short-term acute-care stay was for nonsurgical treatment of cancer.</p> <p>Rationale: Consistent with the HWR Measure, patients for whom the prior short-term acute-care stay was for nonsurgical treatment of cancer are excluded because these patients were identified as following a very different trajectory after discharge, with a particularly high mortality rate.</p> <p>8. LTCH stays with data that are problematic (e.g., anomalous records for hospital stays that overlap wholly or in part or are otherwise erroneous or contradictory).</p> <p>Rationale: This measure requires accurate information from the LTCH stay and prior short-term acute-care stays in the elements used for risk adjustment. No-pay LTCH stays involving exhaustion of Part A benefits are also excluded.</p>
Exclusion details	<p>The measure excludes some LTCH patient stays; some of these exclusions result from data limitations.</p> <p>The following are the measure's denominator exclusions, including the rationale for exclusion:</p> <p>1. LTCH patients who died during the LTCH stay.</p> <p>Rationale: A post-discharge readmission measure is not relevant for patients who died during their LTCH stay.</p> <p>2. LTCH patients less than 18 years old.</p> <p>Rationale: LTCH patients under 18 years old are not included in the target population for this measure. Pediatric patients are relatively few and may have different patterns of care from adults.</p> <p>3. LTCH patients who were transferred at the end of a stay to another LTCH or short-term acute-care hospital.</p> <p>Rationale: Patients who were transferred to another LTCH or short-term acute-care hospital are excluded from this measure because the transfer suggests that either their LTCH treatment has not been completed or that their condition worsened, requiring a transfer back to the acute care setting. The intent of the measure is to follow patients deemed well enough to be discharged to a less intensive care setting (i.e., discharged to less intense levels of care or to the community).</p> <p>4. Patients who were not continuously enrolled in Part A FFS Medicare for the 12 months prior to the LTCH stay admission date, and at least 30 days after LTCH stay discharge date.</p> <p>Rationale: The adjustment for certain comorbid conditions in the measure requires information on acute inpatient bills for 1 year prior to the LTCH admission, and readmissions must be observable in the observation window following discharge. Patients without Part A coverage or who are enrolled in Medicare Advantage plans will not have complete inpatient claims in the system.</p> <p>5. Patients who did not have a short-term acute-care stay within 30 days prior to an LTCH stay</p>



	<b>2512 All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Long-Term Care Hospitals (LTCHs)</b>
	<p>admission date.</p> <p>Rationale: This measure requires information from the prior short-term acute-care stay in the elements used for risk adjustment.</p> <p>6.LTCH patients discharged against medical advice (AMA).</p> <p>Rationale: Patients discharged AMA are excluded because these patients have not completed their full course of treatment in the opinion of the facility.</p> <p>7.LTCH patients for whom the prior short-term acute-care stay was for nonsurgical treatment of cancer.</p> <p>Rationale: Consistent with the HWR Measure, patients for whom the prior short-term acute-care stay was for nonsurgical treatment of cancer are excluded because these patients were identified as following a very different trajectory after discharge, with a particularly high mortality rate.</p> <p>8.LTCH stays with data that are problematic (e.g., anomalous records for hospital stays that overlap wholly or in part or are otherwise erroneous or contradictory).</p> <p>Rationale: This measure requires accurate information from the LTCH stay and prior short-term acute-care stays in the elements used for risk adjustment. No-pay LTCH stays involving exhaustion of Part A benefits are also excluded.</p>

	<b>2513 Hospital 30-Day All-Cause Risk-Standardized Readmission Rate (RSRR) following Vascular Procedures</b>
Status	Submitted
Steward	Centers for Medicare & Medicaid Services (CMS)
Description	This measure estimates hospital risk-standardized 30-day unplanned readmission rates following hospital stays with one or more qualifying vascular procedure in patients who are 65 years of age or older and either admitted to the hospital (inpatients) for their vascular procedure(s) or receive their procedure(s) at a hospital but are not admitted as an inpatient (outpatients). Both scenarios are hereafter referred to as "hospital stays."
Type	Outcome
Data Source	Administrative claims
Level	Facility
Setting	Hospital/Acute Care Facility Hospital/Acute Care Facility
Time Window	
Numerator Statement	The outcome for this measure is 30-day all-cause unplanned readmission following a qualifying index hospital stay (see S.7-S.11 for more details). We define a readmission as a subsequent hospital inpatient admission within 30 days of either the discharge date (for inpatients) or claim end date (for outpatients – hereafter referred to as "discharge date") following a qualifying hospital stay. We do not count as readmissions any subsequent outpatient procedures or any subsequent admissions which are identified as "staged" or planned. If a patient has more than one unplanned readmission within 30 days of discharge from the index hospital stay, only the first one is counted as a readmission. The measure looks for a dichotomous yes or no outcome of whether each index hospital stay has an unplanned readmission within 30 days. (See S.6, Numerator Details, for more information.)
Numerator Details	Readmissions captured in the measure include any inpatient hospitalization to an acute care hospital within 30 days of discharge from the index hospital stay, unless that readmission is

	<p><b>2513 Hospital 30-Day All-Cause Risk-Standardized Readmission Rate (RSRR) following Vascular Procedures</b></p> <p>identified as "planned."</p> <p>To the extent possible, we do not count as readmissions hospital stays associated with "planned" procedures. We identify planned procedures using the CMS Planned Readmission Algorithm Version 3.0 (developed for the Hospital-Wide All-Cause Unplanned Readmission Measure, NQF #1789), with modifications for vascular patients. In brief, the algorithm identifies readmissions with a diagnosis or procedure that is considered "always planned" (for example, major organ transplant or maintenance chemotherapy), as well as those readmissions with a "potentially planned" procedure (for example, total hip replacement or cholecystectomy).</p> <p>Additionally, since physicians caring for patients with vascular disease may opt to "stage" procedures across multiple hospital stays, we further identify vascular procedures which might be considered part of a planned series of admissions. An admission for a vascular procedure may be part of a planned: (1) same-procedure pair, (2) different-procedure pair, or (3) amputation procedure. The list of codes in each of these types of scenarios is included in the attached appendix (2014 Measure Updates Memorandum). One example of a potentially planned different-procedure pair is a readmission for a peripheral vascular shunt or bypass (International Classification of Diseases, Ninth Revision [ICD-9] 39.29) which follows an index admission for an insertion of non-drug-eluting, non-coronary artery stent (ICD-9 39.90). For these scenarios only, the index hospital stay and readmission must be at the same hospital. It should also be noted that for scenarios (1) and (2) only, only readmissions which follow an index inpatient hospital stay, as opposed to an outpatient hospital stay, may be considered "potentially planned."</p> <p>Any readmission that is considered "potentially planned" will be considered unplanned if the principal discharge diagnosis for the readmission is acute. We consider acute diagnoses to be complications of care, and not indicative of a planned procedure.</p> <p>Any unplanned readmission within 30 days of discharge from an index hospital stay may be counted in the numerator of this measure, regardless of whether the patient had a planned readmission within 30 days of discharge from the index hospital stay.</p> <p>Full detail, including lists of procedures and diagnoses, are included in the 2014 Measure Updates Memorandum in the attached appendix.</p>
Denominator Statement	The target population for this measure includes inpatient and outpatient hospital stays for patients at least 65 years of age who receive one or more qualifying vascular procedure.
Denominator Details	<p>The index cohort includes inpatient or outpatient hospital stays for patients at least 65 years of age who received one or more qualifying vascular procedure at the hospital. Hospital stays are eligible for inclusion in the denominator if they contained a qualifying vascular procedure, the patient had continuous enrollment in Medicare fee-for-service (FFS) one year prior to the index hospital stay, the patient was not transferred to another acute hospital stay, and the patient was alive at discharge. Procedures on veins, procedures on cardiac and intracranial arteries, and procedures addressing vascular access for hemodialysis, do not qualify for inclusion in the cohort as they represent hospital stays for patient populations distinct from those intended for inclusion in the measure, with differing risks for readmission. Additionally, hospital stays associated with a primary discharge diagnosis of ICD-9 code 996.73 (other complications due to renal dialysis device implant and graft) are not included in the cohort. This cohort is defined using the ICD-9 procedure codes identified in Medicare Part A inpatient and outpatient claims data and Medicare Part A outpatient Current Procedural Terminology (CPT) codes.</p> <p>For purposes of risk adjustment, hospital stays are assigned to procedure groups based on anatomic location and whether an open surgical or endovascular procedure was performed, as described in item S.14 below. Qualifying ICD-9 and CPT procedure codes listed by anatomic</p>

	<b>2513 Hospital 30-Day All-Cause Risk-Standardized Readmission Rate (RSRR) following Vascular Procedures</b>
	group and procedure type are listed in the attached Excel file (see tab S.9).
Exclusions	<p>Hospital stays are excluded from the cohort if they met any of the following criteria:</p> <p>1) Lack of follow-up in Medicare FFS for at least 30 days post-discharge. Hospital stays for patients without at least 30 days of enrollment in Medicare FFS after discharge from the index stay are excluded.</p> <p>Rationale: We exclude these hospital stays because the 30-day readmission outcome cannot be assessed in this group.</p> <p>2) Hospital stays for patients who leave hospital against medical advice (AMA). Hospital stays for patients who are discharged AMA are excluded.</p> <p>Rationale: We exclude hospital stays for patients who are discharged AMA because providers in these circumstances do not have the opportunity to deliver full care and prepare the patient for discharge.</p> <p>3) Hospital stays with a qualifying vascular procedure that occur within 30 days of a previous hospital stay with a qualifying vascular procedure. Subsequent hospital stays with a qualifying vascular procedure within 30 days of discharge from an index hospital stay will not be counted as another index hospital stay.</p> <p>Rationale: Qualifying vascular procedures occurring within 30 days of discharge from an index hospital stay fall within the 30-day readmission assessment period during which no new hospital stay can be counted as an index hospital stay. They are considered readmissions. Any vascular hospital stay is either an index stay or a potential readmission, but not both.</p>
Exclusion details	<p>Hospital stays are excluded from the cohort if they met any of the following criteria:</p> <p>1) Lack of follow-up in Medicare FFS for at least 30 days post-discharge. Hospital stays for patients without at least 30 days of enrollment in Medicare FFS after discharge from the index stay are excluded.</p> <p>Rationale: We exclude these hospital stays because the 30-day readmission outcome cannot be assessed in this group.</p> <p>2) Hospital stays for patients who leave hospital against medical advice (AMA). Hospital stays for patients who are discharged AMA are excluded.</p> <p>Rationale: We exclude hospital stays for patients who are discharged AMA because providers in these circumstances do not have the opportunity to deliver full care and prepare the patient for discharge.</p> <p>3) Hospital stays with a qualifying vascular procedure that occur within 30 days of a previous hospital stay with a qualifying vascular procedure. Subsequent hospital stays with a qualifying vascular procedure within 30 days of discharge from an index hospital stay will not be counted as another index hospital stay.</p> <p>Rationale: Qualifying vascular procedures occurring within 30 days of discharge from an index hospital stay fall within the 30-day readmission assessment period during which no new hospital stay can be counted as an index hospital stay. They are considered readmissions. Any vascular hospital stay is either an index stay or a potential readmission, but not both.</p>

	<b>2514 Risk-Adjusted Coronary Artery Bypass Graft (CABG) Readmission Rate</b>
Status	Standing Committee Review
Steward	The Society of Thoracic Surgeons
Description	Risk-adjusted percentage of Medicare fee-for-service beneficiaries aged 65 and older who

	<b>2514 Risk-Adjusted Coronary Artery Bypass Graft (CABG) Readmission Rate</b>
	undergo isolated coronary artery bypass grafting (CABG) and are discharged alive but have a subsequent acute care hospital inpatient admission within 30 days of the date of discharge from the CABG hospitalization.
Type	Outcome
Data Source	Administrative claims, Electronic Clinical Data : Registry
Level	Facility
Setting	Hospital/Acute Care Facility Hospital/Acute Care Facility
Time Window	
Numerator Statement	Number of Medicare fee-for-service beneficiaries aged 65 and older who undergo isolated coronary artery bypass grafting (CABG) and are discharged alive but have a subsequent acute care hospital inpatient admission within 30 days of the date of discharge from the CABG hospitalization.
Numerator Details	Readmission is defined as a subsequent acute care hospital inpatient admission on or before the 30th day since the date of discharge from the index CABG episode (discharge day regarded as day 0). Transfers from the index CABG hospitalization to another acute care facility are not considered readmissions. In the case of transfer, the 30-day timeframe begins on the discharge date from the last acute care facility of the transfer chain. Regardless of transfers, events are attributed to the hospital that performed the CABG operation. If a patient has more than one admission within 30 days after discharge from the index CABG episode, only one is counted as a readmission.
Denominator Statement	Number of Medicare fee-for-service beneficiaries aged 65 and older who undergo isolated coronary artery bypass grafting (CABG) during the designated 3-year measurement period and are discharged alive.
Denominator Details	<p>Candidate CABG admissions are identified by selecting Medicare Part A claims with an ICD-9-CM procedural code for CABG (36.1x) in any position. Records are retained for analysis if they meet the following additional criteria:</p> <ol style="list-style-type: none"> <li>(1) Linked to an STS record for isolated CABG (see below for record linkage criteria and definition of isolated CABG);</li> <li>(2) Eligible for Medicare fee-for-service (FFS) A and B for at least two months after discharge or until month of death, whichever is first;</li> <li>(3) Discharged from acute care setting within 1 year of index CABG admission;</li> <li>(4) Did not leave against medical advice;</li> <li>(5) No logically inconsistent claims data (e.g. claims with overlapping admission and discharge dates);</li> <li>(6) Is the first eligible operation per patient during the measurement period.</li> </ol> <p>Criteria for linking CMS and STS records</p> <p>STS and CMS records were linked using combinations of indirect identifiers (hospital, age, sex, date of admission, date of discharge). Before linking the CMS and STS databases, we applied the following inclusion criteria. From the CMS database, we selected all inpatient claims for patients 65 years or older at discharge with an ICD-9-CM procedural code for CABG (36.1x) in any position. From the STS database, we selected all records for patients 65 years or older on the date of discharge who underwent CABG (STS v2.61 “Coronary Artery Bypass” in section I “operative”). Eligible STS and CMS records were considered to link if they satisfied one or more of the following 3 criteria:</p> <ol style="list-style-type: none"> <li>1. Agree on hospital, age, sex, date of admission, and date of discharge</li> <li>2. Agree on hospital, sex, date of admission, date of discharge, with ages differ by 1 year</li> </ol>

	2514 Risk-Adjusted Coronary Artery Bypass Graft (CABG) Readmission Rate
	<p>3. Agree on hospital, sex and age, and one of the two dates, with the other date differ by 1 day.</p> <p>NOTE: The record linkage strategy described above was used for exploratory analyses for developing the measure and may not be required when the measure is implemented by CMS. For implementation by CMS, it is anticipated that CMS will mandate collection of direct identifiers (e.g. name and social security number) which may obviate the need to link records based on combinations of indirect identifiers.</p> <p>Definition of Isolated CABG</p> <p>Isolated CABG is defined as a stand-alone CABG operation without a concomitant valve or other major cardiac or non-cardiac procedure with the following exceptions:</p> <ul style="list-style-type: none"> <li>• CABG + ventricular assist device (VAD) implantation is counted as isolated CABG.</li> </ul> <p>Rationale: VAD implantation is often unplanned and may be impacted by the quality of the CABG operation and peri-operative care. Performance measures should adjust for patient factors present at the beginning of the episode of care and should not adjust for discretionary care practices that may reflect lower or higher quality of care.</p> <ul style="list-style-type: none"> <li>• CABG + transmyocardial laser revascularization (TMR) is counted as isolated CABG.</li> </ul> <p>Rationale: The decision to perform TMR is discretionary and susceptible to gaming.</p> <ul style="list-style-type: none"> <li>• CABG + insertion of pacemaker or automatic implantable cardioverter defibrillator is counted as isolated CABG</li> </ul> <p>Rationale: In the version of the Database used to develop this model, it is impossible to distinguish which such combined CABG plus pacemaker or ICD patients required these additional procedures because of a pre-existing condition versus as a result of a complication of surgery (e.g., heart block or a large perioperative MI with decrease EF and VT)</p> <p>Algorithm for identifying eligible isolated CABG admissions in the linked STS + CMS database</p> <p>Eligible isolated CABG admissions are identified by selecting linked STS-CMS records that meet the following criteria:</p> <ul style="list-style-type: none"> <li>• ICD-9-CM procedural code 36.1x in any position</li> <li>• STS field #1280 “coronary artery bypass grafting” = “yes”</li> <li>• Each of the following STS fields is “no” or “missing”: <ul style="list-style-type: none"> <li>- Valve surgery (1290)</li> <li>- Aortic valve operation (1630)</li> <li>- Mitral valve operation (1640)</li> <li>- Tricuspid valve operation (1650)</li> <li>- Pulmonic valve operation (1660)</li> <li>- Other non-cardiac procedure (1320)</li> <li>- Left ventricular aneurysm repair (2360)</li> <li>- Ventricular septal defect repair (2370)</li> <li>- Atrial septal defect repair (2380)</li> <li>- Batista (2390)</li> <li>- Surgical ventricular restoration (2400)</li> <li>- Congenital Defect Repair (2410)</li> <li>- Cardiac trauma (2430)</li> <li>- Cardiac transplant (2440)</li> <li>- Atrial fibrillation correction surgery (2470)</li> <li>- Aortic aneurysm (2510)</li> <li>- Other cardiac operation (1310)</li> </ul> </li> </ul>

	2514 Risk-Adjusted Coronary Artery Bypass Graft (CABG) Readmission Rate
Exclusions	<p>Exclusion – Rationale</p> <ul style="list-style-type: none"> <li>• The patient is age &lt;65 years on date of discharge according to CMS or STS data – Patients younger than 65 in the Medicare dataset represent a distinct population that qualifies for Medicare due to disability. The characteristics and outcomes of these patients may be less representative of the larger population of CABG patients.</li> <li>• There is a CMS record but no matching STS record – STS data elements are required for identifying the cohort and for risk adjustment.</li> <li>• There is an STS record but not matching CMS record – Medicare data are required for ascertaining 30-day readmission status, especially readmissions to a hospital other than the CABG hospital</li> <li>• CABG is not a stand-alone procedure – Inclusion of combination procedures complicates risk adjustment by adding multiple relatively rare cohorts with potentially distinct characteristics and outcomes.</li> <li>• The patient died prior to discharge from acute care setting – Patient is not at risk of subsequent readmission.</li> <li>• The patient leaves against medical advice (AMA). – Physicians and hospitals do not have the opportunity to deliver the highest quality care.</li> <li>• The patient does not retain Medicare fee-for-service (FFS) A and B for at least two months after discharge – Beneficiaries who switch to a Medicare advantage plan are unlikely to file inpatient claims which are required for ascertaining 30-day readmission status.</li> <li>• The index CABG episode is &gt;365 days. – These patients were excluded for consistency with previous CMS readmission measures. These records may inaccurate admission and discharge dates. If not, including them would complicate risk adjustment by adding a relatively rare cohort with potentially distinct characteristics and outcomes.</li> <li>• Not the first eligible CABG admission per patient per measurement period. – Simplifies statistical analysis. Also, repeat CABG procedures are very rare and so loss of information is minimal.</li> </ul>
Exclusion details	<p>Exclusion – Rationale</p> <ul style="list-style-type: none"> <li>• The patient is age &lt;65 years on date of discharge according to CMS or STS data – Patients younger than 65 in the Medicare dataset represent a distinct population that qualifies for Medicare due to disability. The characteristics and outcomes of these patients may be less representative of the larger population of CABG patients.</li> <li>• There is a CMS record but no matching STS record – STS data elements are required for identifying the cohort and for risk adjustment.</li> <li>• There is an STS record but not matching CMS record – Medicare data are required for ascertaining 30-day readmission status, especially readmissions to a hospital other than the CABG hospital</li> <li>• CABG is not a stand-alone procedure – Inclusion of combination procedures complicates risk adjustment by adding multiple relatively rare cohorts with potentially distinct characteristics and outcomes.</li> <li>• The patient died prior to discharge from acute care setting – Patient is not at risk of subsequent readmission.</li> <li>• The patient leaves against medical advice (AMA). – Physicians and hospitals do not have the opportunity to deliver the highest quality care.</li> <li>• The patient does not retain Medicare fee-for-service (FFS) A and B for at least two months after discharge – Beneficiaries who switch to a Medicare advantage plan are unlikely to file inpatient claims which are required for ascertaining 30-day readmission status.</li> <li>• The index CABG episode is &gt;365 days. – These patients were excluded for consistency</li> </ul>

	<b>2514 Risk-Adjusted Coronary Artery Bypass Graft (CABG) Readmission Rate</b>
	<p>with previous CMS readmission measures. These records may inaccurate admission and discharge dates. If not, including them would complicate risk adjustment by adding a relatively rare cohort with potentially distinct characteristics and outcomes.</p> <ul style="list-style-type: none"> <li>• Not the first eligible CABG admission per patient per measurement period. – Simplifies statistical analysis. Also, repeat CABG procedures are very rare and so loss of information is minimal.</li> </ul>

	<b>2515 Hospital 30-day, all-cause, unplanned, risk-standardized readmission rate (RSRR) following coronary artery bypass graft (CABG) surgery</b>
Status	Standing Committee Review
Steward	Centers for Medicare & Medicaid Services (CMS)
Description	<p>The measure estimates a hospital-level risk-standardized readmission rate (RSRR), defined as unplanned readmission for any cause within 30 days from the date of discharge of the index CABG procedure, for patients 18 years and older discharged from the hospital after undergoing a qualifying isolated CABG procedure. The measure was developed using Medicare Fee-for-Service (FFS) patients 65 years and older and was tested in all-payer patients 18 years and older.</p> <p>An index admission is the hospitalization for a qualifying isolated CABG procedure considered for the readmission outcome.</p>
Type	Outcome
Data Source	Administrative claims
Level	Facility
Setting	Hospital/Acute Care Facility Hospital/Acute Care Facility
Time Window	
Numerator Statement	<p>The outcome for this measure is 30-day all-cause readmission. We define all-cause readmission as an unplanned inpatient admission for any cause within 30 days after the date of discharge from the index admission for patients 18 years and older discharged from the hospital after undergoing isolated CABG surgery. If a patient has one or more unplanned admissions (for any reason) within 30 days after discharge from the index admission, only one is counted as a readmission.</p>
Numerator Details	<p>(Note: This outcome measure does not have a traditional numerator and denominator like a core process measure (e.g., percentage of adult patients with diabetes aged 18-75 years receiving one or more hemoglobin A1c tests per year); thus, we are using this field to define the outcome and to which hospital the outcome is attributed when there are multiple hospitalizations within a single episode of care.)</p> <p>This is an all-cause readmission measure and therefore any readmission within 30 days of discharge from the index hospitalization (hereafter referred to as discharge date) is included in the measure unless that readmission is deemed a “planned” readmission. The outcome is attributed to the hospital that provided the index CABG procedure.</p> <p>Planned Readmission Definition:</p> <p>Planned readmissions are scheduled admissions for elective procedures or for planned care such as chemotherapy or rehabilitation. Because planned readmissions are not necessarily a signal of quality of care, we chose to exclude planned readmissions from being considered as an outcome in this readmission measure. Although clinical experts agree that planned readmissions are rare after CABG, they likely do occur. Therefore, to identify these planned</p>



	<p><b>2515 Hospital 30-day, all-cause, unplanned, risk-standardized readmission rate (RSRR) following coronary artery bypass graft (CABG) surgery</b></p>
	<p>readmissions we have adapted and applied an algorithm originally created to identify planned readmissions for a hospital-wide (i.e., not condition-specific) readmission measure. This algorithm underwent two rounds of public comment, a validation study using data from a medical record review, and was finalized based upon technical input of 17 surgeons nominated by 9 surgical societies as well as 10 other expert surgeons.</p> <p>In brief, the algorithm identifies a short list of always planned readmissions (those where the principal discharge diagnosis is major organ transplant, obstetrical delivery, or maintenance chemotherapy) as well as those readmissions with a potentially planned procedure (e.g., total hip replacement) AND a non-acute principle discharge diagnosis code. For example, a readmission for colon resection is considered planned if the principal diagnosis is colon cancer but unplanned if the principal diagnosis is abdominal pain, as this might represent a complication of the CABG procedure or hospitalization. Readmissions that included potentially planned procedures with acute diagnoses or procedures that might represent specific complications of CABG, such as PTCA or repeat CABG are not excluded from the measure outcome as they are not considered planned in this measure. Readmissions are considered planned if any of the following occurs during the readmission:</p> <ol style="list-style-type: none"> <li>1. A procedure is performed that is in one of the procedure categories that are always planned regardless of diagnosis;</li> <li>2. The principal diagnosis is in one of the diagnosis categories that are always planned; or,</li> <li>3. A procedure is performed that is in one of the potentially planned procedure categories and the principal diagnosis is not in the list of acute discharge diagnoses.</li> </ol> <p>Only the first readmission following an index hospital stay is counted in the numerator of this measure. If a patient has two or more readmissions within 30 days of discharge from the index hospital stay, only the first will be considered an outcome of interest; the second or later readmissions are not counted in the outcome.</p> <p>Full detail, including lists of procedures and diagnoses, are included in the Measure Methodology Report in the attached appendix.</p> <p>It should be noted that this approach differs from that adopted by STS for their registry-based measure, in which all 30-day readmissions were considered to be unplanned.</p> <p>Outcome Attribution:</p> <p>Attribution of the outcome in situations where a patient has multiple contiguous admissions, at least one of which involves an index CABG procedure (i.e., the patient is either transferred into the hospital that performs the index CABG or is transferred out to another hospital following the index CABG) is as follows:</p> <ul style="list-style-type: none"> <li>- If a patient undergoes a CABG procedure in the first hospital and is then transferred to a second hospital where there is no CABG procedure, the readmission outcome is attributed to the first hospital performing the index CABG procedure and the 30-day window starts with the date of discharge from the final hospital in the chain.</li> </ul> <p>Rationale: A transfer following CABG is most likely due to a complication of the index procedure and that care provided by the hospital performing the CABG procedure likely dominates readmission risk even among transferred patients.</p> <ul style="list-style-type: none"> <li>- If a patient is admitted to a first hospital but does not receive a CABG procedure there and is then transferred to a second hospital where a CABG is performed, the readmission outcome is attributed to the second hospital performing the index CABG procedure and the 30-day window starts with the date of discharge from the final hospital in the chain.</li> </ul> <p>Rationale: Care provided by the hospital performing the CABG procedure likely dominates readmission risk.</p> <ul style="list-style-type: none"> <li>-If a patient undergoes a CABG procedure in the first hospital and is transferred to a second</li> </ul>



	<b>2515 Hospital 30-day, all-cause, unplanned, risk-standardized readmission rate (RSRR) following coronary artery bypass graft (CABG) surgery</b>
	<p>hospital where another CABG procedure is performed, the readmission outcome is attributed to the first hospital performing the index (first) CABG procedure and the 30-day window starts with the date of discharge from the final hospital in the chain.</p> <p>Rationale: A transfer following CABG is most likely due to a complication of the index procedure, and care provided by the hospital performing the index CABG procedure likely dominates readmission risk even among transferred patients.</p>
Denominator Statement	<p>This claims-based measure can be used in either of two patient cohorts: (1) patients aged 65 years or older or (2) patients aged 18 years or older. We have tested the measure in both age groups.</p> <p>The cohort includes admissions for patients who receive a qualifying isolated CABG procedure (see codes below) and with a complete claims history for the 12 months prior to admission. For simplicity of implementation and as testing demonstrated closely correlated patient-level and hospital-level results using models with or without age interaction terms, the only recommended modification to the measure for application to all-payer data sets is replacement of the “Age-65” variable with a fully continuous age variable.</p>
Denominator Details	<p>(Note: This outcome measure does not have a traditional numerator and denominator like a core process measure (e.g., percentage of adult patients with diabetes aged 18-75 years receiving one or more hemoglobin A1c tests per year). We therefore use this field to define the measure cohort.)</p> <p>The index cohort includes admissions for patients aged 18 years or older who received a qualifying “isolated” CABG procedure (CABG procedure without other concurrent major cardiac procedure such as a valve replacement). All patients in the cohort are alive at discharge (i.e., no in-hospital death). The measure was developed in a cohort of patients 65 years and older who were enrolled in Medicare FFS and admitted to non-federal hospitals. To be included in the Medicare FFS cohort, patients had to have a qualifying isolated CABG procedure AND had to be continuously enrolled in Medicare Fee-for-Service (FFS) one year prior to the first day of the index hospitalization and through 30 days post-discharge.</p> <p>This cohort is defined using the ICD-9 Clinical Modification (ICD-9-CM) procedure codes identified in Medicare Part A Inpatient claims data. An ICD-9 to ICD-10 crosswalk is attached in field S.2b. (Data Dictionary or Code Table). ICD-9-CM procedure codes that indicate a patient has undergone a NON-isolated CABG procedure (CABG surgeries that occur concomitantly with procedures that elevate patients’ readmission risk) and thus does not meet criteria for inclusion in the measure cohort are listed in the attached Excel file (see tab S.9).</p> <p>ICD-9-CM codes that define the cohort:</p> <ul style="list-style-type: none"> <li>36.1x - Aortocoronary bypass for heart revascularization, not otherwise specified</li> <li>36.11 - (Aorto) coronary bypass of one coronary artery</li> <li>36.12 - (Aorto) coronary bypass of two coronary arteries</li> <li>36.13 - (Aorto) coronary bypass of three coronary arteries</li> <li>36.14 - (Aorto) coronary bypass of four or more coronary arteries</li> <li>36.15 - Single internal mammary- coronary artery bypass</li> <li>36.16 - Double internal mammary- coronary artery bypass</li> <li>36.17 - Abdominal- coronary artery bypass</li> <li>36.19 - Other bypass anastomosis for heart revascularization</li> </ul>
Exclusions	<p>In order to create a clinically coherent population for risk adjustment and in accordance with existing NQF-approved CABG measures and clinical expert opinion, the measure is intended to capture isolated CABG patients (i.e., patients undergoing CABG procedures without concomitant valve or other major cardiac or vascular procedures).</p>

	<b>2515 Hospital 30-day, all-cause, unplanned, risk-standardized readmission rate (RSRR) following coronary artery bypass graft (CABG) surgery</b>
	<p>For all cohorts, hospitalizations are excluded if they meet any of the following criteria. Hospitalizations for:</p> <p>1) Patients who leave the hospital against medical advice (AMA) Rationale: We exclude hospitalizations for patients who are discharged AMA because providers did not have the opportunity to deliver full care and prepare the patient for discharge.</p> <p>2) Patients with qualifying CABG procedures subsequent to another qualifying CABG procedure during the measurement period. Rationale: CABG procedures are expected to last for several years without the need for revision or repeat revascularization. A repeat CABG procedure during the measurement period very likely represents a complication of the original CABG procedure and is a clinically more complex and higher risk surgery. We, therefore, select the first CABG admission for inclusion in the measure and exclude subsequent CABG admissions from the cohort.</p> <p>For Medicare FFS patients, the measure additionally excludes:</p> <p>3) Patients without at least 30 days post-discharge enrollment in FFS Medicare. Rationale: We exclude these hospitalizations because the 30-day readmission outcome cannot be assessed in this group.</p>
Exclusion details	<p>In order to create a clinically coherent population for risk adjustment and in accordance with existing NQF-approved CABG measures and clinical expert opinion, the measure is intended to capture isolated CABG patients (i.e., patients undergoing CABG procedures without concomitant valve or other major cardiac or vascular procedures).</p> <p>For all cohorts, hospitalizations are excluded if they meet any of the following criteria. Hospitalizations for:</p> <p>1) Patients who leave the hospital against medical advice (AMA) Rationale: We exclude hospitalizations for patients who are discharged AMA because providers did not have the opportunity to deliver full care and prepare the patient for discharge.</p> <p>2) Patients with qualifying CABG procedures subsequent to another qualifying CABG procedure during the measurement period. Rationale: CABG procedures are expected to last for several years without the need for revision or repeat revascularization. A repeat CABG procedure during the measurement period very likely represents a complication of the original CABG procedure and is a clinically more complex and higher risk surgery. We, therefore, select the first CABG admission for inclusion in the measure and exclude subsequent CABG admissions from the cohort.</p> <p>For Medicare FFS patients, the measure additionally excludes:</p> <p>3) Patients without at least 30 days post-discharge enrollment in FFS Medicare. Rationale: We exclude these hospitalizations because the 30-day readmission outcome cannot be assessed in this group.</p>

	<b>2539 Facility 7-Day Risk-Standardized Hospital Visit Rate after Outpatient Colonoscopy</b>
Status	Standing Committee Review
Steward	The Centers for Medicare & Medicaid Services (CMS)
Description	Rate of risk-standardized, all-cause, unplanned hospital visits within 7 days of an outpatient colonoscopy among Medicare fee-for-service (FFS) patients aged 65 years and older.

	<b>2539 Facility 7-Day Risk-Standardized Hospital Visit Rate after Outpatient Colonoscopy</b>
Type	Outcome
Data Source	Administrative claims
Level	Facility
Setting	Ambulatory Care : Ambulatory Surgery Center (ASC), Ambulatory Care : Clinician Office/Clinic, Other Ambulatory Care : Ambulatory Surgery Center (ASC), Ambulatory Care : Clinician Office/Clinic, Other
Time Window	
Numerator Statement	The outcome for this measure is all-cause, unplanned hospital visits within 7 days of an outpatient colonoscopy. We define a hospital visit as any emergency department (ED) visit, observation stay, or unplanned inpatient admission.
Numerator Details	<p><b>Outcome Definition</b></p> <p>The outcome for this measure is all-cause, unplanned hospital visits within 7 days of an outpatient colonoscopy. Hospital visits include ED visits, observation stays, and unplanned inpatient admissions. If more than one unplanned hospital visit occurs, only the first hospital visit within the outcome timeframe is counted in the outcome.</p> <p><b>Identification of Planned Admissions</b></p> <p>The measure outcome includes any inpatient admission within the first 7 days after the colonoscopy, unless that admission is deemed a “planned” admission as defined by the measure’s planned admission algorithm. The Centers for Medicare &amp; Medicaid Services (CMS) seeks to count only unplanned admissions in the measure outcome, because variation in “planned” admissions does not reflect quality differences. We based the planned admission algorithm on the CMS Planned Readmission Algorithm Version 3.0, which CMS created for its hospital-wide readmission measure. In brief, the algorithm identifies admissions that are typically planned and may occur after the patient’s index event. The algorithm always considers a few specific, limited types of care planned (e.g., major organ transplant, rehabilitation, or maintenance chemotherapy). Otherwise, the algorithm defines a planned admission as a non-acute admission for a scheduled procedure (e.g., total hip replacement or cholecystectomy), and the algorithm never considers admissions for acute illness or for complications of care planned. For example, the algorithm considers hip replacement unplanned if hip fracture (an acute condition) is the discharge diagnosis, but planned if osteoarthritis (a non-acute condition) is the discharge diagnosis. The algorithm considers admissions that include potentially planned procedures with acute diagnoses or that might represent complications of a colonoscopy unplanned and thus counts these admissions in the measure outcome.</p> <p>Appendix C of the attached technical report contains the detailed algorithm used to identify planned admissions.</p> <p>Applying the algorithm to 2010 Medicare data (Medicare 20% FFS Development Full Sample, see Measure Testing Form Section 1.2 and 1.7 for full description of the dataset), planned admissions constituted 19.2% of all hospital visits and 33.6% of all admissions within 7 days of colonoscopy. The most common planned admission was for colorectal resection.</p> <p><b>Definition of ED and Observation Stay</b></p> <p>We defined ED visits and observation stays using one of the specified billing codes or revenue center codes identified in Medicare Part B Outpatient hospital claims. The codes that define ED visits and observation stays are in the attached Data Dictionary, sheet “S.6 Numerator-ED Obs Def.”</p>
Denominator Statement	Colonoscopies performed at hospital outpatient departments (HOPDs) and ambulatory surgical centers (ASCs) for Medicare FFS patients aged 65 years and older.

	<b>2539 Facility 7-Day Risk-Standardized Hospital Visit Rate after Outpatient Colonoscopy</b>
Denominator Details	<p><b>Target Population</b></p> <p>The target population is colonoscopies performed at HOPDs and ASCs. However, the measure evaluates relative performance of facilities, and to ensure that the measure assesses colonoscopy quality at these facilities relative to the quality of all colonoscopy providers, we include colonoscopies performed at HOPDs, ASCs, and physician offices in the measure score calculation. The measure calculation package calculates a facility-level score for all unique facilities. Only the HOPDs and ASCs scores, however, are intended for use in public reporting, not the scores estimated for individual physician offices.</p> <p>The denominator could be narrowed to the facilities of interest. For example, the measure scores could be calculated using only HOPDs or only ASC colonoscopies. However, this would change the comparison group. HOPDs would be compared relative to the performance of one another, and ASCs would be compared relative to the performance of one another. If this approach is used, the results cannot be used to compare quality across HOPDs and ASCs.</p> <p>The targeted patient population is patients aged 65 years and older who are enrolled in Medicare FFS and have been enrolled in Part A and Part B Medicare for the 12 months prior to the date of procedure. We limited the measure cohort to older Medicare patients since national data linking risk factors, procedures, and outcomes across care settings is only available for this group. The population includes patients undergoing screening for colorectal cancer (CRC), patients undergoing diagnostic evaluation for symptoms and signs of disease, and patients undergoing biopsies or removal of pre-cancerous lesions or polyps who are generally well.</p> <p>We defined this cohort as having one or more of the specified Current Procedural Terminology (CPT)/Healthcare Common Procedure Coding System (HCPCS) procedure codes identified in Medicare Carrier (Part B Physician) Standard Analytical File (SAF). The CPT and HCPCS procedure codes that define the cohort are in the attached Data Dictionary, sheet “S.9 Denominator Details-Cohort.”</p> <p>We considered all colonoscopy codes during development of the measure cohort. We did not include colonoscopy CPT procedure codes in the measure that reflected fundamentally higher-risk or different procedures. Those procedures billed with a qualifying colonoscopy procedure code and a high-risk colonoscopy procedure code (see attached Data Dictionary, sheet “S.9 Denominator Details-Hgh Rsk”) were not included in the measure.</p> <p>Colonoscopy is not possible among patients who have had a prior total colectomy. Any claim for a colonoscopy in a patient with a prior total colectomy is therefore likely to be a coding error. We perform an error check to ensure the measure does not include these patients with a total colectomy recorded in their prior medical history. The CPT and HCPCS procedure codes and International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) codes that define the total colectomy data reliability check are in the attached Data Dictionary, sheet “S.9 Denominator Details-Colect.”</p> <p><b>Capture of Colonoscopies Affected by the Medicare 3-Day Payment Window Policy:</b></p> <p>Colonoscopies performed at HOPDs can be affected by the Medicare 3-day payment window policy. The policy states that outpatient services (including all diagnostic services such as colonoscopy) provided by a hospital or any Part B entity wholly owned or wholly operated by a hospital (such as a HOPD) in the 3 calendar days preceding the date of a beneficiary’s inpatient admission are deemed to be related to the admission [1]. For outpatient colonoscopies affected, the facility claim (for the technical portion of the colonoscopy) is bundled with the inpatient claim, although the Medicare Part B physician claim for professional services rendered is still submitted. This policy has implications for the measure because it may lead to: (1) failure to completely capture outpatient colonoscopies performed at HOPDs; (2) underreporting of outcomes for colonoscopies performed in the HOPD setting; and (3) an</p>

	<b>2539 Facility 7-Day Risk-Standardized Hospital Visit Rate after Outpatient Colonoscopy</b>
	<p>inability to compare the measure score across both types of facilities (HOPDs and ASCs). To ensure the capture of HOPD colonoscopies, we identify physician claims for colonoscopy in the HOPD setting from the Medicare Part B SAF who had an inpatient admission within =3 days and lacking a corresponding HOPD facility claim. We then attribute the colonoscopies identified as affected by this policy to the appropriate HOPD facility using the facility provider ID from the inpatient claim.</p> <p>Citations</p> <p>1. Centers for Medicare &amp; Medicaid Services (CMS). Three Day Payment Window. 2013; <a href="http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/Three_Day_Payment_Window.html">http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/Three_Day_Payment_Window.html</a>.</p>
Exclusions	<p>We established the following exclusion criteria after reviewing the literature, examining existing measures, and discussing alternatives with the working group and technical expert panel (TEP) members. The goal was to be as inclusive as possible; we excluded only those high-risk procedures and patient groups for which risk adjustment would not be adequate or for which hospital visits were not typically a quality signal. The exclusions, based on clinical rationales, prevent unfair distortion of performance results.</p> <p>1) Colonoscopies for patients who lack continuous enrollment in Medicare FFS Parts A and B in the 1 month after the procedure. Rationale: We exclude these patients to ensure full data availability for outcome assessment.</p> <p>2) Colonoscopies that occur concurrently with high-risk upper gastrointestinal (GI) endoscopy procedures. Rationale: Patients undergoing concurrent high-risk upper GI endoscopy procedures, such as upper GI endoscopy procedures for the control of bleeding or treatment of esophageal varices, are often unwell and have a higher risk profile than typical colonoscopy patients. Therefore these patients have a disproportionally higher risk for the outcome.</p> <p>3) Colonoscopies for patients with a history of inflammatory bowel disease (IBD). Rationale: We exclude these patients because:</p> <ul style="list-style-type: none"> <li>-IBD is a chronic condition; patients with IBD undergo colonoscopy for both surveillance due to increased cancer risk and for evaluation of acute symptoms. IBD is likely to be coded as the primary diagnosis prompting the procedure irrespective of whether the patients are undergoing a screening procedure or a diagnostic procedure in the setting of an acute exacerbation of IBD. Therefore, we may not be able to adequately risk adjust for these patients as we cannot identify relatively well versus acutely unwell patients among visits coded as IBD.</li> <li>-Our aim is to capture hospital visits which reflect the quality of care. Admissions for acutely ill IBD patients who are evaluated with an outpatient colonoscopy and are subsequently admitted for medical treatment of an IBD flare do not reflect the quality of the colonoscopy. In our 2010 Medicare 20% FFS Full Development Sample (see Measure Testing Form Section 1.2 and 1.7 for full description of the dataset), more than one third of IBD patients admitted to the hospital with colonoscopy had a discharge diagnosis of IBD, indicating their admission was for medical treatment of their IBD. We therefore excluded this group so that providers who treat a disproportionate number of IBD patients will not be disadvantaged in the measure.</li> </ul> <p>4) Colonoscopies for patients with a history of diverticulitis. Rationale: We exclude these patients because:</p> <ul style="list-style-type: none"> <li>-It is unclear what the health status is of patients coded with a history of diverticulitis, making it difficult to fully risk adjust for patients' health. Colonoscopies performed on patients with a history of diverticulitis are likely to be coded as diverticulitis as the primary diagnosis</li> </ul>

	2539 Facility 7-Day Risk-Standardized Hospital Visit Rate after Outpatient Colonoscopy
	<p>irrespective of whether the patients are undergoing a screening procedure or a diagnostic procedure (i.e., are acutely unwell with active disease). Furthermore, the codes for diverticulitis and diverticulosis may not be consistently used; patients with diverticulosis may be erroneously coded as diverticulitis. Therefore, we may not be able to adequately risk adjust as we cannot identify relatively well versus acutely unwell patients among visits coded as diverticulitis.</p> <p>-Admissions for acutely ill patients with a history of diverticulitis who are evaluated with an outpatient colonoscopy and are subsequently admitted for medical treatment of do not reflect the quality of the colonoscopy. In our 2010 Medicare 20% FFS Full Development Sample (see Measure Testing Form Section 1.2 and 1.7 for full description of the dataset) more than one quarter of patients with a history of diverticulitis admitted to the hospital post colonoscopy had a discharge diagnosis of diverticulitis, indicating they were admitted for medical treatment of the condition. These admissions are likely unrelated to the quality of the colonoscopy. We therefore excluded this group so that providers who treat a disproportionate number of diverticulitis patients will not be disadvantaged in the measure.</p>
Exclusion details	<p>We established the following exclusion criteria after reviewing the literature, examining existing measures, and discussing alternatives with the working group and technical expert panel (TEP) members. The goal was to be as inclusive as possible; we excluded only those high-risk procedures and patient groups for which risk adjustment would not be adequate or for which hospital visits were not typically a quality signal. The exclusions, based on clinical rationales, prevent unfair distortion of performance results.</p> <p>1) Colonoscopies for patients who lack continuous enrollment in Medicare FFS Parts A and B in the 1 month after the procedure. Rationale: We exclude these patients to ensure full data availability for outcome assessment.</p> <p>2) Colonoscopies that occur concurrently with high-risk upper gastrointestinal (GI) endoscopy procedures. Rationale: Patients undergoing concurrent high-risk upper GI endoscopy procedures, such as upper GI endoscopy procedures for the control of bleeding or treatment of esophageal varices, are often unwell and have a higher risk profile than typical colonoscopy patients. Therefore these patients have a disproportionally higher risk for the outcome.</p> <p>3) Colonoscopies for patients with a history of inflammatory bowel disease (IBD). Rationale: We exclude these patients because:</p> <p>-IBD is a chronic condition; patients with IBD undergo colonoscopy for both surveillance due to increased cancer risk and for evaluation of acute symptoms. IBD is likely to be coded as the primary diagnosis prompting the procedure irrespective of whether the patients are undergoing a screening procedure or a diagnostic procedure in the setting of an acute exacerbation of IBD. Therefore, we may not be able to adequately risk adjust for these patients as we cannot identify relatively well versus acutely unwell patients among visits coded as IBD.</p> <p>-Our aim is to capture hospital visits which reflect the quality of care. Admissions for acutely ill IBD patients who are evaluated with an outpatient colonoscopy and are subsequently admitted for medical treatment of an IBD flare do not reflect the quality of the colonoscopy. In our 2010 Medicare 20% FFS Full Development Sample (see Measure Testing Form Section 1.2 and 1.7 for full description of the dataset), more than one third of IBD patients admitted to the hospital with colonoscopy had a discharge diagnosis of IBD, indicating their admission was for medical treatment of their IBD. We therefore excluded this group so that providers who treat a disproportionate number of IBD patients will not be disadvantaged in the measure.</p> <p>4) Colonoscopies for patients with a history of diverticulitis.</p>

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	<p>Rationale: We exclude these patients because:</p> <ul style="list-style-type: none"> <li>-It is unclear what the health status is of patients coded with a history of diverticulitis, making it difficult to fully risk adjust for patients' health. Colonoscopies performed on patients with a history of diverticulitis are likely to be coded as diverticulitis as the primary diagnosis irrespective of whether the patients are undergoing a screening procedure or a diagnostic procedure (i.e., are acutely unwell with active disease). Furthermore, the codes for diverticulitis and diverticulosis may not be consistently used; patients with diverticulosis may be erroneously coded as diverticulitis. Therefore, we may not be able to adequately risk adjust as we cannot identify relatively well versus acutely unwell patients among visits coded as diverticulitis.</li> <li>-Admissions for acutely ill patients with a history of diverticulitis who are evaluated with an outpatient colonoscopy and are subsequently admitted for medical treatment of do not reflect the quality of the colonoscopy. In our 2010 Medicare 20% FFS Full Development Sample (see Measure Testing Form Section 1.2 and 1.7 for full description of the dataset) more than one quarter of patients with a history of diverticulitis admitted to the hospital post colonoscopy had a discharge diagnosis of diverticulitis, indicating they were admitted for medical treatment of the condition. These admissions are likely unrelated to the quality of the colonoscopy. We therefore excluded this group so that providers who treat a disproportionate number of diverticulitis patients will not be disadvantaged in the measure.</li> </ul>



## Appendix G: Related and Competing Measures

**CABG Readmission:** 2514 Risk-Adjusted Coronary Artery Bypass Graft (CABG) Readmission Rate vs. 2515 Hospital 30-day, all-cause, unplanned, risk-standardized readmission rate (RSRR) following coronary artery bypass graft (CABG) surgery

	2514 Risk-Adjusted Coronary Artery Bypass Graft (CABG) Readmission Rate	2515 Hospital 30-day, all-cause, unplanned, risk-standardized readmission rate (RSRR) following coronary artery bypass graft (CABG) surgery
Steward	The Society of Thoracic Surgeons	Centers for Medicare & Medicaid Services (CMS)
Description	Risk-adjusted percentage of Medicare fee-for-service beneficiaries aged 65 and older who undergo isolated coronary artery bypass grafting (CABG) and are discharged alive but have a subsequent acute care hospital inpatient admission within 30 days of the date of discharge from the CABG hospitalization.	The measure estimates a hospital-level risk-standardized readmission rate (RSRR), defined as unplanned readmission for any cause within 30 days from the date of discharge of the index CABG procedure, for patients 18 years and older discharged from the hospital after undergoing a qualifying isolated CABG procedure. The measure was developed using Medicare Fee-for-Service (FFS) patients 65 years and older and was tested in all-payer patients 18 years and older. An index admission is the hospitalization for a qualifying isolated CABG procedure considered for the readmission outcome.
Type	Outcome	Outcome
Data Source	Administrative claims, Electronic Clinical Data : Registry Medicare claims data, STS Adult Cardiac Surgery Database Version 2.61 Available at measure-specific web page URL identified in S.1 Attachment S.2b._S.15._Detailed_Risk_Model_Specifications.Risk-Adjusted_CABG_Readmission_Rate.docx	Administrative claims Administrative Claims: The measure uses Medicare Part A inpatient and outpatient and Part B outpatient claims. The Medicare data sources used to create the measure were: 1. Medicare Part A Inpatient and Outpatient and Part B outpatient claims from the Standard Analytic File, including inpatient and outpatient claims for the 12 months prior to an index admission. This dataset was used to identify the cohort (Part A inpatient) and to identify comorbidities (Part A inpatient and outpatient and Part B outpatient). 2. Medicare Enrollment Database (EDB): This database contains Medicare beneficiary demographic, benefit/coverage, and vital status information. This dataset was used to obtain information on several



		<p>inclusion/exclusion indicators such as Medicare status on admission. The all-payer data source used to test the measure in patients 18 years and over was:</p> <p>1. 2006 California Patient Discharge Data (PDD), a large, linked database of approximately 3 million adult discharges from more than 450 non-Federal acute care hospitals. Records are linked by a unique patient identification number, allowing determination of patient history from previous hospitalizations and evaluation of both readmission and mortality rates (via linking with California vital statistics records).</p> <p>No data collection instrument provided Attachment Yale-CORE_CABG_Readmission_Measure_Excel_Attachment_3-26-14_Final.xlsx</p>
Level	Facility	Facility
Setting	Hospital/Acute Care Facility	Hospital/Acute Care Facility
Time Window	<p>Numerator – Within 30 days of the date of discharge from the index CABG hospitalization</p> <p>Denominator – Designated 3-year measurement period</p>	<p>Numerator time window: 30 days from discharge of index CABG procedure hospitalization or claim end date</p> <p>Denominator time window: this measure was developed using claims data from calendar year 2009. The time period for public reporting has not been determined.</p>
Numerator Statement	Number of Medicare fee-for-service beneficiaries aged 65 and older who undergo isolated coronary artery bypass grafting (CABG) and are discharged alive but have a subsequent acute care hospital inpatient admission within 30 days of the date of discharge from the CABG hospitalization.	The outcome for this measure is 30-day all-cause readmission. We define all-cause readmission as an unplanned inpatient admission for any cause within 30 days after the date of discharge from the index admission for patients 18 years and older discharged from the hospital after undergoing isolated CABG surgery. If a patient has one or more unplanned admissions (for any reason) within 30 days after discharge from the index admission, only one is counted as a readmission.
Numerator Details	Readmission is defined as a subsequent acute care hospital inpatient admission on or before the 30th day since the date of discharge from the index CABG episode (discharge day regarded as day 0). Transfers from the index CABG hospitalization to another acute care facility are not considered readmissions. In the case of transfer, the 30-day timeframe begins on the discharge date from the last acute care facility of the transfer chain. Regardless of transfers, events are attributed to the hospital that performed the CABG operation. If a	<p>(Note: This outcome measure does not have a traditional numerator and denominator like a core process measure (e.g., percentage of adult patients with diabetes aged 18-75 years receiving one or more hemoglobin A1c tests per year); thus, we are using this field to define the outcome and to which hospital the outcome is attributed when there are multiple hospitalizations within a single episode of care.)</p> <p>This is an all-cause readmission measure and therefore any readmission within 30 days of discharge from the index</p>

	<p>patient has more than one admission within 30 days after discharge from the index CABG episode, only one is counted as a readmission.</p>	<p>hospitalization (hereafter referred to as discharge date) is included in the measure unless that readmission is deemed a “planned” readmission. The outcome is attributed to the hospital that provided the index CABG procedure.</p> <p>Planned Readmission Definition:</p> <p>Planned readmissions are scheduled admissions for elective procedures or for planned care such as chemotherapy or rehabilitation. Because planned readmissions are not necessarily a signal of quality of care, we chose to exclude planned readmissions from being considered as an outcome in this readmission measure. Although clinical experts agree that planned readmissions are rare after CABG, they likely do occur. Therefore, to identify these planned readmissions we have adapted and applied an algorithm originally created to identify planned readmissions for a hospital-wide (i.e., not condition-specific) readmission measure. This algorithm underwent two rounds of public comment, a validation study using data from a medical record review, and was finalized based upon technical input of 17 surgeons nominated by 9 surgical societies as well as 10 other expert surgeons.</p> <p>In brief, the algorithm identifies a short list of always planned readmissions (those where the principal discharge diagnosis is major organ transplant, obstetrical delivery, or maintenance chemotherapy) as well as those readmissions with a potentially planned procedure (e.g., total hip replacement) AND a non-acute principle discharge diagnosis code. For example, a readmission for colon resection is considered planned if the principal diagnosis is colon cancer but unplanned if the principal diagnosis is abdominal pain, as this might represent a complication of the CABG procedure or hospitalization. Readmissions that included potentially planned procedures with acute diagnoses or procedures that might represent specific complications of CABG, such as PTCA or repeat CABG are not excluded from the measure outcome as they are not considered planned in this measure. Readmissions are considered planned if any of the following occurs during the readmission:</p> <ol style="list-style-type: none"> <li>1. A procedure is performed that is in one of the procedure categories that are always planned regardless of diagnosis;</li> <li>2. The principal diagnosis is in one of the diagnosis categories that are always planned; or,</li> </ol>
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		<p>3. A procedure is performed that is in one of the potentially planned procedure categories and the principal diagnosis is not in the list of acute discharge diagnoses.</p> <p>Only the first readmission following an index hospital stay is counted in the numerator of this measure. If a patient has two or more readmissions within 30 days of discharge from the index hospital stay, only the first will be considered an outcome of interest; the second or later readmissions are not counted in the outcome.</p> <p>Full detail, including lists of procedures and diagnoses, are included in the Measure Methodology Report in the attached appendix.</p> <p>It should be noted that this approach differs from that adopted by STS for their registry-based measure, in which all 30-day readmissions were considered to be unplanned.</p> <p>Outcome Attribution:</p> <p>Attribution of the outcome in situations where a patient has multiple contiguous admissions, at least one of which involves an index CABG procedure (i.e., the patient is either transferred into the hospital that performs the index CABG or is transferred out to another hospital following the index CABG) is as follows:</p> <ul style="list-style-type: none"> <li>- If a patient undergoes a CABG procedure in the first hospital and is then transferred to a second hospital where there is no CABG procedure, the readmission outcome is attributed to the first hospital performing the index CABG procedure and the 30-day window starts with the date of discharge from the final hospital in the chain.</li> </ul> <p>Rationale: A transfer following CABG is most likely due to a complication of the index procedure and that care provided by the hospital performing the CABG procedure likely dominates readmission risk even among transferred patients.</p> <ul style="list-style-type: none"> <li>- If a patient is admitted to a first hospital but does not receive a CABG procedure there and is then transferred to a second hospital where a CABG is performed, the readmission outcome is attributed to the second hospital performing the index CABG procedure and the 30-day window starts with the date of discharge from the final hospital in the chain.</li> </ul> <p>Rationale: Care provided by the hospital performing the CABG procedure likely dominates readmission risk.</p> <ul style="list-style-type: none"> <li>-If a patient undergoes a CABG procedure in the first hospital and is</li> </ul>
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		<p>transferred to a second hospital where another CABG procedure is performed, the readmission outcome is attributed to the first hospital performing the index (first) CABG procedure and the 30-day window starts with the date of discharge from the final hospital in the chain.</p> <p>Rationale: A transfer following CABG is most likely due to a complication of the index procedure, and care provided by the hospital performing the index CABG procedure likely dominates readmission risk even among transferred patients.</p>
Denominator Statement	Number of Medicare fee-for-service beneficiaries aged 65 and older who undergo isolated coronary artery bypass grafting (CABG) during the designated 3-year measurement period and are discharged alive.	<p>This claims-based measure can be used in either of two patient cohorts: (1) patients aged 65 years or older or (2) patients aged 18 years or older. We have tested the measure in both age groups.</p> <p>The cohort includes admissions for patients who receive a qualifying isolated CABG procedure (see codes below) and with a complete claims history for the 12 months prior to admission. For simplicity of implementation and as testing demonstrated closely correlated patient-level and hospital-level results using models with or without age interaction terms, the only recommended modification to the measure for application to all-payer data sets is replacement of the “Age-65” variable with a fully continuous age variable.</p>
Denominator Details	<p>Candidate CABG admissions are identified by selecting Medicare Part A claims with an ICD-9-CM procedural code for CABG (36.1x) in any position. Records are retained for analysis if they meet the following additional criteria:</p> <ol style="list-style-type: none"> <li>(1) Linked to an STS record for isolated CABG (see below for record linkage criteria and definition of isolated CABG);</li> <li>(2) Eligible for Medicare fee-for-service (FFS) A and B for at least two months after discharge or until month of death, whichever is first;</li> <li>(3) Discharged from acute care setting within 1 year of index CABG admission;</li> <li>(4) Did not leave against medical advice;</li> <li>(5) No logically inconsistent claims data (e.g. claims with overlapping admission and discharge dates);</li> <li>(6) Is the first eligible operation per patient during the measurement period.</li> </ol> <p>Criteria for linking CMS and STS records</p>	<p>(Note: This outcome measure does not have a traditional numerator and denominator like a core process measure (e.g., percentage of adult patients with diabetes aged 18-75 years receiving one or more hemoglobin A1c tests per year). We therefore use this field to define the measure cohort.)</p> <p>The index cohort includes admissions for patients aged 18 years or older who received a qualifying “isolated” CABG procedure (CABG procedure without other concurrent major cardiac procedure such as a valve replacement). All patients in the cohort are alive at discharge (i.e., no in-hospital death). The measure was developed in a cohort of patients 65 years and older who were enrolled in Medicare FFS and admitted to non-federal hospitals. To be included in the Medicare FFS cohort, patients had to have a qualifying isolated CABG procedure AND had to be continuously enrolled in Medicare Fee-for-Service (FFS) one year prior to the first day of the index hospitalization and through 30 days post-discharge.</p> <p>This cohort is defined using the ICD-9 Clinical Modification (ICD-9-CM) procedure codes identified in Medicare Part A Inpatient claims data.</p>

<p>STS and CMS records were linked using combinations of indirect identifiers (hospital, age, sex, date of admission, date of discharge). Before linking the CMS and STS databases, we applied the following inclusion criteria. From the CMS database, we selected all inpatient claims for patients 65 years or older at discharge with an ICD-9-CM procedural code for CABG (36.1x) in any position. From the STS database, we selected all records for patients 65 years or older on the date of discharge who underwent CABG (STS v2.61 “Coronary Artery Bypass” in section I “operative”). Eligible STS and CMS records were considered to link if they satisfied one or more of the following 3 criteria:</p> <ol style="list-style-type: none"> <li>1. Agree on hospital, age, sex, date of admission, and date of discharge</li> <li>2. Agree on hospital, sex, date of admission, date of discharge, with ages differ by 1 year</li> <li>3. Agree on hospital, sex and age, and one of the two dates, with the other date differ by 1 day.</li> </ol> <p>NOTE: The record linkage strategy described above was used for exploratory analyses for developing the measure and may not be required when the measure is implemented by CMS. For implementation by CMS, it is anticipated that CMS will mandate collection of direct identifiers (e.g. name and social security number) which may obviate the need to link records based on combinations of indirect identifiers.</p> <p>Definition of Isolated CABG</p> <p>Isolated CABG is defined as a stand-alone CABG operation without a concomitant valve or other major cardiac or non-cardiac procedure with the following exceptions:</p> <ul style="list-style-type: none"> <li>• CABG + ventricular assist device (VAD) implantation is counted as isolated CABG.</li> </ul> <p>Rationale: VAD implantation is often unplanned and may be impacted by the quality of the CABG operation and peri-operative care. Performance measures should adjust for patient factors present at the beginning of the episode of care and should not adjust for discretionary care practices that may reflect lower or higher quality of care.</p> <ul style="list-style-type: none"> <li>• CABG + transmyocardial laser revascularization (TMR) is</li> </ul>	<p>An ICD-9 to ICD-10 crosswalk is attached in field S.2b. (Data Dictionary or Code Table). ICD-9-CM procedure codes that indicate a patient has undergone a NON-isolated CABG procedure (CABG surgeries that occur concomitantly with procedures that elevate patients’ readmission risk) and thus does not meet criteria for inclusion in the measure cohort are listed in the attached Excel file (see tab S.9).</p> <p>ICD-9-CM codes that define the cohort:</p> <ul style="list-style-type: none"> <li>36.1x - Aortocoronary bypass for heart revascularization, not otherwise specified</li> <li>36.11 - (Aorto) coronary bypass of one coronary artery</li> <li>36.12 - (Aorto) coronary bypass of two coronary arteries</li> <li>36.13 - (Aorto) coronary bypass of three coronary arteries</li> <li>36.14 - (Aorto) coronary bypass of four or more coronary arteries</li> <li>36.15 - Single internal mammary- coronary artery bypass</li> <li>36.16 - Double internal mammary- coronary artery bypass</li> <li>36.17 - Abdominal- coronary artery bypass</li> <li>36.19 - Other bypass anastomosis for heart revascularization</li> </ul>
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	<p>counted as isolated CABG.</p> <p>Rationale: The decision to perform TMR is discretionary and susceptible to gaming.</p> <ul style="list-style-type: none"> <li>• CABG + insertion of pacemaker or automatic implantable cardioverter defibrillator is counted as isolated CABG</li> </ul> <p>Rationale: In the version of the Database used to develop this model, it is impossible to distinguish which such combined CABG plus pacemaker or ICD patients required these additional procedures because of a pre-existing condition versus as a result of a complication of surgery (e.g., heart block or a large perioperative MI with decrease EF and VT)</p> <p>Algorithm for identifying eligible isolated CABG admissions in the linked STS + CMS database</p> <p>Eligible isolated CABG admissions are identified by selecting linked STS-CMS records that meet the following criteria:</p> <ul style="list-style-type: none"> <li>• ICD-9-CM procedural code 36.1x in any position</li> <li>• STS field #1280 “coronary artery bypass grafting” = “yes”</li> <li>• Each of the following STS fields is “no” or “missing”:</li> </ul> <ul style="list-style-type: none"> <li>- Valve surgery (1290)</li> <li>- Aortic valve operation (1630)</li> <li>- Mitral valve operation (1640)</li> <li>- Tricuspid valve operation (1650)</li> <li>- Pulmonic valve operation (1660)</li> <li>- Other non-cardiac procedure (1320)</li> <li>- Left ventricular aneurysm repair (2360)</li> <li>- Ventricular septal defect repair (2370)</li> <li>- Atrial septal defect repair (2380)</li> <li>- Batista (2390)</li> <li>- Surgical ventricular restoration (2400)</li> <li>- Congenital Defect Repair (2410)</li> <li>- Cardiac trauma (2430)</li> <li>- Cardiac transplant (2440)</li> <li>- Atrial fibrillation correction surgery (2470)</li> <li>- Aortic aneurysm (2510)</li> </ul>	
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	- Other cardiac operation (1310)	
Exclusions	<p>Exclusion – Rationale</p> <ul style="list-style-type: none"> <li>• The patient is age &lt;65 years on date of discharge according to CMS or STS data – Patients younger than 65 in the Medicare dataset represent a distinct population that qualifies for Medicare due to disability. The characteristics and outcomes of these patients may be less representative of the larger population of CABG patients.</li> <li>• There is a CMS record but no matching STS record – STS data elements are required for identifying the cohort and for risk adjustment.</li> <li>• There is an STS record but not matching CMS record – Medicare data are required for ascertaining 30-day readmission status, especially readmissions to a hospital other than the CABG hospital</li> <li>• CABG is not a stand-alone procedure – Inclusion of combination procedures complicates risk adjustment by adding multiple relatively rare cohorts with potentially distinct characteristics and outcomes.</li> <li>• The patient died prior to discharge from acute care setting – Patient is not at risk of subsequent readmission.</li> <li>• The patient leaves against medical advice (AMA). – Physicians and hospitals do not have the opportunity to deliver the highest quality care.</li> <li>• The patient does not retain Medicare fee-for-service (FFS) A and B for at least two months after discharge – Beneficiaries who switch to a Medicare advantage plan are unlikely to file inpatient claims which are required for ascertaining 30-day readmission status.</li> <li>• The index CABG episode is &gt;365 days. – These patients were excluded for consistency with previous CMS readmission measures. These records may inaccurate admission and discharge dates. If not, including them would complicate risk adjustment by adding a relatively rare cohort with potentially distinct characteristics and outcomes.</li> <li>• Not the first eligible CABG admission per patient per measurement period. – Simplifies statistical analysis. Also, repeat CABG procedures are very rare and so loss of information is minimal.</li> </ul>	<p>In order to create a clinically coherent population for risk adjustment and in accordance with existing NQF-approved CABG measures and clinical expert opinion, the measure is intended to capture isolated CABG patients (i.e., patients undergoing CABG procedures without concomitant valve or other major cardiac or vascular procedures). For all cohorts, hospitalizations are excluded if they meet any of the following criteria. Hospitalizations for:</p> <p>1) Patients who leave the hospital against medical advice (AMA) Rationale: We exclude hospitalizations for patients who are discharged AMA because providers did not have the opportunity to deliver full care and prepare the patient for discharge.</p> <p>2) Patients with qualifying CABG procedures subsequent to another qualifying CABG procedure during the measurement period. Rationale: CABG procedures are expected to last for several years without the need for revision or repeat revascularization. A repeat CABG procedure during the measurement period very likely represents a complication of the original CABG procedure and is a clinically more complex and higher risk surgery. We, therefore, select the first CABG admission for inclusion in the measure and exclude subsequent CABG admissions from the cohort.</p> <p>For Medicare FFS patients, the measure additionally excludes:</p> <p>3) Patients without at least 30 days post-discharge enrollment in FFS Medicare. Rationale: We exclude these hospitalizations because the 30-day readmission outcome cannot be assessed in this group.</p>



Exclusion Details	Please see previous section	<p>For all cohorts, hospitalizations for:</p> <p>1) Patients who leave hospital against medical advice (AMA) are identified using the discharge disposition indicator in the Standard Analytic File (SAF).</p> <p>2) Subsequent qualifying CABG procedure during the measurement period are identified by the ICD-9 codes defining CABG mentioned in denominator details.</p> <p>For Medicare FFS patients:</p> <p>3) Patients without at least 30 days post-discharge enrollment in FFS Medicare are identified using patient enrollment status in the CMS' Enrollment Database (EDB).</p>
Risk Adjustment	<p>Statistical risk model</p> <p>Hospital-specific risk-standardized readmission rates (RSRR's) are calculated using hierarchical logistic regression with hospital-specific random intercept parameters. Covariates for the risk adjustment model are derived from the STS database. The following covariates are included:</p> <ol style="list-style-type: none"> <li>1. Ejection Fraction</li> <li>2. Preoperative Atrial Fibrillation</li> <li>3. Unstable Angina (no MI &lt;= 7 days)</li> <li>4. Myocardial Infarction</li> <li>5. Age</li> <li>6. Congestive Heart Failure</li> <li>7. Renal Function</li> <li>8. Status</li> <li>9. Gender</li> <li>10. Reoperation</li> <li>11. Chronic Lung Disease</li> <li>12. Diabetes</li> <li>13. Preoperative IAPB or Inotrope</li> <li>14. Immunosuppressive Treatment</li> <li>15. PVD</li> <li>16. Body Surface Area</li> <li>17. CVD</li> </ol>	<p>Statistical risk model</p> <p>Our approach to risk adjustment is tailored to and appropriate for a publicly reported outcome measure, as articulated in the American Heart Association (AHA) Scientific Statement, "Standards for Statistical Models Used for Public Reporting of Health Outcomes" (Krumholz et al., 2006).</p> <p>The measure calculates readmission rates using a hierarchical logistic regression model to account for the clustering of patients within hospitals while risk-adjusting for differences in patient case-mix. We modeled the log-odds of readmission within 30 days of discharge from an index CABG admission as a function of patient demographic and clinical characteristics, and a random hospital-specific intercept. This strategy accounts for within-hospital correlation of the observed outcomes, and models the assumption that underlying differences in quality among the health care groups being evaluated lead to systematic differences in outcomes.</p> <p>Methodology for calculation of risk-standardized rates is noted below in the calculation algorithm section (S.18).</p> <p>Variables are patient-level risk-adjustors that are expected to be predictive of readmission, based on empirical analysis, prior literature, and clinical judgment, including age and indicators of comorbidity and disease severity. For each patient, covariates are obtained from Medicare claims extending 12 months prior to and including the index admission. The model adjusts for case differences based on the clinical status of the patient at the time of admission. We use condition categories (CCs), which are clinically meaningful</p>

	<p>18. Hypertension</p> <p>19. PCI &lt;= 6 hours</p> <p>20. Left Main Disease</p> <p>21. Surgery Date</p> <p>Methods of calculating RSRR's and associated 95% intervals are identical to prior CMS readmission measures.</p> <p>Available in attached Excel or csv file at S.2b</p>	<p>groupings of more than 15,000 ICD-9-CM diagnosis codes. A map showing the assignment of ICD-9 codes to CCs can be found in the attached Excel file (tab 2b4.4). We do not risk-adjust for CCs that are possible adverse events of care and that are only recorded in the index admission. In addition, only comorbidities that convey information about the patient at that time or in the 12-months prior, and not complications that arise during the course of the hospitalization are included in the risk-adjustment. The risk adjustment model includes 26 variables:</p> <p>Demographics:</p> <p>Age (per year &gt;65)</p> <p>Gender (Male)</p> <p>Comorbidities:</p> <p>History of Prior CABG or Valve Surgery</p> <p>Cardiogenic Shock</p> <p>Chronic Obstructive Pulmonary Disease</p> <p>Metastatic Cancer and Acute Leukemia</p> <p>Diabetes and DM Complications</p> <p>Protein-Calorie Malnutrition</p> <p>Disorders of Fluid/Electrolyte/Acid-Base</p> <p>Obesity/Disorders of Thyroid, Cholesterol, Lipids</p> <p>Severe Hematological Disorders</p> <p>Dementia or Senility</p> <p>Major Psychiatric Disorders</p> <p>Hemiplegia, Paraplegia, Paralysis, Functional Disability</p> <p>Polyneuropathy</p> <p>Congestive Heart Failure</p> <p>Arrhythmias</p> <p>Stroke</p> <p>Cerebrovascular Disease</p> <p>Vascular or Circulatory Disease</p> <p>Fibrosis of Lung and Other Chronic Lung Disorders</p> <p>Pneumonia</p> <p>Other Lung Disorders</p>
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		<p>End-Stage Renal Disease or Dialysis</p> <p>Renal Failure</p> <p>Decubitus Ulcer or Chronic Skin Ulcer</p> <p>Risk model coefficients to estimate each patient's probability for the outcome:</p> <p>SAS procedure PROC GLIMMIX fits the statistical model to calculate the risk-adjusted coefficients and hospital-specific effects as listed in the attached Excel file (tab S.15). For random effect, the between-hospital variance is 0.04 (standard error 0.01) for the model using 2009 full year dataset.</p> <p>Reference:</p> <p>Krumholz HM, Brindis RG, Brush JE, et al. 2006. Standards for Statistical Models Used for Public Reporting of Health Outcomes: An American Heart Association Scientific Statement From the Quality of Care and Outcomes Research Interdisciplinary Writing Group: Cosponsored by the Council on Epidemiology and Prevention and the Stroke Council Endorsed by the American College of Cardiology Foundation. Circulation 113: 456-462.</p> <p>Available in attached Excel or csv file at S.2b</p>
Stratification	N/A	Results of this measure will not be stratified.
Type Score	Rate/proportion better quality = lower score	Rate/proportion better quality = lower score
Algorithm	Please refer to numerator and denominator sections for detailed information. No diagram provided	<p>We calculate hospital-specific risk-standardized readmission rates (RSRRs). These rates are obtained as the ratio of predicted to expected readmissions, multiplied by the national unadjusted rate. The expected number of readmissions in each hospital is estimated using its patient mix and the average hospital-specific intercept. The predicted number of readmissions in each hospital is estimated given the same patient mix but the hospital-specific intercept.</p> <p>Operationally, the expected number of readmissions for each hospital is obtained by regressing the risk factors on the 30-day readmission using all hospitals in our sample, applying the subsequent estimated regression coefficients to the patient characteristics observed in the hospital, adding the average of the hospital-specific intercepts, summing over all patients in the hospital, and then transforming to get a count. This is a form of indirect standardization. The predicted hospital outcome is the number of expected readmissions in the</p>

		<p>“specific” hospital and not at a reference hospital. Operationally this is accomplished by estimating a hospital-specific intercept that represents baseline readmission risk within the hospital, applying the estimated regression coefficients to the patient characteristics in the hospital, summing over all patients in the hospital, and then transforming to get a count. To assess hospital performance in any given year, we re-estimate the model coefficients using that year’s data.</p> <p>Please see the calculation algorithm attachment for more details. Available in attached appendix at A.1</p>
Submission items	<p>5.1 Identified measures: 0129 : Risk-Adjusted Prolonged Intubation (Ventilation)  0130 : Risk-Adjusted Deep Sternal Wound Infection Rate  0131 : Risk-Adjusted Stroke/Cerebrovascular Accident  0114 : Risk-Adjusted Post-operative Renal Failure  0115 : Risk-Adjusted Surgical Re-exploration</p> <p>5a.1 Are specs completely harmonized?</p> <p>5a.2 If not completely harmonized, identify difference, rationale, impact: N/A</p> <p>5b.1 If competing, why superior or rationale for additive value: N/A</p>	<p>5.1 Identified measures: 0114 : Risk-Adjusted Postoperative Renal Failure  0115 : Risk-Adjusted Surgical Re-exploration  0119 : Risk-Adjusted Operative Mortality for CABG  0129 : Risk-Adjusted Postoperative Prolonged Intubation (Ventilation)  0130 : Risk-Adjusted Deep Sternal Wound Infection Rate  0131 : Risk-Adjusted Stroke/Cerebrovascular Accident  0330 : Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following heart failure hospitalization  0505 : Hospital 30-day all-cause risk-standardized readmission rate (RSRR) following acute myocardial infarction (AMI) hospitalization.  0506 : Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following pneumonia hospitalization  1551 : Hospital-level 30-day, all-cause risk-standardized readmission rate (RSRR) following elective primary total hip arthroplasty (THA) and/or total knee arthroplasty (TKA)  1789 : Hospital-Wide All-Cause Unplanned Readmission Measure (HWR)</p> <p>5a.1 Are specs completely harmonized? Yes</p> <p>5a.2 If not completely harmonized, identify difference, rationale, impact: The proposed CABG readmission measure, which has been developed in close collaboration with STS, has a target population (i.e., isolated CABG patients) that is harmonized with the above measures to the extent possible given the differences between</p>

		<p>clinical and administrative data. The exclusions are nearly identical to the STS measures' cohort exclusions with the exception of epicardial MAZE procedures; STS excludes these procedures from the registry-based CABG readmission measure cohort because the version of registry data used for measure development did not allow them to differentiate them from open maze procedures. The age range for the proposed CABG readmission and existing NQF-endorsed STS measure cohorts differs; STS measures are specified for age 18 and over, and the proposed CABG readmission measure is currently specified for age 65 and over. However, we have performed testing in patients 18 years and over and determined the measure performs well across all adult patients and payers. The proposed CABG readmission measure is harmonized with the above measures to the extent possible given the different data sources used for development and reporting. We did not include in our list of related measures any non-outcome (e.g., process) measures with the same target population as our measure. Our measure cohort was heavily vetted by clinical experts, a technical expert panel, and a public comment period. Because this is an outcome measure, clinical coherence of the cohort takes precedence over alignment with related non-outcome measures. Furthermore, non-outcome measures are limited due to broader patient exclusions. This is because they typically only include a specific subset of patients who are eligible for that measure (for example, patients who receive a specific medication or undergo a specific procedure).</p> <p>5b.1 If competing, why superior or rationale for additive value: There are no existing NQF-endorsed measures or other measures in current use that have the same measure focus and the same target population as this measure. However, this measure was developed concurrently with a clinical registry data-based readmission measure (Risk-adjusted readmission measure for coronary artery bypass graft (CABG)). The measure steward for the registry-based readmission measure for CABG is also CMS; STS developed the measure. Effort was taken to harmonize both the registry-based and administrative-based measures to the extent possible given the differences in data sources.</p> <p>CMS developed these two "competing" measures at the same time to allow for maximum flexibility in implementation for quality</p>
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		<p>improvement programs across different care settings. The STS cardiac surgery registry currently enrolls most, but not all, patients receiving CABG surgeries in the U.S. The proposed CABG readmission measure will capture all qualifying Medicare FFS patients undergoing CABG regardless of whether their hospital or surgeon participates in the STS registry.</p> <p>This claims-based CABG readmission measure was developed with the goal of producing a measure with the highest scientific rigor and broadest applicability. The measure is harmonized with the above existing and proposed measures to the extent possible given the different data sources used for development and reporting.</p>
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## Acute Hospitalization Following the Start of Home Health: 2380 Rehospitalization During the First 30 Days of Home Health vs. 0171 Acute care hospitalization (risk adjusted)

	2380 Rehospitalization During the First 30 Days of Home Health	0171 Acute care hospitalization (risk adjusted)
Steward	Centers for Medicare and Medicaid Services	Centers for Medicare & Medicaid
Description	Percentage of home health stays in which patients who had an acute inpatient hospitalization in the 5 days before the start of their home health stay were admitted to an acute care hospital during the 30 days following the start of the home health stay.	Percentage of home health stays in which patients were admitted to an acute care hospital during the 60 days following the start of the home health stay.
Type	Outcome	Outcome
Data Source	Administrative claims Medicare claims data. Identification of Short Term Hospitals: <a href="https://www.cms.gov/transmittals/downloads/R29SOMA.pdf">https://www.cms.gov/transmittals/downloads/R29SOMA.pdf</a>  General Medicare Data Documentation: <a href="http://www.resdac.org/ddvh/index.asp">http://www.resdac.org/ddvh/index.asp</a> No data collection instrument provided Attachment RiskModelVariables-635272074224051349.xlsx	Administrative claims Denominator: Medicare Home Health Claims Numerator: Medicare Inpatient Claims Exclusions: Medicare Home Health Claims, Medicare Enrollment Data Risk Factors: Medicare Enrollment Data, Medicare Part A & B Claims URL No data dictionary
Level	Facility	Facility
Setting	Home Health	Home Health
Time Window	Public reporting will be based on the most recent 3 years of data available. For agencies' confidential reports, agencies may select the observation period (in calendar months) they are interested in and up to 3.5 years of data are currently available.	60 days following the start of the home health stay.
Numerator Statement	Number of home health stays for patients who have a Medicare claim for an admission to an acute care hospital in the 30 days following the start of the home health stay.	Number of home health stays for patients who have a Medicare claim for an unplanned admission to an acute care hospital in the 60 days following the start of the home health stay.
Numerator Details	The 30 day time window is calculated by adding 30 days to the "from" date in the first home health claim in the series of home health claims that comprise the home health stay. If the patient has at least one Medicare inpatient claim from short term or critical access hospitals (identified by the CMS Certification	The 60 day time window is calculated by adding 60 days to the "from" date in the first home health claim in the series of home health claims that comprise the home health stay. Acute care hospitalization occurs (and the home health stay is included in the numerator) if the patient has at least one Medicare inpatient claim from short term or critical



	<p>Number ending in 0001-0879, 0800-0899, or 1300-1399) during the 30 day window, then the stay is included in the measure numerator.</p> <p>Numerator Exclusions: Inpatient claims for planned hospitalizations are excluded from the rehospitalization measure numerator. Planned hospitalizations are defined using the same criteria as the Hospital-Wide All-Cause Unplanned Readmission Measure as of January 2013. Specifically, a small set of readmissions, defined using Agency for Healthcare Research and Quality (AHRQ) Procedure and Diagnosis Clinical Classification Software (CCS), are always considered “planned.” An additional set of admissions are categorized as “potentially planned” and are also excluded from being counted as unplanned admissions in the measure numerator unless they have a discharge condition category considered “acute or complication of care,” which is defined using AHRQ Diagnosis CCS.</p>	<p>access hospitals (identified by CMS Certification Number ending in 0001-0879, 0800-0899, or 1300-1399) during the 60 day window. Inpatient claims for planned hospitalizations are excluded from the measure numerator. Planned hospitalizations are defined using the same criteria as the Yale Hospital-Wide All-Cause Unplanned Readmission Measure. Specifically, admissions are categorized as “planned” based on AHRQ Procedure and Condition CCS as well as other sets of ICD-9-CM procedure codes. These admissions are excluded unless they have a discharge condition category considered “acute or complication of care,” which is defined using AHRQ Condition CCS. The definitions of AHRQ CCS can be found here: <a href="http://www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp#download">http://www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp#download</a> The AHRQ CCS that define planned hospitalizations are found below and are AHRQ Procedure CCS unless otherwise noted.</p> <table><tr><th>AHRQ CCS</th><th>Description</th></tr><tr><td>45</td><td>PTCA</td></tr><tr><td>254</td><td>Rehabilitation (Condition CCS)</td></tr><tr><td>84</td><td>Cholecystectomy and common duct exploration</td></tr><tr><td>157</td><td>Amputation of lower extremity</td></tr><tr><td>44</td><td>CABG</td></tr><tr><td>78</td><td>Colorectal resection</td></tr><tr><td>51</td><td>Endarterectomy; vessel of head and neck</td></tr><tr><td>113</td><td>Transurethral resection of prostate</td></tr><tr><td>99</td><td>Other OR Gastrointestinal therapeutic procedures</td></tr><tr><td>48</td><td>Insertion; revision; replacement; removal of cardiac pacemaker or cardioverter/defibrillator</td></tr><tr><td>45</td><td>Maintenance chemotherapy (Condition CCS)</td></tr><tr><td>211</td><td>Therapeutic radiology for cancer treatment</td></tr><tr><td>3</td><td>Laminectomy; excision intervertebral disc</td></tr><tr><td>43</td><td>Heart valve procedures</td></tr><tr><td>152</td><td>Arthroplasty knee</td></tr><tr><td>158</td><td>Spinal fusion</td></tr><tr><td>55</td><td>Peripheral vascular bypass</td></tr><tr><td>52</td><td>Aortic resection; replacement or anastomosis</td></tr><tr><td>36</td><td>Lobectomy or pneumonectomy</td></tr></table>	AHRQ CCS	Description	45	PTCA	254	Rehabilitation (Condition CCS)	84	Cholecystectomy and common duct exploration	157	Amputation of lower extremity	44	CABG	78	Colorectal resection	51	Endarterectomy; vessel of head and neck	113	Transurethral resection of prostate	99	Other OR Gastrointestinal therapeutic procedures	48	Insertion; revision; replacement; removal of cardiac pacemaker or cardioverter/defibrillator	45	Maintenance chemotherapy (Condition CCS)	211	Therapeutic radiology for cancer treatment	3	Laminectomy; excision intervertebral disc	43	Heart valve procedures	152	Arthroplasty knee	158	Spinal fusion	55	Peripheral vascular bypass	52	Aortic resection; replacement or anastomosis	36	Lobectomy or pneumonectomy
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		<div>153 Hip replacement; total and partial</div> <div>60 Embolectomy and endarterectomy of lower limbs</div> <div>85 Inguinal and femoral hernia repair</div> <div>104 Nephrectomy; partial or complete</div> <div>1 Incision and excision of CNS</div> <div>124 Hysterectomy; abdominal and vaginal</div> <div>167 Mastectomy</div> <div>10 Thyroidectomy; partial or complete</div> <div>114 Open prostatectomy</div> <div>74 Gastrectomy; partial and total</div> <div>119 Ooporectomy; unilateral and bilateral</div> <div>154 Arthroplasty other than hip or knee</div> <div>ICD-9-CM procedure codes 30.5, 31.74, 34.6Radial laryngectomy, revision of tracheostomy, scarification of pleura</div> <div>166 Lumpectomy; quadrantectomy of breast</div> <div>64 Bone marrow transplant</div> <div>105 Kidney transplant</div> <div>176 Other organ transplantation</div> <div>ICD-9-CM procedure codes 94.26, 94.27 Electroshock therapy</div> <div>Discharge AHRQ Condition CCS considered “acute or complication of care” are listed below.</div> <div><table><tr><th>AHRQ CCS</th><th>Description</th></tr><tr><td>237</td><td>Complications of device; implant or graft</td></tr><tr><td>106</td><td>Cardiac dysrhythmias</td></tr><tr><td colspan="2">Condition CCS 207, 225, 226, 227, 229, 230, 231, 232 Fracture</td></tr><tr><td>100</td><td>Acute myocardial infarction</td></tr><tr><td>238</td><td>Complications of surgical procedures or medical care</td></tr><tr><td>108</td><td>Congestive heart failure; nonhypertensive</td></tr><tr><td>2</td><td>Septicemia (except in labor)</td></tr><tr><td>146</td><td>Diverticulosis and diverticulitis</td></tr><tr><td>105</td><td>Conduction disorders</td></tr><tr><td>109</td><td>Acute cerebrovascular disease</td></tr><tr><td>145</td><td>Intestinal obstruction without hernia</td></tr></table></div>	AHRQ CCS	Description	237	Complications of device; implant or graft	106	Cardiac dysrhythmias	Condition CCS 207, 225, 226, 227, 229, 230, 231, 232 Fracture		100	Acute myocardial infarction	238	Complications of surgical procedures or medical care	108	Congestive heart failure; nonhypertensive	2	Septicemia (except in labor)	146	Diverticulosis and diverticulitis	105	Conduction disorders	109	Acute cerebrovascular disease	145	Intestinal obstruction without hernia
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		233 Intracranial injury 116 Aortic and peripheral arterial embolism or thrombosis 122 Pneumonia (except that caused by TB or sexually transmitted disease) 131 Respiratory failure; insufficiency; arrest (adult) 157 Acute and unspecified renal failure 201 Infective arthritis and osteomyelitis (except that caused by TB or sexually transmitted disease) 153 Gastrointestinal hemorrhage 130 Pleurisy; pneumothorax; pulmonary collapse 97 Peri-; endo-; and myocarditis; cardiomyopathy 127 Chronic obstructive pulmonary disease and bronchiectasis 55 Fluid and electrolyte disorders 159 Urinary tract infection 245 Syncope 139 Gastroduodenal ulcer (except hemorrhage) 160 Calculus of urinary tract 112 Transient cerebral ischemia
Denominator Statement	Number of home health stays that begin during the relevant observation period for patients who had an acute inpatient hospitalization in the five days prior to the start of the home health stay. A home health stay is a sequence of home health payment episodes separated from other home health payment episodes by at least 60 days.	Number of home health stays that begin during the 12-month observation period. A home health stay is a sequence of home health payment episodes separated from other home health payment episodes by at least 60 days.
Denominator Details	<p>The algorithm for computing patient-level outcomes is based on a 12-month observation period and produces both monthly and yearly numerator and denominator counts; to include all valid home health stays over a three-year period for public reporting purposes, CMS will merge the data for the most recent 12-month observation period with the data from the preceding two 12-month observation periods.</p> <p>A home health stay is a sequence of home health payment episodes separated from other home health payment episodes by at least 60 days. Each home health payment episode is associated with a Medicare home health claim, so home health stays are</p>	<p>A home health stay is a sequence of home health payment episodes separated from other home health payment episodes by at least 60 days. Each home health payment episode is associated with a Medicare home health (HH) claim, so home health stays are constructed from claims data using the following procedure.</p> <ol style="list-style-type: none"> <li>1. First, retrieve HH claims with a “from” date (FROM_DT) during the 12-month observation period or the 120 days prior to the beginning of the observation period and sequence these claims by “from” date for each beneficiary.</li> <li>2. Second, drop claims with the same “from” date and “through” date (THROUGH_DT) and claims listing no visits and no payment.</li> </ol>

	<p>constructed from claims data using the following procedure:</p> <ol style="list-style-type: none"> <li>1. First, retrieve home health claims with a “from” date (FROM_DT) during the 12-month observation period or the 120 days prior to the beginning of the observation period and sequence these claims by “from” date for each beneficiary.</li> <li>2. Second, drop claims with the same “from” date and “through” date (THROUGH_DT) and claims listing no visits and no payment. Additionally, if multiple claims have the same “from” date, keep only the claim with the most recent process date.</li> <li>3. Third, set Stay_Start_Date(1) equal to the “from” date on the beneficiary’s first claim. Step through the claims sequentially to determine which claims begin new home health stays. If the claim “from” date is more than 60 days after the “through” date on the previous claim, then the claim begins a new stay. If the claim “from” date is within 60 days of the “through” date on the previous claim, then the claim continues the stay associated with the previous claim.</li> <li>4. Fourth, for each stay, set Stay_Start_Date(n) equal to the “from” date of the first claim in the sequence of claims defining that stay. Set Stay_End_Date(n) equal to the “through” date on the last claim in that stay. Confirm that Stay_Start_Date(n) minus Stay_End_Date(n-1) is greater than 60 days for all adjacent stays.</li> <li>5. Fifth, drop stays that begin before the 12-month observation window.</li> <li>6. Finally, only stays that begin within 5 days of discharge from a short-term inpatient hospital are included in the denominator as follows: <ol style="list-style-type: none"> <li>i. Link to Part A claims for 6 months prior to Stay_Start_Date for each beneficiary.</li> <li>ii. Define Hosp_Discharge_DT = Thru_Dt of the inpatient claim with the latest through date (thru_Dt) prior to Stay_Start_Date,.</li> <li>iii. Limit to home health stays where the Stay_Start_Date minus the Hosp_Discharge_DT is equal to or less than 5. Exclude stays where the IP claim is from a provider type that is not a short stay hospital . Short term hospitals are defined using the following CCN ranges in the third through sixth positions: 0001-0879, 0880-0899, and 1300-1399.</li> </ol> </li> </ol>	<p>Additionally, if multiple claims have the same “from” date, keep only the claim with the most recent process date.</p> <ol style="list-style-type: none"> <li>3. Third, set Stay_Start_Date(1) equal to the “from” date on the beneficiary’s first claim. Step through the claims sequentially to determine which claims begin new home health stays. If the claim “from” date is more than 60 days after the “through” date on the previous claim, then the claim begins a new stay. If the claim “from” date is within 60 days of the “through” date on the previous claim, then the claim continues the stay associated with the previous claim.</li> <li>4. Fourth, for each stay, set Stay_Start_Date(n) equal to the “from” date of the first claim in the sequence of claims defining that stay. Set Stay_End_Date(n) equal to the “through” date on the last claim in that stay. Confirm that Stay_Start_Date(n+1) – Stay_End_Date(n) &gt; 60 days for all adjacent stays.</li> <li>5. Finally, drop stays that begin before the 12-month observation window.</li> </ol> <p>Note the examining claims from the 120 days before the beginning of the 12-month observation period is necessary to ensure that stays beginning during the observation period are in fact separated from previous home health claims by at least 60 days.</p>
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	Note the examining claims from the 120 days before the beginning of the 12-month observation period is necessary to ensure that stays beginning during the observation period are in fact separated from previous home health claims by at least 60 days.	
Exclusions	<p>The measure denominator excludes several types of home health stays:</p> <p>First, the measure denominator for the Rehospitalization During the First 30 Days of Home Health measure excludes the following home health stays that are also excluded from the all-patient claims-based NQF 0171 Acute Care Hospitalization measure: (i) Stays for patients who are not continuously enrolled in fee-for-service Medicare during the measure numerator window; (ii) Stays that begin with a Low-Utilization Payment Adjustment (LUPA). Stays with four or fewer visits to the beneficiary qualify for LUPAs; (iii) Stays in which the patient is transferred to another home health agency within a home health payment episode (60 days); and (iv) Stays in which the patient is not continuously enrolled in Medicare fee-for-service during the previous six months.</p> <p>Second, to be consistent with the Hospital-Wide All-Cause Unplanned Readmission measure (as of January 2013), the measure denominator excludes stays in which the hospitalization occurring within 5 days of the start of home health care is not a qualifying inpatient stay. Hospitalizations that do not qualify as index hospitalizations include admissions for the medical treatment of cancer, primary psychiatric disease, or rehabilitation care, and admissions ending in patient discharge against medical advice.</p> <p>Third, the measure denominator excludes stays in which the patient receives treatment in another setting in the 5 days between hospital discharge and the start of home health.</p> <p>Finally, stays with missing payment-episode authorization strings (needed for risk-adjustment) are excluded.</p>	The following are excluded: home health stays for patients who are not continuously enrolled in fee-for-service Medicare during the numerator window (60 days following the start of the home health stay) or until death; home health stays that begin with a Low Utilization Payment Adjustment (LUPA) claim; home health stays in which the patient receives service from multiple agencies during the first 60 days; and home health stays for patients who are not continuously enrolled in fee-for-service Medicare for the 6 months prior to the start of the home health stay.
Exclusion Details	<p>The following types of home health stays are excluded from the measure denominator:</p> <p>1. Stays excluded from the denominator of the all-patient claims-based NQF 0171 Acute Care Hospitalization measure:</p> <p>i. Home health stays for patients who are not continuously</p>	<p>1. Home health stays for patients who are not continuously enrolled in fee-for-service Medicare during the numerator window (60 days following the start of the home health stay) or until death.</p> <ul style="list-style-type: none"> <li>Both enrollment status and beneficiary death date are identified using the Medicare Enrollment Database (EDB).</li> </ul>

<p>enrolled in fee-for-service Medicare during the measure numerator window (30 days following the start of the home health stay) or until death. Both enrollment status and beneficiary death date are identified using the Medicare Enrollment Database (EDB). These stays lack full information about the patient’s utilization of health care services and so it cannot be determined if care was sought in an emergency department during the numerator window.</p> <p>ii. Home health stays that begin with a Low Utilization Payment Adjustment (LUPA) claim. Exclude the stay if LUPAIND = L for the first claim in the home health stay. Home health stays designated as LUPAs are excluded because it is unclear that the initial home health agency had an opportunity to impact the patient’s health outcomes.</p> <p>iii. Home health stays in which the patient receives service from multiple agencies during the first 30 days. Define Initial_Provider = PROVIDER on the first claim in the home health stay. If Initial_Provider does not equal PROVIDER for a subsequent claim in the home health stay AND if the “from” date of the subsequent claim is within 60 days of Stay_Start_Date, then exclude the stay. These home health stays are excluded because it is unclear that the initial home health agency had an opportunity to impact the patient’s health outcomes.</p> <p>iv. Home health stays for patients who are not continuously enrolled in fee-for-service Medicare for the six months prior to the start of the home health stay. Enrollment status is identified using the Medicare Enrollment Database (EDB). These stays are excluded because we lack information about the patient’s health status prior to the beginning of home health that is needed for risk adjustment.</p> <p>2. In addition, the following four types of prior admissions are excluded from being the index hospitalization:</p> <p>i. Admissions for the treatment of cancer. Exclude admissions with discharge diagnosis for treatment of cancer. AHRQ Diagnosis CCS are used to define cancer discharge condition categories. AHRQ Diagnosis CCS considered cancer include:</p> <table><tr><th>AHRQ Diagnosis CCS</th><th>Description</th></tr><tr><td>11</td><td>Cancer of head and neck</td></tr></table>	AHRQ Diagnosis CCS	Description	11	Cancer of head and neck	<p>2. Home health stays that begin with a Low Utilization Payment Adjustment (LUPA) claim.</p> <ul style="list-style-type: none"><li>Exclude the stay if LUPAIND = L for the first claim in the home health stay.</li></ul> <p>3. Home health stays in which the patient receives service from multiple agencies during the first 60 days.</p> <ul style="list-style-type: none"><li>Define Initial_Provider = PROVIDER on the first claim in the home health stay.</li><li>If Initial_Provider does not equal PROVIDER for a subsequent claim in the home health stay AND if the “from” date of the subsequent claim is within 60 days of Stay_Start_Date, then exclude the stay.</li></ul> <p>4. Home health stays for patients who are not continuously enrolled in fee-for-service Medicare for the 6 months prior to the start of the home health stay.</p> <ul style="list-style-type: none"><li>Enrollment status is identified using the Medicare Enrollment Database (EDB).</li></ul>
AHRQ Diagnosis CCS	Description				
11	Cancer of head and neck				

	12	Cancer of esophagus	
	13	Cancer of stomach	
	14	Cancer of colon	
	15	Cancer of rectum and anus	
	16	Cancer of liver and intrahepatic bile duct	
	17	Cancer of pancreas	
	18	Cancer of other GI organs; peritoneum	
	19	Cancer of bronchus; lung	
	20	Cancer; other respiratory and intrathoracic	
	21	Cancer of bone and connective tissue	
	22	Melanomas of skin	
	23	Other non-epithelial cancer of skin	
	24	Cancer of breast	
	25	Cancer of uterus	
	26	Cancer of cervix	
	27	Cancer of ovary	
	28	Cancer of other female genital organs	
	29	Cancer of prostate	
	30	Cancer of testis	
	31	Cancer of other male genital organs	
	32	Cancer of bladder	
	33	Cancer of kidney and renal pelvis	
	34	Cancer of other urinary organs	
	35	Cancer of brain and nervous system	
	36	Cancer of thyroid	
	37	Hodgkin's disease	
	38	Non-Hodgkin's lymphoma	
	39	Leukemias	
	40	Multiple myeloma	
	41	Cancer; other and unspecified primary	
	42	Secondary Malignancies	
	43	Malignant neoplasm without specification of site	
	44	Neoplasms of unspecified nature or uncertain	



	<p>behavior</p> <p>45 Maintenance chemotherapy; radiotherapy</p> <p>ii. Admissions for the treatment of primary psychiatric diseases. Exclude admissions with discharge diagnosis for treatment of psychiatric disease. AHRQ Diagnosis CCS are used to define psychiatric disease discharge condition categories. AHRQ Diagnosis CCS considered psychiatric disease include:</p> <table><tr><th>AHRQ Diagnosis CCS</th><th>Description</th></tr><tr><td>650</td><td>Adjustment disorders</td></tr><tr><td>651</td><td>Anxiety disorders</td></tr><tr><td>652</td><td>Attention-deficit, conduct, and disruptive behavior disorders</td></tr><tr><td>654</td><td>Developmental disorders</td></tr><tr><td>655</td><td>Disorders usually diagnosed in infancy, childhood, or adolescence</td></tr><tr><td>656</td><td>Impulse control disorders, NEC</td></tr><tr><td>657</td><td>Mood disorders</td></tr><tr><td>658</td><td>Personality disorders</td></tr><tr><td>659</td><td>Schizophrenia and other psychotic disorders</td></tr><tr><td>662</td><td>Suicide and intentional self-inflicted injury</td></tr><tr><td>670</td><td>Miscellaneous disorders</td></tr></table> <p>iii. Admissions for rehabilitation care and the fitting of prostheses and adjustment devices. Exclude admissions with admitting diagnosis of “rehabilitation care; fitting of prostheses and adjustment devices.” The AHRQ Diagnosis CCS 254 is used to define rehabilitation care.</p> <p>iv. Admission ending in patient discharge against medical advice. Exclude admissions with “Stus_cd”=07.</p> <p>Admissions for cancer have very different mortality and readmission rates than the remainder of the population. Admissions for psychiatric diseases are treated in separate psychiatric facilities not comparable to treatment received in acute care hospitals, and admissions for rehabilitation care typically do not occur in an acute care setting. Finally, admissions that end in patient discharge against medical advice are excluded because the hospital did not have a full opportunity to treat the patient.</p>	AHRQ Diagnosis CCS	Description	650	Adjustment disorders	651	Anxiety disorders	652	Attention-deficit, conduct, and disruptive behavior disorders	654	Developmental disorders	655	Disorders usually diagnosed in infancy, childhood, or adolescence	656	Impulse control disorders, NEC	657	Mood disorders	658	Personality disorders	659	Schizophrenia and other psychotic disorders	662	Suicide and intentional self-inflicted injury	670	Miscellaneous disorders	
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	<p>3. Home health stays for patients who receive intervening care in the window between the index hospital discharge and the start of home health care. Intervening care is identified as any inpatient hospital use (which includes care received at inpatient rehabilitation facilities and long-term care hospitals), emergency department use without hospitalization, and skilled nursing facility treatment. These home health stays are excluded because patients' health outcomes may be affected by the care they receive between hospital discharge and the start of home care.</p> <p>4. Home health stays with missing payment-episode authorization strings. These stays do not include all the information needed for risk adjustment.</p>	
Risk Adjustment	<p>Statistical risk model</p> <p>The measure developer used a multinomial logistic model to account for beneficiary factors that may affect rates of hospitalization but are outside of the home health agency's control. Because these measures evaluate two different but related outcomes, one multinomial logistic framework models the three disjoint outcomes: no acute care use (no event), emergency department use without hospital readmission, and rehospitalization. A multinomial logistic model allows for the same risk factors to affect the possible outcomes in different ways while also constraining predicted probabilities of all three events to sum to one hundred percent. The risk adjustment model uses six months of claims prior to the start of home health care to obtain information about the beneficiary. The measure developer identified a set of 404 covariates that consisted of statistically significant predictors of acute care rehospitalization or emergency use without hospital readmission. CMS published the risk adjustment model specifications on the Home Health Quality Initiative page in December 2013. The five beneficiary-level risk factors included in the multinomial logistic regression model are as follows:</p> <p>1. Prior Care Setting</p> <p>Because beneficiaries who enter home health care from different prior care settings may have different health statuses, this model takes into account beneficiaries' immediate prior care setting. The</p>	<p>Statistical risk model</p> <p>Multinomial logit with outcomes of "No acute event", "Emergency Department without Hospitalization", and "Acute Care Hospitalization".</p> <p>Risk factors include:</p> <p>Prior Care Setting –</p> <p>The main categories are community (i.e., no prior care setting), outpatient emergency room, inpatient-acute (IP-acute), inpatient rehabilitation facility (IRF), psychiatric facility, long-term care facility (LTC), and skilled nursing facility (SNF). The hierarchy of setting is SNF, most recent inpatient stay, and outpatient ER. Acumen used the five cohorts from the Yale Hospital-Wide All-Cause Unplanned Readmission Measure to segregate the IP-acute category. The five cohorts are:</p> <ol style="list-style-type: none"> <li>1. Surgery/Gynecology: admissions likely cared for by surgical or gynecological teams, based on AHRQ procedure categories;</li> <li>2. Cardiorespiratory: admissions treated by the same care teams with very high readmission rates, such as for pneumonia, chronic obstructive pulmonary disease, and heart failure;</li> <li>3. Cardiovascular: admissions treated by separate cardiac or cardiovascular team in large hospitals, such as for acute myocardial infarctions;</li> <li>4. Neurology: admissions for neurological conditions, such as stroke, that may be treated by a separate neurology team in large hospitals; and</li> </ol>

	<p>categorical variables included in this risk factor are defined by examining Medicare claims for the 6 months prior to the start of the home health stay. One categorical variable captures prior care use in the 30 days prior to the start of home health (and prior to the index hospitalization). A second variable includes information about care received more than 30 days prior to home health but within 6 months of the start of the home health stay and identifies patients with hospitalizations, SNF care, or emergency department use during this time frame. Finally, the risk adjustment model accounts for the length of index hospital stay (i.e., one to two weeks, and greater than two weeks).</p> <p>2. Age and Sex Interactions</p> <p>The risk adjustment model includes age and sex interactions from the Enrollment Database (EDB) as covariates to account for the differing effects of age on the outcomes for each sex. Age is subdivided into 12 bins for each sex: aged 0 to 34, 35 to 44, 45 to 54, five-year age bins from 55 to 95, and a 95 and older category. Age is determined based on the patient's age at the start of the home health stay. The model includes a binary indicator for each age-bin, sex combination. The omitted category is 65-69 year old males.</p> <p>3. Health Status</p> <p>To account for beneficiary health status, the risk adjustment model uses three measures: (i) CMS' Hierarchical Condition Categories (HCCs), (ii) Diagnosis-Related Groupings (DRGs), (iii) and Activities of Daily Living (ADLs). First, the risk adjustment uses CMS' HCCs. HCCs were developed for the risk adjustment model used in determining capitation payments to Medicare Advantage plans and are calculated using Part A and B Medicare claims.* While the CMS-HHC model uses a full year of claims data to calculate HCCs,** the rehospitalization and ED use without hospital readmission measures use only six months of data to limit the number of home health stays excluded due to missing claims history. Binary indicators for all HCCs and CCs from the 2008 CMS HCC model that are not hierarchically ranked and that were statistically significant predictors of rehospitalization or ED use without hospital readmission are included in the model.</p>	<p>5. Medicine: admissions for all other non-surgical patients. These cohorts were designed to account for differences in readmission risk for surgical and non-surgical patients. Finally, the IP-acute categories and the SNF category were further refined by length of stay. Each of the five IP-acute categories are separated into stays of length 0 to 3 days, 4 to 8 days, and 9 or more days, while the SNF categories are split into stays of length 0 to 13, 14 to 41, and 42 and more days. A patient cared for in both a skilled nursing facility and an inpatient hospital during the 30 days prior to starting home health care is included in the skilled nursing categories and not the inpatient categories. The length of stay is determined from the last inpatient or skilled nursing stay prior to beginning home health care.</p> <p>Age and Gender Interactions –</p> <p>Age is subdivided into 12 bins for each gender: aged 0-34, 35-44, 45-54, five-year age bins from 55 to 95, and a 95+ category. Using a categorical age variable allows the model to account for the differing effects of age and gender. Age is determined based on the patient's age at Stay_Start_Date.</p> <p>CMS Hierarchical condition categories (HCCs) –</p> <p>HCCs were developed for the risk adjustment model used in determining capitation payments to Medicare Advantage plans and are calculated using Part A and B Medicare claims. While the CMS-HHC model uses a full year of claims data to calculate HCCs, for these measures, we use only 6 months of data to limit the number of home health stays excluded due to missing HCC data. All 2008 HCCs and CCs that are not hierarchically ranked that were statistically significant predictors of ACH and ED use are included in the model.</p> <p>Details of the CMS-HCC model and the code lists for defining the HCCs can be found here:  <a href="https://www.cms.gov/MedicareAdvtgSpecRateStats/06_Risk_adjustment.asp">https://www.cms.gov/MedicareAdvtgSpecRateStats/06_Risk_adjustment.asp</a></p> <p>A description of the development of the CMS-HCC model can be found here:  <a href="https://www.cms.gov/HealthCareFinancingReview/Downloads/04Summarypg119.pdf">https://www.cms.gov/HealthCareFinancingReview/Downloads/04Summarypg119.pdf</a></p> <p>ESRD and Disability Status –</p>
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<p>Next, the risk adjustment model includes the DRG of the qualifying inpatient stay. DRGs are used for Medicare payment to classify inpatient stays that are clinically related and are expected to have similar levels of resource use. Most DRGs are classified based largely on the primary diagnosis on the inpatient claim.***</p> <p>Finally, risk adjustment for these measures also takes into account patient functional status by including the four separate ADL scores that appear on the home health claim. These four scores range from 0 to 16 and are calculated as part of the home health payment process by combining information from several OASIS items:</p> <ul style="list-style-type: none"> <li>(i) Dressing upper or lower body (OASIS fields M1810 or M1820)</li> <li>(ii) Bathing (M1830)</li> <li>(iii) Toileting (M1840)</li> <li>(iv) Transferring (M1850)</li> <li>(v) Ambulation (M1860)</li> </ul> <p>While each of the four ADL scores is calculated from these OASIS items, the weight assigned to each item differs across scores. Thus, all four scores convey distinct information about patient functional status and are used for risk adjustment.**** Directly including OASIS items as risk factors is not currently feasible, due to challenges associated with linking OASIS assessments to home health claims.</p> <p>4. Medicare Enrollment Status</p> <p>The model employs reason for Medicare eligibility, including ESRD status and disability status as covariates because beneficiaries with ESRD or who are disabled constitute a fundamentally different health profile than other Medicare beneficiaries. Additionally, the model includes interactions between original disabled status and sex.</p> <p>5. Additional Interaction Terms</p> <p>Interaction terms account for the additional effect two risk factors may have when present simultaneously, which may be more or less than the additive effect of each factor separately. For example, a beneficiary with chronic heart failure and chronic obstructive</p>	<p>Original End Stage Renal Disease (ESRD) and current ESRD status are included as risk factors. Original disabled status and male, and original disabled status and female, are also included. Medicare beneficiaries with ESRD or disabled status represent a fundamentally different health profile.</p> <p>Interaction Terms –</p> <p>All interaction terms included in the 2008 and 2012 HCC risk adjustment models that were statistically significant predictors of ED Use and ACH were included. Interaction terms account for the additional effect two risk factors may have when present simultaneously, which is more than the additive effect of each factor separately.</p>
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	<p>pulmonary disease may be at greater risk for hospitalization than would be estimated by adding the risk of hospitalization for each condition separately. All interaction terms included in the 2008 and 2012 HCC risk adjustment models that were statistically significant predictors of rehospitalization or emergency department use without readmission were included.</p> <p>* A description of the development of the CMS-HCC model can be found here:  <a href="https://www.cms.gov/HealthCareFinancingReview/Downloads/04Summerpg119.pdf">https://www.cms.gov/HealthCareFinancingReview/Downloads/04Summerpg119.pdf</a></p> <p>** Details of the CMS-HCC model and the code lists for defining the HCCs can be found here:  <a href="https://www.cms.gov/MedicareAdvtgSpecRateStats/06_Risk_adjustment.asp">https://www.cms.gov/MedicareAdvtgSpecRateStats/06_Risk_adjustment.asp</a></p> <p>*** Details of the DRG system can be found here:  <a href="http://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/downloads/AcutePaymtSysfctsh.pdf">http://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/downloads/AcutePaymtSysfctsh.pdf</a></p> <p>****This methodology differs from the ADL score included in the Home Health Resource Grouper (HHRG), which is a categorization of one of the four ADL scores. Further information can be found at:  <a href="http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/HomeHealthPPS/CaseMixGrouperSoftware.html">http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/HomeHealthPPS/CaseMixGrouperSoftware.html</a>  Available in attached Excel or csv file at S.2b</p>	
Stratification	The measure is not stratified.	N/A - not stratified
Type Score	Other (specify): Categorical for public reporting (i.e., categories are "Better than Expected", "Same as Expected", and "Worse than Expected"); rate for confidential reporting (better quality [all else equal] = lower rates) better quality = lower score	Rate/proportion better quality = lower score
Algorithm	<p>The following algorithm is used to compute the “Rehospitalization During the First 30 Days of Home Health” measure and the “Emergency Department Use without Hospital Readmission During the First 30 Days of Home Health” measure:</p> <ol style="list-style-type: none"> <li>1. Construct home health stays from HH claims.</li> <li>2. Link stays to enrollment data by beneficiary.</li> <li>3. Identify numerator window (30 days following Stay_Start_Date)</li> </ol>	<ol style="list-style-type: none"> <li>1. Construct Home Health Stays from HH Claims (see 2a1.7 for details)</li> <li>2. Identify numerator window (60 days following Stay_Start_Date) for each stay and exclude stays for patients who are not continuously enrolled in fee-for-service Medicare during the numerator window or until patient death.</li> <li>3. Exclude stays that begin with a LUPA or that involve a</li> </ol>

<p>for each stay and exclude stays for patients who are not continuously enrolled in fee-for-service Medicare during the numerator window or until patient death.</p> <ol style="list-style-type: none"> <li>4. Exclude stays that begin with a LUPA or that involve a provider change during the numerator window.</li> <li>5. Exclude stays for patients who are not continuously enrolled in fee-for-service Medicare during the 6 months prior to Stay_Start_Date.</li> <li>6. Link to Part A and Part B claims for 6 months prior to Stay_Start_Date for each beneficiary.</li> <li>7. Calculate demographic risk factors for each stay (age, sex, etc.) using enrollment data.</li> <li>8. Limit to home health stays where the Stay_Start_Date minus the Thru_Dt of an Inpatient (IP) claims is equal to or less than 5. Exclude stays where the IP claim is not for a short-term hospital or has an AHRQ Diagnosis CCS or stus_cd that excludes it from being an index admission. Retain the DRG of the index admission as a risk factor.</li> <li>9. Calculate prior care setting indicators, ADLs, HCCs, and HCC interactions.</li> <li>10. Exclude stays that have prior care setting indicators whose claim Thru_Dt is in between the Thru_Dt of the index hospitalization and the Stay_Start_Dt.</li> <li>11. Link to Inpatient (IP) claims from Short Stay and Critical Access hospitals for numerator window (30 days following Stay_Start_Date).</li> <li>12. Link to Outpatient claims with revenue center codes indicating emergency department use for the numerator window (30 days following Stay_Start_Date).</li> <li>13. Calculate measure flags for each stay: <ol style="list-style-type: none"> <li>a. Set Hospital Admission indicator (Hosp_Admit = 1) if any IP claims are linked to the stay in step 11.</li> </ol> </li> <li>14. Using coefficients from the multinomial logit risk model and risk factors calculated in steps 7 through 9, calculate the predicted probability of being included in the measure numerator, for each stay (Pred_Hosp). Additionally calculate the average of Pred_Hosp</li> </ol>	<p>provider change during the numerator window</p> <ol style="list-style-type: none"> <li>4. Link stays to enrollment data by beneficiary.</li> <li>5. Exclude stays for patients who are not continuously enrolled in fee-for-service Medicare during the 6 months prior to Stay_Start_Date.</li> <li>6. Calculate demographic risk factors for each stay (age, gender, etc.) using enrollment data.</li> <li>7. Link to Part A and Part B claims for 6 months prior to Stay_Start_Date for each beneficiary</li> <li>8. Calculate prior care setting indicators, HCCs, and HCC interactions.</li> <li>9. Link to Inpatient (IP) claims from Short Stay and Critical Access hospitals (excluding planned hospitalizations - see 2a1.3 for details) for numerator window (60 days following Stay_Start_Date)</li> <li>10. Set Hospital Admission indicator (Hosp_Admit = 1) if any IP claims are linked to the stay in step 9.</li> <li>11. Using coefficients from the multinomial logit risk model and risk factors calculated in steps 6 and 8, calculate the predicted probability of being included in the measure numerator for each stay (Pred_Hosp). Additionally calculate the average of Pred_Hosp across all stays that are included in the measure denominator (not excluded in steps 3 or 5) and call this value National_pred_Hosp.</li> <li>12. Calculate observed and risk adjusted rates for each home health agency (Initial_Provider): <ol style="list-style-type: none"> <li>a. Calculate the observed rate of Acute Care Hospitalization as the fraction all (non-excluded) HH Stays with that agency as Initial_Provider that are also included in the measure numerator (Hosp_Admit = 1). Call the value Agency_obs_Hosp.</li> <li>b. Calculate the agency predicated rate of Acute Care Hospitalization by taking the average of Pred_Hosp across all (non-excluded) stays with that agency as Initial_Provider. Call this value Agency_pred_Hosp.</li> <li>c. Calculate the risk adjusted rate of Acute Care Hospitalization using the following formula: <math>\text{Agency\_riskadj\_Hosp} = \text{National\_pred\_Hosp} + (\text{Agency\_obs\_Hosp} - \text{Agency\_pred\_Hosp})</math>. If an agency's calculated risk adjusted rate is negative, that agency will have</li> </ol> </li> </ol>
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	<p>across all stays that are included in the measure denominator (not excluded in steps 3 to 5) and call these values National_Pred_Hosp.</p> <p>15. Calculate observed and expected rates for the measure at each home health agency (Initial_Provider):</p> <p>a. Observed Rates:</p> <p>i. Calculate the observed rate of acute care hospitalization as the fraction all (non-excluded) HH stays with that agency as Initial_Provider that are also included in the measure numerator (Hosp_Admit = 1). Call the value Agency_Obs_Hosp.</p> <p>b. Expected Rates:</p> <p>i. Calculate the agency expected rate of acute care hospitalization by taking the average of Pred_Hosp across all (non-excluded) stays with that agency as Initial_Provider. Call this value Agency_Pred_Hosp.</p> <p>16. For each agency, simulate the distribution of expected rates:</p> <p>a. For each stay, randomly choose an outcome (i.e. no outcome, re-hospitalization, or ED use without hospital readmission) using the stay-level predicted probability of hospitalization (Pred_Hosp). Repeat simulation 20,000 times. Call these values X1 – X20,000.</p> <p>b. For each simulation, calculate the agency predicted rate of hospitalization by taking the average of all stays with that agency. Call these values Agency_sim_Hosp1 – Agency_sim_Hosp20000.</p> <p>17. Classify agencies as “Better than Expected” if fewer than 5% of the Agency_sim_hosp values are less than or equal to Agency_Obs_Hosp. Classify agencies as “Worse than Expected” if fewer than 5% of the Agency_sim_Hosp values are greater than or equal to Agency_Obs_Hosp. Classify all other agencies as “Same as Expected” (See Appendix for additional technical details about assigning categories). No diagram provided</p>	<p>a publicly reported rate of 0%</p>
Submission items	<p>5.1 Identified measures: 1789 : Hospital-Wide All-Cause Unplanned Readmission Measure (HWR)</p> <p>0171 : Acute care hospitalization (risk adjusted)</p> <p>5a.1 Are specs completely harmonized? No</p>	<p>5.1 Identified measures: 0173 : Emergency Department Use without Hospitalization</p> <p>5a.1 Are specs completely harmonized? Yes</p> <p>5a.2 If not completely harmonized, identify difference, rationale,</p>



	<p>5a.2 If not completely harmonized, identify difference, rationale, impact: The home health rehospitalization measures (i.e., Rehospitalization During the First 30 Days of Home Health, and ED Use without Hospital Readmission During the First 30 Days of Home Health) are harmonized with other post-acute rehospitalization measures and with CMS' Hospital-Wide All-Cause Unplanned Readmission measure (HWR) in the types of initial hospitalizations included and in the definition of unplanned hospitalizations. They differ from other post-acute hospital readmission measures, however, in the definition of eligible post-acute stays, in the risk adjustment approach, and by measuring ED use as an outcome. The differences arise due to the unique nature of home health care as a post-acute setting. The specifications for the home health rehospitalization measures were developed by restricting the NQF-endorsed claims-based Acute Care Hospitalization (ACH) and ED Use without Hospitalization (ED Use) measures (NQF numbers 171 and 173, respectively) to home health stays that begin within five days of an acute care hospital discharge. HH stays – sequences of home health payment episodes – are defined in the same way as in the ACH and ED Use measures. The initial hospital discharge must meet the criteria for the hospital HWR measure. Home health stays are included in the measure numerator if an unplanned hospital readmission to the inpatient setting or an ED visit occurs during the first 30 days of home care. Certain home health stays, such as those in which multiple home health agencies care for the same patient, are excluded. Finally, the measures are risk adjusted using patient-level predicted probabilities calculated from a multinomial logistic regression. Risk factors that are accounted for include demographics and health status as measured by both CMS' Hierarchical Condition Categories (HCCs) found on claims in the previous six months, the Activities of Daily Living (ADL) fields on the Outcome and Assessment Information Set (OASIS) assessment of the initial home health stay after the index hospitalization, and the Diagnosis-Related Group (DRG) on the initial inpatient claim. The home health rehospitalization measures differ from other post-acute measures in three key ways. First, while other measures exclude patients with a gap between hospital discharge and post-</p>	<p>impact:</p> <p>5b.1 If competing, why superior or rationale for additive value: There are no other measures that report acute care hospitalization rates for home health patients.</p>
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	<p>acute admission, the home health measures allow a gap of up to five days. Unlike other post-acute settings, HH is provided in the patient's home, and thus the patient returns to their home after hospital discharge. This results in some gap between hospital discharge and the initial visit from a home health agency. The Medicare Conditions of Participation for home health agencies require home health care to begin within 48 hours of hospital discharge or on the physician-ordered start of care date (which is usually within 1-3 days of hospital discharge). Thus, the measures as specified apply to 91 percent of patients who begin home health within 30 days of hospital discharge. Second, the other measures use different risk factors and a different functional form for risk adjustment. For consistency with the ACH and ED Use measures, which apply to all home health stays, the developer recommends using a similar set of risk factors and the same multinomial logistic form for the home health rehospitalization measures. Third, the risk-adjusted rates for the home health rehospitalization measures would not be publicly reported. Due to a large number of relatively small home health agencies treating previously hospitalized patients, the measure developer determined that reporting home health agencies' risk-adjusted rates could lead to misleading conclusions, since small home health agencies' risk-adjusted rates tend to be unstable. Pursuing a categorical reporting method is consistent with condition-specific hospital readmission measures. While the rehospitalization and emergency department use without hospital readmission measures differ from other post-acute measures in some regards, these differences arise from the unique nature of home care as well as from a desire for harmonization across home health quality measures. The home health rehospitalization measures (i.e., Rehospitalization During the First 30 Days of Home Health, and ED Use without Hospital Readmission During the First 30 Days of Home Health) are harmonized with other post-acute rehospitalization measures and with CMS' Hospital-Wide All-Cause Unplanned Readmission measure (HWR) in the types of initial hospitalizations included and in the definition of unplanned hospitalizations. They differ from other post-acute hospital readmission measures, however, in the definition of eligible post-acute stays, in the risk adjustment</p>	
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	<p>approach, and by measuring ED use as an outcome. The differences arise due to the unique nature of home health care as a post-acute setting. The specifications for the home health rehospitalization measures were developed by restricting the NQF-endorsed claims-based Acute Care Hospitalization (ACH) and ED Use without Hospitalization (ED Use) measures (NQF numbers 171 and 173, respectively) to home health stays that begin within five days of an acute care hospital discharge. HH stays – sequences of home health payment episodes – are defined in the same way as in the ACH and ED Use measures. The initial hospital discharge must meet the criteria for the hospital HWR measure. Home health stays are included in the measure numerator if an unplanned hospital readmission to the inpatient setting or an ED visit occurs during the first 30 days of home care. Certain home health stays, such as those in which multiple home health agencies care for the same patient, are excluded. Finally, the measures are risk adjusted using patient-level predicted probabilities calculated from a multinomial logistic regression. Risk factors that are accounted for include demographics and health status as measured by both CMS’ Hierarchical Condition Categories (HCCs) found on claims in the previous six months, the Activities of Daily Living (ADL) fields on the Outcome and Assessment Information Set (OASIS) assessment of the initial home health stay after the index hospitalization, and the Diagnosis-Related Group (DRG) on the initial inpatient claim. The home health rehospitalization measures differ from other post-acute measures in three key ways. First, while other measures exclude patients with a gap between hospital discharge and post-acute admission, the home health measures allow a gap of up to five days. Unlike other post-acute settings, HH is provided in the patient’s home, and thus the patient returns to their home after hospital discharge. This results in some gap between hospital discharge and the initial visit from a home health agency. The Medicare Conditions of Participation for home health agencies require home health care to begin within 48 hours of hospital discharge or on the physician-ordered start of care date (which is usually within 1-3 days of hospital discharge). Thus, the measures as specified apply to 91 percent of patients who begin home health within 30 days of hospital discharge. Second, the other measures</p>	
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	<p>use different risk factors and a different functional form for risk adjustment. For consistency with the ACH and ED Use measures, which apply to all home health stays, the developer recommends using a similar set of risk factors and the same multinomial logistic form for the home health rehospitalization measures. Third, the risk-adjusted rates for the home health rehospitalization measures would not be publicly reported. Due to a large number of relatively small home health agencies treating previously hospitalized patients, the measure developer determined that reporting home health agencies' risk-adjusted rates could lead to misleading conclusions, since small home health agencies' risk-adjusted rates tend to be unstable. Pursuing a categorical reporting method is consistent with condition-specific hospital readmission measures. While the rehospitalization and emergency department use without hospital readmission measures differ from other post-acute measures in some regards, these differences arise from the unique nature of home care as well as from a desire for harmonization across home health quality measures.</p> <p>5b.1 If competing, why superior or rationale for additive value: Not applicable; there are no other measures that report rehospitalization rates for home health patients.</p>	
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## ED Use Following the Start of Home Health: 2505 Emergency Department Use without Hospital Readmission During the First 30 Days of Home Health vs. 0173 Emergency Department Use without Hospitalization.

	2505 Emergency Department Use without Hospital Readmission During the First 30 Days of Home Health	0173 Emergency Department Use without Hospitalization
Steward	Centers for Medicare and Medicaid Services	Centers for Medicare & Medicaid
Description	Percentage of home health stays in which patients who had an acute inpatient hospitalization in the 5 days before the start of their home health stay used an emergency department but were not admitted to an acute care hospital during the 30 days following the start of the home health stay.	Percentage of home health stays in which patients used the emergency department but were not admitted to the hospital during the 60 days following the start of the home health stay.
Type	Outcome	Outcome
Data Source	Administrative claims Medicare claims data Identification of ED visits: <a href="http://www.resdac.org/Tools/TBs/TN-003_EmergencyRoominClaims_508.pdf">http://www.resdac.org/Tools/TBs/TN-003_EmergencyRoominClaims_508.pdf</a> Identification of Short Term Hospitals: <a href="https://www.cms.gov/transmittals/downloads/R29SOMA.pdf">https://www.cms.gov/transmittals/downloads/R29SOMA.pdf</a> General Medicare Data Documentation: <a href="http://www.resdac.org/ddvh/index.asp">http://www.resdac.org/ddvh/index.asp</a> No data collection instrument provided Attachment RiskModelVariables-635272073824686229.xlsx	Administrative claims Denominator: Medicare Home Health Claims Numerator: Medicare Inpatient and Outpatient Claims Exclusions: Medicare Home Health Claims, Medicare Enrollment Data Risk Factors: Medicare Enrollment Data, Medicare Part A & B Claims URLS: Identification of ED visits: <a href="http://www.resdac.org/Tools/TBs/TN-003_EmergencyRoominClaims_508.pdf">http://www.resdac.org/Tools/TBs/TN-003_EmergencyRoominClaims_508.pdf</a> Identification of Short Term Hospitals: <a href="https://www.cms.gov/transmittals/downloads/R29SOMA.pdf">https://www.cms.gov/transmittals/downloads/R29SOMA.pdf</a> General Medicare Data Documentation: <a href="http://www.resdac.org/ddvh/index.asp">http://www.resdac.org/ddvh/index.asp</a> URL No data dictionary
Level	Facility	Facility
Setting	Home Health	Home Health
Time Window	Public reporting will be based on the most recent 3 years of data available. For agencies' confidential reports, agencies may select the observation periods (in calendar months) they are interested in and up to 3.5 years of data are currently available.	60 days following the start of the home health stay.
Numerator Statement	Number of home health stays for patients who have a Medicare claim for outpatient emergency department use and no claims for acute care hospitalization in the 30 days following the start of the home health stay.	Number of home health stays for patients who have a Medicare claim for outpatient emergency department use and no claims for acute care hospitalization in the 60 days following the start of the home health stay.
Numerator	The 30 day time window is calculated by adding 30 days to the "from" date in the first home health claim in the series of home	The 60 day time window is calculated by adding 60 days to the "from"

	2505 Emergency Department Use without Hospital Readmission During the First 30 Days of Home Health	0173 Emergency Department Use without Hospitalization
Details	<p>health claims that comprise the home health stay. If the patient has any Medicare outpatient claims with any emergency department revenue center codes (0450-0459, 0981) during the 30 day window AND if the patient has no Medicare inpatient claims for admission to an acute care hospital (identified by the CMS Certification Number on the IP claim ending in 0001-0879, 0800-0899, or 1300-1399) during the 30 day window, then the stay is included in the measure numerator.</p> <p>Numerator Exclusions: None.</p>	<p>date in the first home health claim in the series of home health claims that comprise the home health stay. If the patient has any Medicare outpatient claims with any ER revenue center codes (0450-0459, 0981) during the 60 day window AND if the patient has no Medicare inpatient claims for an unplanned admission to an acute care hospital (identified by the CMS Certification Number on the IP claim ending in 0001-0879, 0800-0899, or 1300-1399) during the 60 day window, then the stay is included in the measure numerator.</p>
Denominator Statement	<p>Number of home health stays that begin during the relevant observation period for patients who had an acute inpatient hospitalization in the five days prior to the start of the home health stay. A home health stay is a sequence of home health payment episodes separated from other home health payment episodes by at least 60 days.</p>	<p>Number of home health stays that begin during the 12-month observation period. A home health stay is a sequence of home health payment episodes separated from other home health payment episodes by at least 60 days.</p>
Denominator Details	<p>The algorithm for computing patient-level outcomes is based on a 12-month observation period and produces both monthly and yearly numerator and denominator counts; to include all valid home health stays over a three-year period for public reporting purposes, CMS will merge the data for the most recent 12-month observation period with the data from the preceding two 12-month observation periods.</p> <p>A home health stay is a sequence of home health payment episodes separated from other home health payment episodes by at least 60 days. Each home health payment episode is associated with a Medicare home health (HH) claim, so home health stays are constructed from claims data using the following procedure:</p> <ol style="list-style-type: none"> <li>1. First, retrieve home health claims with a “from” date (FROM_DT) during the 12-month observation period or the 120 days prior to the beginning of the observation period and sequence these claims by “from” date for each beneficiary.</li> <li>2. Second, drop claims with the same “from” date and “through” date (THROUGH_DT) and claims listing no visits and no payment. Additionally, if multiple claims have the same “from” date, keep only the claim with the most recent process date.</li> </ol>	<p>A home health stay is a sequence of home health payment episodes separated from other home health payment episodes by at least 60 days. Each home health payment episode is associated with a Medicare home health (HH) claim, so home health stays are constructed from claims data using the following procedure.</p> <ol style="list-style-type: none"> <li>1. First, retrieve HH claims with a “from” date (FROM_DT) during the 12-month observation period or the 120 days prior to the beginning of the observation period and sequence these claims by “from” date for each beneficiary.</li> <li>2. Second, drop claims with the same “from” date and “through” date (THROUGH_DT) and claims listing no visits and no payment. Additionally, if multiple claims have the same “from” date, keep only the claim with the most recent process date.</li> <li>3. Third, set Stay_Start_Date(1) equal to the “from” date on the beneficiary’s first claim. Step through the claims sequentially to determine which claims begin new home health stays. If the claim “from” date is more than 60 days after the “through” date on the previous claim, then the claim begins a new stay. If the claim “from” date is within 60 days of the “through” date on the previous claim, then the claim continues the stay associated with the previous claim.</li> </ol>

	2505 Emergency Department Use without Hospital Readmission During the First 30 Days of Home Health	0173 Emergency Department Use without Hospitalization
	<p>3. Third, set Stay_Start_Date(1) equal to the “from” date on the beneficiary’s first claim. Step through the claims sequentially to determine which claims begin new home health stays. If the claim “from” date is more than 60 days after the “through” date on the previous claim, then the claim begins a new stay. If the claim “from” date is within 60 days of the “through” date on the previous claim, then the claim continues the stay associated with the previous claim.</p> <p>4. Fourth, for each stay, set Stay_Start_Date(n) equal to the “from” date of the first claim in the sequence of claims defining that stay. Set Stay_End_Date(n) equal to the “through” date on the last claim in that stay. Confirm that Stay_Start_Date(n) minus Stay_End_Date(n-1) is greater than 60 days for all adjacent stays.</p> <p>5. Fifth, drop stays that begin before the 12-month observation window.</p> <p>6. Finally, only stays that begin within 5 days of discharge from a short-term inpatient hospital are included in the denominator as follows:</p> <ul style="list-style-type: none"> <li>i. Link to Part A claims for 6 months prior to Stay_Start_Date for each beneficiary.</li> <li>ii. Define Hosp_Discharge_DT = Thru_Dt of the inpatient claim with the latest through date (thru_Dt) prior to Stay_Start_Date,.</li> <li>iii. Limit to home health stays where the Stay_Start_Date minus the Hosp_Discharge_DT is equal to or less than 5. Exclude stays where the IP claim is from a provider type that is not a short stay hospital . Short term hospitals are defined using the following CCN ranges in the third through sixth positions: 001-0879, 0880-0899, and 1300-1399.</li> </ul> <p>Note the examining claims from the 120 days before the beginning of the 12-month observation period is necessary to ensure that stays beginning during the observation period are in fact separated from previous home health claims by at least 60 days.</p>	<p>4. Fourth, for each stay, set Stay_Start_Date(n) equal to the “from” date of the first claim in the sequence of claims defining that stay. Set Stay_End_Date(n) equal to the “through” date on the last claim in that stay. Confirm that Stay_Start_Date(n+1) – Stay_End_Date(n) &gt; 60 days for all adjacent stays.</p> <p>5. Finally, drop stays that begin before the 12-month observation window.</p> <p>Note the examining claims from the 120 days before the beginning of the 12-month observation period is necessary to ensure that stays beginning during the observation period are in fact separated from previous home health claims by at least 60 days.</p>
Exclusions	<p>The measure denominator excludes several types of home health stays:</p> <p>First, the measure denominator for the Rehospitalization During the First 30 Days of Home Health measure excludes the following</p>	<p>The following are excluded: home health stays for patients who are not continuously enrolled in fee-for-service Medicare during the numerator window (60 days following the start of the home health</p>

	2505 Emergency Department Use without Hospital Readmission During the First 30 Days of Home Health	0173 Emergency Department Use without Hospitalization
	<p>home health stays that are also excluded from the all-patient claims-based NQF 0171 Acute Care Hospitalization measure: (i) Stays for patients who are not continuously enrolled in fee-for-service Medicare during the measure numerator window; (ii) Stays that begin with a Low-Utilization Payment Adjustment (LUPA). Stays with four or fewer visits to the beneficiary qualify for LUPAs; (iii) Stays in which the patient is transferred to another home health agency within a home health payment episode (60 days); and (iv) Stays in which the patient is not continuously enrolled in Medicare fee-for-service during the previous six months. Second, to be consistent with the Hospital-Wide All-Cause Unplanned Readmission measure (as of January 2013), the measure denominator excludes stays in which the hospitalization occurring within 5 days of the start of home health care is not a qualifying inpatient stay. Hospitalizations that do not qualify as index hospitalizations include admissions for the medical treatment of cancer, primary psychiatric disease, or rehabilitation care, and admissions ending in patient discharge against medical advice. Third, the measure denominator excludes stays in which the patient receives treatment in another setting in the 5 days between hospital discharge and the start of home health. Finally, stays with missing payment-episode authorization strings (needed for risk-adjustment) are excluded.</p>	<p>stay) or until death; home health stays that begin with a Low Utilization Payment Adjustment (LUPA) claim; home health stays in which the patient receives service from multiple agencies during the first 60 days; and home health stays for patients who are not continuously enrolled in fee-for-service Medicare for the 6 months prior the start of the home health stay.</p>
Exclusion Details	<p>The following types of home health stays are excluded from the measure denominator:</p> <ol style="list-style-type: none"> <li>1. Stays excluded from the denominator of the all-patient claims-based NQF 0171 Acute Care Hospitalization measure: <ol style="list-style-type: none"> <li>i. Home health stays for patients who are not continuously enrolled in fee-for-service Medicare during the measure numerator window (30 days following the start of the home health stay) or until death. Both enrollment status and beneficiary death date are identified using the Medicare Enrollment Database (EDB). These stays lack full information about the patient's utilization of health care services and so it cannot be determined if care was sought in an emergency department during the numerator window.</li> <li>ii. Home health stays that begin with a Low Utilization Payment</li> </ol> </li> </ol>	<ol style="list-style-type: none"> <li>1. Home health stays for patients who are not continuously enrolled in fee-for-service Medicare for the 60 days following the start of the home health stay or until death. <ul style="list-style-type: none"> <li>• Both enrollment status and beneficiary death date are identified using the Medicare Enrollment Database (EDB).</li> </ul> </li> <li>2. Home health stays that begin with a Low Utilization Payment Adjustment (LUPA) claim. <ul style="list-style-type: none"> <li>• Exclude the stay if LUPAIND = L for the first claim in the home health stay.</li> </ul> </li> <li>3. Home health stays in which the patient receives service from multiple agencies during the first 60 days. <ul style="list-style-type: none"> <li>• Define Initial_Provider = PROVIDER on the first claim in the home health stay.</li> </ul> </li> </ol>

	2505 Emergency Department Use without Hospital Readmission During the First 30 Days of Home Health	0173 Emergency Department Use without Hospitalization																		
	<p>Adjustment (LUPA) claim. Exclude the stay if LUPAIND = L for the first claim in the home health stay. Home health stays designated as LUPAs are excluded because it is unclear that the initial home health agency had an opportunity to impact the patient’s health outcomes.</p> <p>iii. Home health stays in which the patient receives service from multiple agencies during the first 30 days. Define Initial_Provider = PROVIDER on the first claim in the home health stay. If Initial_Provider does not equal PROVIDER for a subsequent claim in the home health stay AND if the “from” date of the subsequent claim is within 60 days of Stay_Start_Date, then exclude the stay. These home health stays are excluded because it is unclear that the initial home health agency had an opportunity to impact the patient’s health outcomes.</p> <p>iv. Home health stays for patients who are not continuously enrolled in fee-for-service Medicare for the six months prior to the start of the home health stay. Enrollment status is identified using the Medicare Enrollment Database (EDB). These stay are excluded because we lack information about the patient’s health status prior to the beginning of home health that is needed for risk adjustment.</p> <p>2. In addition, the following four types of prior admissions are excluded from being the index hospitalization:</p> <p>i. Admissions for the treatment of cancer. Exclude admissions with discharge diagnosis for treatment of cancer. AHRQ Diagnosis CCS are used to define cancer discharge condition categories. AHRQ Diagnosis CCS considered cancer include:</p> <table><tr><th>AHRQ Diagnosis CCS</th><th>Description</th></tr><tr><td>11</td><td>Cancer of head and neck</td></tr><tr><td>12</td><td>Cancer of esophagus</td></tr><tr><td>13</td><td>Cancer of stomach</td></tr><tr><td>14</td><td>Cancer of colon</td></tr><tr><td>15</td><td>Cancer of rectum and anus</td></tr><tr><td>16</td><td>Cancer of liver and intrahepatic bile duct</td></tr><tr><td>17</td><td>Cancer of pancreas</td></tr><tr><td>18</td><td>Cancer of other GI organs; peritoneum</td></tr></table>	AHRQ Diagnosis CCS	Description	11	Cancer of head and neck	12	Cancer of esophagus	13	Cancer of stomach	14	Cancer of colon	15	Cancer of rectum and anus	16	Cancer of liver and intrahepatic bile duct	17	Cancer of pancreas	18	Cancer of other GI organs; peritoneum	<ul style="list-style-type: none"><li>• If Intial_Provider does not equal PROVIDER for a subsequent claim in the home health stay AND if the “from” date of the subsequent claim is within 60 days of Stay_Start_Date, then exclude the stay.</li></ul> <p>4. Home health stays for patients who are not continuously enrolled in fee-for-service Medicare for the 6 months prior to the start of the home health stay.</p> <ul style="list-style-type: none"><li>• Enrollment status is identified using the Medicare Enrollment Database (EDB).</li></ul>
AHRQ Diagnosis CCS	Description																			
11	Cancer of head and neck																			
12	Cancer of esophagus																			
13	Cancer of stomach																			
14	Cancer of colon																			
15	Cancer of rectum and anus																			
16	Cancer of liver and intrahepatic bile duct																			
17	Cancer of pancreas																			
18	Cancer of other GI organs; peritoneum																			



	2505 Emergency Department Use without Hospital Readmission During the First 30 Days of Home Health	0173 Emergency Department Use without Hospitalization
	19 Cancer of bronchus; lung 20 Cancer; other respiratory and intrathoracic 21 Cancer of bone and connective tissue 22 Melanomas of skin 23 Other non-epithelial cancer of skin 24 Cancer of breast 25 Cancer of uterus 26 Cancer of cervix 27 Cancer of ovary 28 Cancer of other female genital organs 29 Cancer of prostate 30 Cancer of testis 31 Cancer of other male genital organs 32 Cancer of bladder 33 Cancer of kidney and renal pelvis 34 Cancer of other urinary organs 35 Cancer of brain and nervous system 36 Cancer of thyroid 37 Hodgkin's disease 38 Non-Hodgkin's lymphoma 39 Leukemias 40 Multiple myeloma 41 Cancer; other and unspecified primary 42 Secondary Malignancies 43 Malignant neoplasm without specification of site 44 Neoplasms of unspecified nature or uncertain behavior 45 Maintenance chemotherapy; radiotherapy ii. Admissions for the treatment of primary psychiatric diseases. Exclude admissions with discharge diagnosis for treatment of psychiatric disease. AHRQ Diagnosis CCS are used to define psychiatric disease discharge condition categories. AHRQ Diagnosis CCS considered psychiatric disease include: AHRQ Diagnosis CCS Description 650 Adjustment disorders 651 Anxiety disorders	

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	<p>652 Attention-deficit, conduct, and disruptive behavior disorders</p> <p>654 Developmental disorders</p> <p>655 Disorders usually diagnosed in infancy, childhood, or adolescence</p> <p>656 Impulse control disorders, NEC</p> <p>657 Mood disorders</p> <p>658 Personality disorders</p> <p>659 Schizophrenia and other psychotic disorders</p> <p>662 Suicide and intentional self-inflicted injury</p> <p>670 Miscellaneous disorders</p> <p>iii. Admissions for rehabilitation care and the fitting of prostheses and adjustment devices. Exclude admissions with admitting diagnosis of “rehabilitation care; fitting of prostheses and adjustment devices.” The AHRQ Diagnosis CCS 254 is used to define rehabilitation care.</p> <p>iv. Admission ending in patient discharge against medical advice. Exclude admissions with “Stus_cd”=07.</p> <p>Admissions for cancer have very different mortality and readmission rates than the remainder of the population.</p> <p>Admissions for psychiatric diseases are treated in separate psychiatric facilities not comparable to treatment received in acute care hospitals, and admissions for rehabilitation care typically do not occur in an acute care setting. Finally, admissions that end in patient discharge against medical advice are excluded because the hospital did not have a full opportunity to treat the patient.</p> <p>3. Home health stays for patients who receive intervening care in the window between the index hospital discharge and the start of home health care. Intervening care is identified as any inpatient hospital use (which includes care received at inpatient rehabilitation facilities and long-term care hospitals), emergency department use without hospitalization, and skilled nursing facility treatment. These home health stays are excluded because patients’ health outcomes may be affected by the care they receive between hospital discharge and the start of home care.</p> <p>4. Home health stays with missing payment-episode authorization</p>	

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	strings. These stays do not include all the information needed for risk adjustment.	
Risk Adjustment	<p>Statistical risk model</p> <p>The measure developer used a multinomial logistic model to account for beneficiary factors that may affect rates of hospitalization but are outside of the home health agency's control. Because these measures evaluate two different but related outcomes, one multinomial logistic framework models the three disjoint outcomes: no acute care use (no event), emergency department use without hospital readmission, and rehospitalization. A multinomial logistic model allows for the same risk factors to affect the possible outcomes in different ways while also constraining predicted probabilities of all three events to sum to one hundred percent. The risk adjustment model uses six months of claims prior to the start of home health care to obtain information about the beneficiary. The measure developer identified a set of 404 covariates that consisted of statistically significant predictors of acute care rehospitalization or emergency use without hospital readmission. CMS published the risk adjustment model specifications on the Home Health Quality Initiative page in December 2013. The five beneficiary-level risk factors included in the multinomial logistic regression model are as follows:</p> <p>1. Prior Care Setting</p> <p>Because beneficiaries who enter home health care from different prior care settings may have different health statuses, this model takes into account beneficiaries' immediate prior care setting. The categorical variables included in this risk factor are defined by examining Medicare claims for the 6 months prior to the start of the home health stay. One categorical variable captures prior care use in the 30 days prior to the start of home health (and prior to the index hospitalization). A second variable includes information about care received more than 30 days prior to home health but within 6 months of the start of the home health stay and identifies patients with hospitalizations, SNF care, or emergency department use during this time frame. Finally, the risk adjustment model</p>	<p>Statistical risk model</p> <p>Multinomial logit with outcomes of "No acute event", "Emergency Department use but no Hospitalization", and "Acute Care Hospitalization".</p> <p>Risk factors include:</p> <p>Prior Care Setting – The main categories are community (i.e., no prior care setting), outpatient emergency room, inpatient-acute (IP-acute), inpatient rehabilitation facility (IRF), psychiatric facility, long-term care facility (LTC), and skilled nursing facility (SNF). The hierarchy of setting is SNF, most recent inpatient stay, and outpatient ER. Acumen used the five cohorts from the Yale Hospital-Wide All-Cause Risk Standardization Readmission Measure to segregate the IP-acute category. The five cohorts are:</p> <ol style="list-style-type: none"> <li>1. Surgery/Gynecology: admissions likely cared for by surgical or gynecological teams, based on AHRQ procedure categories;</li> <li>2. Cardiorespiratory: admissions treated by the same care teams with very high readmission rates, such as for pneumonia, chronic obstructive pulmonary disease, and heart failure;</li> <li>3. Cardiovascular: admissions treated by separate cardiac or cardiovascular team in large hospitals, such as for acute myocardial infarctions;</li> <li>4. Neurology: admissions for neurological conditions, such as stroke, that may be treated by a separate neurology team in large hospitals; and</li> <li>5. Medicine: admissions for all other non-surgical patients.</li> </ol> <p>These cohorts were designed to account for differences in readmission risk for surgical and non-surgical patients. Finally, the IP-acute categories and the SNF category were further refined by length of stay. Each of the five IP-acute categories are separated into stays of length 0 to 3 days, 4 to 8 days, and 9 or more days, while the SNF categories are split into stays of length 0 to 13, 14 to 41, and 42 and more days. A patient cared for in both a skilled nursing facility and an inpatient hospital during the 30 days prior to starting home health care is included in the skilled nursing categories</p>

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	<p>accounts for the length of index hospital stay (i.e., one to two weeks, and greater than two weeks).</p> <p>2. Age and Sex Interactions The risk adjustment model includes age and sex interactions from the Enrollment Database (EDB) as covariates to account for the differing effects of age on the outcomes for each sex. Age is subdivided into 12 bins for each sex: aged 0 to 34, 35 to 44, 45 to 54, five-year age bins from 55 to 95, and a 95 and older category. Age is determined based on the patient's age at the start of the home health stay. The model includes a binary indicator for each age-bin, sex combination. The omitted category is 65-69 year old males.</p> <p>3. Health Status To account for beneficiary health status, the risk adjustment model uses three measures: (i) CMS' Hierarchical Condition Categories (HCCs), (ii) Diagnosis-Related Groupings (DRGs), (iii) and Activities of Daily Living (ADLs). First, the risk adjustment uses CMS' HCCs. HCCs were developed for the risk adjustment model used in determining capitation payments to Medicare Advantage plans and are calculated using Part A and B Medicare claims.* While the CMS-HHC model uses a full year of claims data to calculate HCCs,** the rehospitalization and ED use without hospital readmission measures use only six months of data to limit the number of home health stays excluded due to missing claims history. Binary indicators for all HCCs and CCs from the 2008 CMS HCC model that are not hierarchically ranked and that were statistically significant predictors of rehospitalization or ED use without hospital readmission are included in the model.</p> <p>Next, the risk adjustment model includes the DRG of the qualifying inpatient stay. DRGs are used for Medicare payment to classify inpatient stays that are clinically related and are expected to have similar levels of resource use. Most DRGs are classified based largely on the primary diagnosis on the inpatient claim.***</p> <p>Finally, risk adjustment for these measures also takes into account patient functional status by including the four separate ADL scores</p>	<p>and not the inpatient categories. The length of stay is determined from the last inpatient or skilled nursing stay prior to beginning home health care.</p> <p>Age and Gender Interactions – Age is subdivided into 12 bins for each gender: aged 0-34, 35-44, 45-54, five-year age bins from 55 to 95, and a 95+ category. Using a categorical age variable allows the model to account for the differing effects of age and gender. Age is determined based on the patient's age at Stay_Start_Date.</p> <p>CMS Hierarchical condition categories (HCCs) – HCCs were developed for the risk adjustment model used in determining capitation payments to Medicare Advantage plans and are calculated using Part A and B Medicare claims. While the CMS-HHC model uses a full year of claims data to calculate HCCs, for these measures, we use only 6 months of data to limit the number of home health stays excluded due to missing HCC data. All 2008 HCCs and CCs that are not hierarchically ranked that were statistically significant predictors of ACH and ED use are included in the model.</p> <p>Details of the CMS-HCC model and the code lists for defining the HCCs can be found here: <a href="https://www.cms.gov/MedicareAdvtgSpecRateStats/06_Risk_adjustment.asp">https://www.cms.gov/MedicareAdvtgSpecRateStats/06_Risk_adjustment.asp</a></p> <p>A description of the development of the CMS-HCC model can be found here: <a href="https://www.cms.gov/HealthCareFinancingReview/Downloads/04Summerpg119.pdf">https://www.cms.gov/HealthCareFinancingReview/Downloads/04Summerpg119.pdf</a></p> <p>ESRD and Disability Status – Original End Stage Renal Disease (ESRD) and current ESRD status are included as risk factors. Original disabled status and male, and original disabled status and female, are also included. Medicare beneficiaries with ESRD or disabled status represent a fundamentally different health profile.</p> <p>Interaction Terms – All interaction terms included in the 2008 and 2012 HCC risk adjustment models that were statistically significant predictors of ED Use and ACH were included. Interaction terms account for the</p>

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	<p>that appear on the home health claim. These four scores range from 0 to 16 and are calculated as part of the home health payment process by combining information from several OASIS items:</p> <ul style="list-style-type: none"> <li>(i) Dressing upper or lower body (OASIS fields M1810 or M1820)</li> <li>(ii) Bathing (M1830)</li> <li>(iii) Toileting (M1840)</li> <li>(iv) Transferring (M1850)</li> <li>(v) Ambulation (M1860)</li> </ul> <p>While each of the four ADL scores is calculated from these OASIS items, the weight assigned to each item differs across scores. Thus, all four scores convey distinct information about patient functional status and are used for risk adjustment.**** Directly including OASIS items as risk factors is not currently feasible, due to challenges associated with linking OASIS assessments to home health claims.</p> <p>4. Medicare Enrollment Status The model employs reason for Medicare eligibility, including ESRD status and disability status as covariates because beneficiaries with ESRD or who are disabled constitute a fundamentally different health profile than other Medicare beneficiaries. Additionally, the model includes interactions between original disabled status and sex.</p> <p>5. Additional Interaction Terms Interaction terms account for the additional effect two risk factors may have when present simultaneously, which may be more or less than the additive effect of each factor separately. For example, a beneficiary with chronic heart failure and chronic obstructive pulmonary disease may be at greater risk for hospitalization than would be estimated by adding the risk of hospitalization for each condition separately. All interaction terms included in the 2008 and 2012 HCC risk adjustment models that were statistically significant predictors of rehospitalization or emergency department use without readmission were included.</p> <p>* A description of the development of the CMS-HCC model can be</p>	<p>additional effect two risk factors may have when present simultaneously, which is more than the additive effect of each factor separately.</p>

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	<p>found here:  <a href="https://www.cms.gov/HealthCareFinancingReview/Downloads/04Summerpg119.pdf">https://www.cms.gov/HealthCareFinancingReview/Downloads/04Summerpg119.pdf</a>  ** Details of the CMS-HCC model and the code lists for defining the HCCs can be found here:  <a href="https://www.cms.gov/MedicareAdvtgSpecRateStats/06_Risk_adjustment.asp">https://www.cms.gov/MedicareAdvtgSpecRateStats/06_Risk_adjustment.asp</a>  *** Details of the DRG system can be found here:  <a href="http://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/downloads/AcutePaymtSysfctsh.pdf">http://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/downloads/AcutePaymtSysfctsh.pdf</a>  ****This methodology differs from the ADL score included in the Home Health Resource Grouper (HHRG), which is a categorization of one of the four ADL scores. Further information can be found at:  <a href="http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/HomeHealthPPS/CaseMixGrouperSoftware.html">http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/HomeHealthPPS/CaseMixGrouperSoftware.html</a>  Available in attached Excel or csv file at S.2b</p>	
Stratification	The measure is not stratified.	Measure is not stratified.
Type Score	Other (specify): Categorical for public reporting (i.e., categories are "Better than Expected", "Same as Expected", and "Worse than Expected"); rate for confidential reporting (better quality [all else equal] = lower rates) better quality = lower score	Rate/proportion better quality = lower score
Algorithm	<ol style="list-style-type: none"> <li>1. Construct home health stays from HH claims.</li> <li>2. Link stays to enrollment data by beneficiary.</li> <li>3. Identify numerator window (30 days following Stay_Start_Date) for each stay and exclude stays for patients who are not continuously enrolled in fee-for-service Medicare during the numerator window or until patient death.</li> <li>4. Exclude stays that begin with a LUPA or that involve a provider change during the numerator window.</li> <li>5. Exclude stays for patients who are not continuously enrolled in fee-for-service Medicare during the 6 months prior to Stay_Start_Date.</li> <li>6. Link to Part A and Part B claims for 6 months prior to Stay_Start_Date for each beneficiary.</li> </ol>	<ol style="list-style-type: none"> <li>1. Construct Home Health Stays from HH Claims (see 2a1.7 for details)</li> <li>2. Identify numerator window (60 days following Stay_Start_Date) for each stay and exclude stays for patients who are not continuously enrolled in fee-for-service Medicare during the numerator window or until patient death.</li> <li>3. Exclude stays that begin with a LUPA or that involve a provider change during the numerator window</li> <li>4. Link stays to enrollment data by beneficiary.</li> <li>5. Exclude stays for patients who are not continuously enrolled in fee-for-service Medicare during the 6 months prior to Stay_Start_Date.</li> <li>6. Calculate demographic risk factors for each stay (age, gender,</li> </ol>

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	<p>7. Calculate demographic risk factors for each stay (age, sex, etc.) using enrollment data.</p> <p>8. Limit to home health stays where the Stay_Start_Date minus the Thru_Dt of an Inpatient (IP) claims is equal to or less than 5. Exclude stays where the IP claim is not for a short-term hospital or has an AHRQ CCS or stus_cd that excludes it from being an index admission. Retain the DRG of the index admission as a risk factor.</p> <p>9. Calculate prior care setting indicators, ADLs, HCCs, and HCC interactions.</p> <p>10. Exclude stays that have prior care setting indicators whose claim Thru_Dt is in between the Thru_Dt of the index hospitalization and the Stay_Start_Dt.</p> <p>11. Link to Inpatient (IP) claims from Short Stay and Critical Access hospitals for numerator window (30 days following Stay_Start_Date).</p> <p>12. Link to Outpatient claims with revenue center codes indicating emergency department use for the numerator window (30 days following Stay_Start_Date).</p> <p>13. Calculate measure flags for each stay:</p> <p>a. Set Hospital Admission indicator (Hosp_Admit = 1) if any IP claims are linked to the stay in step 11.</p> <p>b. Set Outpatient ED Use indicator (OP_ED = 1) if any outpatient claims are linked to the stay in step 12.</p> <p>c. Set ED Use without Hospitalization indicator (ED_noHosp = 1) if OP_ED =1 and NOT Hosp_Admit = 1.</p> <p>14. Using coefficients from the multinomial logit risk model and risk factors calculated in steps 7 through 9, calculate the predicted probability of being included in the measure numerator, for each stay (Pred_ED). Additionally calculate the average of Pred_ED across all stays that are included in the measure denominator (not excluded in steps 3 to 5) and call these values National_Pred_ED.</p> <p>15. Calculate observed and expected rates for the measure at each home health agency (Initial_Provider):</p> <p>a. Observed Rates:</p> <p>i. Calculate the observed rate of acute care hospitalization as the fraction all (non-excluded) HH stays with that agency as</p>	<p>etc.) using enrollment data.</p> <p>7. Link to Part A and Part B claims for 6 months prior to Stay_Start_Date for each beneficiary</p> <p>8. Calculate prior care setting indicators, HCCs, and HCC interactions.</p> <p>9. Link to Inpatient (IP) claims from Short Stay and Critical Access hospitals(excluding planned hospitalizations) for the numerator window (60 days following Stay_Start_Date) – see specifications for the home health Acute Care Hospitalization (NQF 0171) measure for details.</p> <p>10. Set Hospital Admission indicator (Hosp_Admit = 1) if any IP claims are linked to the stay in step 9. These stays are not included in the ED Use without Hospitalization measure numerator.</p> <p>11. Link to Outpatient claims with revenue center codes indicating Emergency Department use for the numerator window (60 days following Stay_Start_Date).</p> <p>12. Set Outpatient ED Use indicator (OP_ED = 1) if any outpatient claims are linked to the stay in step 11.</p> <p>13. Flag stays for inclusion in the measure numerator (ED_noHosp = 1) if OP_ED =1 and NOT Hosp_Admit = 1.</p> <p>14. Using coefficients from the multinomial logit risk model and risk factors calculated in steps 6 and 8, calculate the predicted probability of being included in the measure numerator for each stay (Pred_ED_noHosp). Additionally calculate the average of Pred_ED_noHosp across all stays that are included in the measure denominator (not excluded in steps 3 or 5) and call this value National_pred_ED.</p> <p>15. Calculate observed and risk adjusted rates for each home health agency (Initial_Provider):</p> <p>a. Calculate the observed rate of Emergency Department Use without Hospitalization as the fraction all (non-excluded) HH Stays with that agency as Initial_Provider that are also included in the measure numerator (ED_noHosp = 1). Call the value Agency_obs_ED.</p> <p>b. Calculate the agency predicated rate of Emergency Department use without Hospitalization by taking the average of Pred_ED_noHosp across all (non-excluded) stays with that agency as</p>

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	<p>Initial_Provider that are also included in the measure numerator (ED_noHosp = 1). Call the value Agency_Obs_ED_NoHosp</p> <p>b. Expected Rates:</p> <p>i. Calculate the agency expected rate of ED use without hospital readmission by taking the average of Pred_ED across all (non-excluded) stays with that agency as Initial_Provider. Call this value Agency_Pred_ED.</p> <p>16. For each agency, simulate the distribution of expected rates:</p> <p>a. For each stay, randomly choose an outcome (i.e. no outcome, re-hospitalization, or ED use without hospital readmission) using the stay-level predicted probability of hospitalization (Pred_ED). Repeat simulation 20,000 times. Call these values X1 – X20,000.</p> <p>b. For each simulation, calculate the agency predicted rate of ED use without rehospitalization by taking the average of all stays with that agency. Call these values Agency_sim_ED1 – Agency_sim_ED20000.</p> <p>17. Classify agencies as “Better than Expected” if fewer than 5% of the Agency_sim_ED values are less than or equal to Agency_Obs_ED_NoHosp. Classify agencies as “Worse than Expected” if fewer than 5% of the Agency_sim_ED values are greater than or equal to Agency_Obs_ED_NoHosp. Classify all other agencies as “Same as Expected.” (See Technical Brief about assigning categories for additional technical details -- included as appendix.) No diagram provided</p>	<p>Initial_Provider. Call this value Agency_pred_ED.</p> <p>c. Calculate the risk adjusted rate of Emergency Department use without Hospitalization using the following formula:  <math display="block">\text{Agency\_riskadj\_ED} = \text{National\_pred\_ED} + (\text{Agency\_obs\_ED} - \text{Agency\_pred\_ED})</math> If an agency’s calculated risk adjusted rate is negative, that agency will have a publicly reported rate of 0% URL</p>
Submission items	<p>5.1 Identified measures: 1789 : Hospital-Wide All-Cause Unplanned Readmission Measure (HWR) 0173 : Emergency Department Use without Hospitalization</p> <p>5a.1 Are specs completely harmonized? No</p> <p>5a.2 If not completely harmonized, identify difference, rationale, impact: The home health rehospitalization measures (i.e., Rehospitalization During the First 30 Days of Home Health, and ED Use without Hospital Readmission During the First 30 Days of Home Health) are harmonized with other post-acute rehospitalization measures and with CMS’ Hospital-Wide All-Cause</p>	<p>5.1 Identified measures: 0171 : Acute care hospitalization (risk adjusted)</p> <p>5a.1 Are specs completely harmonized? Yes</p> <p>5a.2 If not completely harmonized, identify difference, rationale, impact:</p> <p>5b.1 If competing, why superior or rationale for additive value: The Home Health Acute Care Hospitalization Measure (NQF# 0171) is specified so that it reports all acute care hospitalizations during the 60-day period following the beginning of the home health stay. This</p>



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	<p>Unplanned Readmission measure (HWR) in the types of initial hospitalizations included and in the definition of unplanned hospitalizations. They differ from other post-acute hospital readmission measures, however, in the definition of eligible post-acute stays, in the risk adjustment approach, and by measuring ED use as an outcome. The differences arise due to the unique nature of home health care as a post-acute setting. The specifications for the home health rehospitalization measures were developed by restricting the NQF-endorsed claims-based Acute Care Hospitalization (ACH) and ED Use without Hospitalization (ED Use) measures (NQF numbers 171 and 173, respectively) to home health stays that begin within five days of an acute care hospital discharge. HH stays – sequences of home health payment episodes – are defined in the same way as in the ACH and ED Use measures. The initial hospital discharge must meet the criteria for the hospital HWR measure. Home health stays are included in the measure numerator if an unplanned hospital readmission to the inpatient setting or an ED visit occurs during the first 30 days of home care. Certain home health stays, such as those in which multiple home health agencies care for the same patient, are excluded. Finally, the measures are risk adjusted using patient-level predicted probabilities calculated from a multinomial logistic regression. Risk factors that are accounted for include demographics and health status as measured by both CMS’ Hierarchical Condition Categories (HCCs) found on claims in the previous six months, the Activities of Daily Living (ADL) fields on the Outcome and Assessment Information Set (OASIS) assessment of the initial home health stay after the index hospitalization, and the Diagnosis-Related Group (DRG) on the initial inpatient claim. The home health rehospitalization measures differ from other post-acute measures in three key ways. First, while other measures exclude patients with a gap between hospital discharge and post-acute admission, the home health measures allow a gap of up to five days. Unlike other post-acute settings, HH is provided in the patient’s home, and thus the patient returns to their home after hospital discharge. This results in some gap between hospital discharge and the initial</p>	<p>measure is specified so that it only reports emergent care use for patients that are not admitted to an acute care setting. No other measures report Emergent Care use among home health patients.</p>

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	<p>visit from a home health agency. The Medicare Conditions of Participation for home health agencies require home health care to begin within 48 hours of hospital discharge or on the physician-ordered start of care date (which is usually within 1-3 days of hospital discharge). Thus, the measures as specified apply to 91 percent of patients who begin home health within 30 days of hospital discharge. Second, the other measures use different risk factors and a different functional form for risk adjustment. For consistency with the ACH and ED Use measures, which apply to all home health stays, the developer recommends using a similar set of risk factors and the same multinomial logistic form for the home health rehospitalization measures. Third, the risk-adjusted rates for the home health rehospitalization measures would not be publicly reported. Due to a large number of relatively small home health agencies treating previously hospitalized patients, the measure developer determined that reporting home health agencies' risk-adjusted rates could lead to misleading conclusions, since small home health agencies' risk-adjusted rates tend to be unstable. Pursuing a categorical reporting method is consistent with condition-specific hospital readmission measures. While the rehospitalization and emergency department use without hospital readmission measures differ from other post-acute measures in some regards, these differences arise from the unique nature of home care as well as from a desire for harmonization across home health quality measures.</p> <p>5b.1 If competing, why superior or rationale for additive value: Not applicable; there are no other measures that report emergency department use without hospital readmission for home health patients.</p>	

## SNF Readmission: 2510 Skilled Nursing Facility 30-Day All-Cause Readmission Measure (SNFRM) vs. 2375 PointRight OnPoint-30 SNF Rehospitalizations

	2510 Skilled Nursing Facility 30-Day All-Cause Readmission Measure (SNFRM)	2375 PointRight OnPoint-30 SNF Rehospitalizations
Steward	Centers for Medicare and Medicaid Services	American Health Care Association
Description	<p>This measure estimates the risk-standardized rate of all-cause, unplanned, hospital readmissions for patients who have been admitted to a Skilled Nursing Facility (SNF) (Medicare fee-for-service [FFS] beneficiaries) within 30 days of discharge from their prior proximal hospitalization. The prior proximal hospitalization is defined as an admission to an IPPS, CAH, or a psychiatric hospital. The measure is based on data for 12 months of SNF admissions.</p> <p>A risk-adjusted readmission rate for each facility is calculated as follows:</p> <p>Step 1: Calculate the standardized risk ratio of the predicted number of readmissions at the facility divided by the expected number of readmissions for the same patients if treated at the average facility. The magnitude of the risk-standardized ratio is the indicator of a facility's effects on readmission rates.</p> <p>Step 2: The standardized risk ratio is then multiplied by the mean rate of readmission in the population (i.e., all Medicare FFS patients included in the measure) to generate the facility-level standardized readmission rate.</p> <p>For this measure, readmissions that are usually for planned procedures are excluded. Please refer to the Appendix, Tables 1 - 5 for a list of planned procedures.</p> <p>The measure specifications are designed to harmonize with CMS' hospital-wide readmission (HWR) measure to the greatest extent possible. The HWR (NQF #1789) estimates the hospital-level, risk-standardize rate of unplanned, all-cause readmissions within 30 days of a hospital discharge and uses the same 30-day risk window as the SNFRM.</p>	<p>PointRight OnPoint-30 is an all-cause, risk adjusted rehospitalization measure. It provides the rate at which all patients (regardless of payer status or diagnosis) who enter skilled nursing facilities (SNFs) from acute hospitals and are subsequently rehospitalized during their SNF stay, within 30 days from their admission to the SNF.</p>
Type	Outcome	Outcome

Data Source	<p>Administrative claims, Other This measure is for Medicare beneficiaries and uses the data in the Medicare eligibility files and inpatient claims data. The eligibility files provide information on date of birth, sex, reasons for Medicare eligibility, periods of Part A coverage and periods in the fee-for-service program. The data elements from the Medicare FFS claims are those basic to the operation of the Medicare payment systems and include date of admission, date of discharge, diagnoses, procedures, indicators for use of dialysis services and indicators of whether the Part A benefit is exhausted. The inpatient claims data files contain beneficiary-level SNF and other hospital records. No data beyond the bills submitted in the normal course of business are required from the providers for the calculation of this measure.</p> <p>The measure uses one year of data to calculate the measure rate for the Skilled Nursing Facility Readmission Measure, which we believe is sufficient to calculate this measure in a statistically reliable manner. This is because the reliability of a SNF's measure rate is related to its sample size.</p> <p>Following are the specific files and links to the documentation:</p> <ul style="list-style-type: none"> <li>• Medicare Inpatient claims - standard analytical files (2007-2012), index SNF claims (2009-2011)</li> </ul> <p>Documentation for the Medicare claims data is provided online by the CMS contractor, Research Data Assistance Center (ResDAC) at the University of Minnesota. The following web page includes data dictionaries for these files: Standard analytical files (Inpatient RIF): <a href="http://www.resdac.org/cms-data/files/ip-rif/data-documentation">http://www.resdac.org/cms-data/files/ip-rif/data-documentation</a></p> <ul style="list-style-type: none"> <li>• Medicare Enrollment Database</li> </ul> <p>Information about the Enrollment Database may be found here: <a href="http://aspe.hhs.gov/datacncl/datadir/cms.htm">http://aspe.hhs.gov/datacncl/datadir/cms.htm</a></p> <ul style="list-style-type: none"> <li>• Medicare Denominator files (2009-2011)</li> </ul> <p>Documentation available at: <a href="http://www.cms.gov/Research-Statistics-Data-and-Systems/Files-for-Order/IdentifiableDataFiles/DenominatorFile.html">http://www.cms.gov/Research-Statistics-Data-and-Systems/Files-for-Order/IdentifiableDataFiles/DenominatorFile.html</a></p> <ul style="list-style-type: none"> <li>• AHRQ CCS groupings of ICD-9 codes</li> </ul> <p>Documentation available at: <a href="http://www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp">http://www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp</a></p>	<p>Electronic Clinical Data Resident Assessment Instrument Minimum Data Set (MDS) version 3.0</p> <p>Available in attached appendix at A.1 No data dictionary</p>
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	<ul style="list-style-type: none"> <li>CMS-HCC mappings of ICD-9 codes</li> </ul> <p>Mappings are included in the software at the following website:  <a href="http://www.cms.gov/Medicare/Health-Plans/MedicareAdvtgSpecRateStats/Risk-Adjustors.html">http://www.cms.gov/Medicare/Health-Plans/MedicareAdvtgSpecRateStats/Risk-Adjustors.html</a>          No data collection instrument provided Attachment          SNFRM.S.2b.Tables6to9_includingmodelresults02.05.2014-635272170634634515.xlsx</p>	
Level	Facility	Facility
Setting	Post Acute/Long Term Care Facility : Nursing Home/Skilled Nursing Facility	Post Acute/Long Term Care Facility : Nursing Home/Skilled Nursing Facility
Time Window	<p>The time period for the SNF all-cause readmission measure (SNFRM) is one year. The time window for the numerator of the SNF all-cause readmission measure (SNFRM) is 30 days after discharge from the prior proximal hospitalization. To be included in the denominator a patient must have a SNF admission within 1 day after being discharged from the prior proximal hospital stay and that SNF admission must occur within the target 12 month period. The measure denominator is based on SNF admissions so individuals may be included in the measure multiple times within a given year. Patients admitted to SNFs in December are included in the measure and observed for 30 days after their prior proximal hospitalization; all or part of the 30 day risk period may fall into January of the following year.</p>	<p>The numerator time window is 30 days after the date of admission to a SNF from an acute care hospital. If a rehospitalization does not occur during this time window, the admission is not counted as part of the numerator. Rehospitalizations that occur after an individual is discharged to the community but are within the 30 day time window are not counted. The measure only takes into consideration rehospitalizations that occur during a SNF stay.</p> <p>The data sample time window is the target rolling 12 month time period, updated quarterly. All admissions to SNFs from acute hospitals that have an entry date that falls in the target period and have an MDS 3.0 admission assessment are included in the denominator.</p>
Numerator Statement	<p>This measure is designed to capture the outcome of unplanned all-cause hospital readmissions (IPPS or CAH) of SNF patients occurring within 30 days of discharge from the patient's prior proximal acute hospitalization.</p> <p>The numerator is more specifically defined as the risk-adjusted estimate of the number of unplanned readmissions that occurred within 30 days from discharge from the prior proximal acute hospitalization. The numerator is mathematically related to the number of SNF stays where there was hospitalization readmission, but the measure does not have a simple form for the numerator and denominator—that is, the risk adjustment method used does not make the observed number of readmissions the numerator and a predicted number the denominator. The numerator, as defined, includes risk adjustment for patient characteristics and a statistical</p>	<p>The numerator is the number of patients sent back to any acute care hospital (excluding emergency room only visits) during their SNF stay within 30 days from a SNF admission, as indicated on the MDS 3.0 discharge assessment during the 12 month measurement period.</p>

	<p>estimate of the facility effect beyond patient mix.</p> <p>Hospital readmissions that occur after discharge from the SNF stay but within 30 days of the proximal hospitalization are also included in the numerator. Readmissions identified using the Planned Readmission algorithm (see Section S.6) are excluded from the numerator. This measure does not include observation stays as a readmission (see Section S.6).</p>	
Numerator Details	<p>The numerator is the risk-adjusted estimate of the number of all-cause, unplanned readmissions to an acute care or critical access hospital that occurred within 30 days of discharge from an eligible prior proximal hospitalization. In addition, the patient will be required to have been admitted to a SNF within one day after discharge from an eligible hospitalization. This estimate includes risk adjustment for patient characteristics and a statistical estimate of the facility effect beyond patient mix. The numerator uses a model estimated on full national data; it is applied to the facility's patients and includes the facility effect term for that facility.</p> <p>The prediction equation is based on a logistic statistical model with a 2-level hierarchical structure. The SNF stays in the model have an indicator as to which SNF they were admitted and the effect of the facility is measured as a positive or negative shift in the intercept term of the equation. The facility effects are modeled as belonging to a normal (Gaussian) distribution centered at 0, and are estimated along with the effects of patient characteristics in the model.</p> <p>The data are from Medicare inpatient claims and eligibility and enrollment data. See section 2a1.26 for more details on the data sources.</p> <p>Observation stays: This measure does not include observation stays as a readmission. Rationale: In a recently published analysis, researchers at Brown University evaluated how frequently SNF patients had observation stays with and without formal admission to the hospital (Feng et al., 2012). In 2009, of the approximately 2.5 million SNF stays among FFS Medicare beneficiaries aged 65+ nationwide, there were roughly 18,000 observation stays (0.7%) and few readmissions within 30 days after the observation stay (Feng 2012). The results indicated that the vast majority of hospital observation stays in 2009 (over one</p>	<p>The numerator is the number of patients that are discharged from a SNF to an acute hospital within 30 days of entry from an acute hospital as indicated by MDS item A2100=03 (indicating 'discharge to acute hospitals') and MDS item A0310F=10/11 (indicating discharge status). The length of stay before rehospitalization is calculated by subtracting MDS item A1600 (entry date) from MDS item A2000 (discharge date).</p>

	<p>million in total) originated from the community (83% from community without home health and 8% from community with home health care). Only a small number and proportion of observation stays were originated from a SNF (i.e. preceded immediately by a SNF stay): N=17,731 or 1.7 percent of all observation stays, nationally. Consistent with the pattern of their origins, the vast majority of hospital observation stays were discharged to the community (80% without home health and 11 percent with home health care). Again, only a small number and proportion of observation stays were discharged to a SNF (regardless of their origin): N=25,884 or 2.6 percent of all observations stays (Feng 2012). These results suggest that excluding hospital observation stays from the SNF hospital readmission measure will not make a meaningful difference in the SNF facility-level rate of hospital readmissions or in the relative ranking of SNF providers according to this measure.</p> <p>Second, although the overall prevalence of hospital observation stays has been on the rise, raising legitimate concerns about their causes and consequences, the number of observation stays that originated from and subsequently discharged to SNF settings is very small relative to other settings (mostly communities). A recent report by the Office of Inspector General (OIG) shows that this trend has indeed continued in more recent years. According to this report, Medicare beneficiaries had 1.5 million observations stays in 2012, and an additional 1.4 million long outpatient stays that lasted at least one night but were not coded as observation stays (Office of Inspector General 2013). However, this study did not break down the data by setting, that is, the setting from which observation patients came. Based on our preliminary analysis results above, we want to emphasize again that despite an increasing number of Medicare beneficiaries held for observation in hospitals at the national level, the vast majority of them are from community settings and relatively few come from or are discharged to SNFs. We agree that the rising trend of hospital observation stays is an important issue that warrants continuous monitoring and policy attention.</p> <p>Third, and perhaps most importantly, mingling outpatient observation stays with inpatient admissions raises serious questions as to whether other types of hospital outpatient stays, such as emergency department (ED) visits or prolonged outpatient stays other than</p>	
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	<p>observation care in the hospital, should also be counted as admissions. RTI argues that this could introduce bias into the measure from a technical and conceptual perspective, and send a mixed signal to SNF providers and hospitals with the potential to compromise patient care. For SNFs, their 30-day readmission rate would increase, more or less, depending on how many of their patients were sent back to the hospital via the ED and held for observation there within the 30-day tracking window. Counting observation stays in the SNFRM measure could potentially increase perverse incentives already identified as a general concern with public reporting of any quality measure. Namely, SNFs may have an incentive to NOT send patients to the ED even though the patients truly require hospital care, or may deliberately postpone doing so, until after the 30-day measurement period ends to lower their publically reported readmission rate. Including observation stays in the measure could potentially contribute to these incentives.</p> <p>The increased use of hospital observation stays as outpatient care is an important issue which may have significant adverse impact on Medicare beneficiaries in terms of reducing eligibility for SNF services due to lack of a qualifying prior acute admission and therefore increase out-of-pocket spending. However, when looking at SNF readmissions, the absolute number and percentage share of observation stays involving Medicare beneficiaries in the SNF setting are small relative to other settings. Most importantly, there remain significant conceptual and practical challenges in the consideration of counting observation stays in the SNFRM measure. A decision to do so would require a better understanding of possible negative consequences, including postponing transfer of SNF patients to the ED.</p> <p>Planned readmissions: The SNFRM used a modified version of CMS' Hospital-Wide Readmission (HWR) planned readmissions algorithm to identify readmissions that are classified as planned, and should therefore not be included in the numerator. Planned readmissions should not be counted against facilities, because, as stated in the documentation for the HWR measure, "...planned readmissions are not a signal of quality of care." The algorithm is based on two main principles:</p>	
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	<p>1. Planned readmissions are those in which one of a pre-specified list of procedures took place or those for transplants (bone marrow, kidney, other); Cesarean section; forceps, vacuum, and breech delivery. Also planned diagnosis categories include maintenance chemotherapy, forceps delivery, normal pregnancy and/or delivery, and rehabilitation. Readmissions to psychiatric hospitals or units are also classified as planned readmissions.</p> <p>2. Admissions for acute illness or for complications of care are not 'planned.' Even a typically planned procedure performed during an admission for an acute illness would not likely have been planned. We used the principal diagnosis and all of the procedure codes from the readmission to identify planned readmissions.</p> <p>The algorithm developed to identify planned readmissions uses procedure codes and discharge diagnosis categories for each readmission coded using the Agency for Healthcare Research and Quality (AHRQ) Clinical Classification System (CCS) software. According to CMS' HWR planned readmission algorithm, a planned readmission is defined as any non-acute readmission in which one of a set of typically planned sets of procedures or diagnoses occurred (see Appendix, Tables 1 through 3). A subset of these procedures and diagnoses shown in Appendix Tables 1 and 2 are always considered planned. However, if any of the procedures denoted as "planned" in Table 3 occur in conjunction with a diagnosis that disqualifies a readmission from being considered planned (see Appendix, Table 4), the readmission will be considered unplanned.</p> <p>Additional procedures were added to the final HWR planned readmission algorithm special to post-acute care settings based on feedback from a convened by CMS contractor RTI International. These additional procedures were codified by a certified nosologist prior to use (see Appendix, Table 5). These procedures and diagnoses are currently defined by ICD-9 procedure and diagnosis codes grouped by the Clinical Classification Software (CCS), developed by the AHRQ, where large clusters were appropriate and by individual codes, if necessary. The provisional mapping of these ICD-9s to ICD-10s is provided in Section Sb.2, Table 9. We are awaiting the ICD-10 versions of the HWR planned readmissions codes. Readmissions to psychiatric hospitals or units are also classified as planned readmissions.</p>	
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	<p>Unless a readmission was considered planned, it was considered unplanned and counted as a readmission in the measure.</p> <p>In 2011, there were 2,215,398 SNF stays, of which 467,107 included an unplanned hospital readmission (21.1%). An additional 1.3 percent of SNF stays (or 27,956 stays) ended with readmissions that were classified as planned and not included in the numerator of the measure. These planned readmissions represented only 5.6 percent of all readmissions.</p> <p>References</p> <p>Feng Z, Wright B, Mor V. Sharp Rise in Medicare Enrollees Being Held in Hospitals for Observation Raises Concerns about Causes and Consequences. <i>Health Affairs</i> (2012). 31:6, 1251-1259.</p> <p>Feng Z. Hospital Observation Stays: Analysis Update. Memo prepared for the Centers for Medicare and Medicaid Services, 22 September 2012.</p> <p>Wright S. (2013). Memorandum Report: Hospitals' Use of Observation Stays and Short Inpatient Stays for Medicare Beneficiaries, OEI-02-12-00040. Department of Health and Human Services Office of the Inspector General, Washington, DC.</p>	
Denominator Statement	The denominator is computed with the same model used for the numerator. It is the model developed using all non-excluded SNF stays in the national data. For a particular facility the model is applied to the patient population, but the facility effect term is 0. In effect, it is the number of SNF admissions within 1 day of a prior proximal hospital discharge during a target year, taking denominator exclusions into account. Prior proximal hospitalizations are defined as admissions to an IPPS acute-care hospital, CAH, or psychiatric hospital.	The denominator is the number of all admissions, regardless of payer status and diagnosis, with an MDS 3.0 admission assessment to a SNF from an acute hospital during the target rolling 12 month period.
Denominator Details	The denominator includes all patients who have been admitted to a SNF within 1 day of discharge from a prior proximal hospitalization, taking denominator exclusions into account. Patients with SNF stays in swing bed facilities are included in the measure. The prior proximal hospitalization must include admissions to an IPPS acute-care hospital, CAH, or a psychiatric hospital.	The total number of admissions to the facility, from an acute hospital, during the 12 month measure period are determined using the MDS item A1800=03, indicating 'entered from hospital'. The entry date is determined using 2 MDS variables: A1600 (entry date) and A0310F=01 (indicating 'entry tracking records').
Exclusions	<p>The following are excluded from the denominator:</p> <ol style="list-style-type: none"> <li>1. SNF stays where the patient had one or more intervening</li> </ol>	The denominator has 2 different exclusions: individual level and provider level. At the individual level the exclusion is related to incomplete assessments. At the provider level the exclusion is related

<p>post-acute care (PAC) admissions (inpatient rehabilitation facility [IRF] or long-term care hospital [LTCH]) which occurred either between the prior proximal hospital discharge and SNF admission or after the SNF discharge, within the 30-day risk window. Also excluded are SNF admissions where the patient had multiple SNF admissions after the prior proximal hospitalization, within the 30-day risk window.</p> <p>Rationale: For patients who have IRF or LTCH admissions prior to their first SNF admission, these patients are starting their SNF admission later in the 30-day risk window and receiving other additional types of services as compared to patients admitted directly to the SNF from the prior proximal hospitalization. They are clinically different and their risk for readmission is different than the rest of SNF admissions. Additionally, when patients have multiple PAC admissions, evaluating quality of care coordination is confounded and even controversial in terms of attributing responsibility for a readmission among multiple PAC providers. Similarly, assigning responsibility for a readmission for patients who have multiple SNF admissions subsequent to their prior proximal hospitalization is also controversial.</p> <p>2. SNF stays with a gap of greater than 1 day between discharge from the prior proximal hospitalization and the SNF admission.</p> <p>Rationale: These patients are starting their SNF admissions later in the 30-day risk window than patients admitted directly to the SNF from the prior proximal hospitalization. They are clinically different and their risk for readmission is different than the rest of SNF admissions.</p> <p>3. SNF stays where the patient did not have at least 12 months of FFS Medicare enrollment prior to the proximal hospital discharge (measured as enrollment during the month of proximal hospital discharge and the for 11 months prior to that discharge).</p> <p>Rationale: FFS Medicare claims are used to identify comorbidities during the 12-month period prior to the proximal hospital discharge for risk adjustment. Multiple studies have shown that using lookback scans of a year or more of claims data provide superior predictive power for outcomes including rehospitalization as compared to using data from a single hospitalization (e.g., Klabunde et al., 2000; Preen et al, 2006; Zhang et al., 1999).</p> <p>4. SNF stays in which the patient did not have FFS Medicare</p>	<p>to the amount of data necessary to calculate the measure that is missing. Payer status and clinical conditions are not used for any exclusions.</p>
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	<p>enrollment for the entire risk period (measured as enrollment during the month of proximal hospital discharge and the month following the month of discharge).</p> <p>Rationale: Readmissions occurring within the 30-day risk window when the patient does not have FFS Medicare coverage cannot be detected using claims.</p> <p>5. SNF stays in which the principal diagnosis for the prior proximal hospitalization was for the medical treatment of cancer. Patients with cancer whose principal diagnosis from the prior proximal hospitalization was for other diagnoses or for surgical treatment of their cancer remain in the measure.</p> <p>Rationale: These admissions have a very different mortality and readmission risk than the rest of the Medicare population, and outcomes for these admissions do not correlate well with outcomes for other admissions.</p> <p>6. SNF stays where the patient was discharged from the SNF against medical advice.</p> <p>Rationale: The SNF was not able to complete care as needed.</p> <p>7. SNF stays in which the principal primary diagnosis for the prior proximal hospitalization was for “rehabilitation care; fitting of prostheses and for the adjustment of devices”.</p> <p>Rationale: Hospital admissions for these conditions are not for acute care.</p>	
Exclusion Details	<p>Denominator exclusions are based on data from the MedPAR and the Medicare Denominator files, specifically:</p> <p>1. SNF stays where the patient had one or more intervening PAC admissions (IRF or LTCH), which occurred either between the prior proximal hospital discharge and SNF admission or after the SNF discharge, within the 30-day risk window or where the patient had multiple SNF admissions after the prior proximal hospitalization were identified using the MedPAR files.</p> <p>2. SNF stays with a gap of greater than 1 day between discharge from the prior proximal hospitalization and the SNF admission were identified using the MedPAR files.</p> <p>3. Lack of 12 months of FFS Medicare enrollment prior to the proximal hospital discharge was identified by patient enrollment</p>	<p>Individual level exclusions are made for admissions that do not have either a discharge assessment or a quarterly (annual or change of status) assessments within 120 days of admissions, as they are considered incomplete.</p>

	<p>status in Part A FFS using the Medicare Denominator file. Enrollment must be indicated during the month of prior proximal hospital discharge and the 11 months preceding the prior proximal hospital discharge.</p> <p>4. Lack of FFS Medicare enrollment during the 30 days after discharge from the prior proximal hospitalization was identified by patient enrollment status in Part A FFS using the Medicare Denominator file. Enrollment must be indicated for the month(s) falling within 30 days of discharge from the prior proximal hospitalization.</p> <p>5. Appendix Table 10 indicates all cancer discharge condition categories excluded from the measure. Cases are identified using claims in the MedPAR files for prior proximal hospitalization.</p> <p>6. Discharges from the SNF against medical advice were identified using the discharge disposition indicator on the corresponding SNF claim from the MedPAR files.</p> <p>7. “Rehabilitation care: fitting of prostheses and for the adjustment of devices” are identified by principal diagnosis codes (ICD-9 codes) included in CCS 254, using claims from the MedPAR files for prior proximal hospitalization.</p>	
Risk Adjustment	<p>Statistical risk model</p> <p>Due to the natural clustering of observations within SNFs, we used hierarchical logistic regression to model the log-odds of readmission for each index SNF stay. Readmission within 30 days was modeled as a function of patient-level demographic and clinical characteristics and a random SNF-level intercept. This model specification accounts for within-SNF correlation of the observed outcomes and assumes that underlying differences in quality among the SNF facilities being evaluated lead to systematic differences in outcomes.</p> <p>Specifically, we estimated a hierarchical logistic regression model, which is described in more detail including an equation in the Appendix, Section S.14.</p> <p>The risk adjustment model for the SNFRM accounts for variation across SNFs in case-mix and patient characteristics predictive of readmission using a hierarchical logistic regression model. The goal of risk adjustment is to account for differences across SNFs in patient demographic and clinical characteristics that might be related to the</p>	<p>Statistical risk model</p> <p>Risk adjustment for PointRight OnPoint-30 was completed by means of logistic regression using independent variables drawn from the first MDS 3.0 assessment performed after admission to the SNF. In some cases, this was a combined admission/discharge assessment.</p> <p>The following lists the variables used in the logistic regression risk adjustment model. The MDS 3.0 codes used to determine whether or not each variable contributes to the calculation are provided below in S.18.</p> <p>Demographic</p> <ul style="list-style-type: none"> <li>-Age less than 65</li> <li>-Male</li> <li>-Medicare</li> </ul> <p>Functional Status</p> <ul style="list-style-type: none"> <li>-Total Bowel Incontinence</li> <li>-Eating Dependence</li> </ul>

	<p>outcome but are unrelated to quality of care. For this reason, we have to take patient frailty (case mix) into account by including primary diagnosis and comorbidities in our models. In addition, we included demographic variables (age and sex), and other health service factors such as length of stay during the patient’s prior proximal hospitalization, whether the patients were in the intensive care unit (ICU), and number of previous hospitalizations in the previous 365 days (see Section S2.b, Table 8). NQF guidelines regarding disparities in care quality state that socioeconomic status, sex, race, or ethnicity should not be included as adjustment variables in models because the standards of care should not vary by these patient demographics. However, for some outcomes, an argument can be made that some potential markers of vulnerability for disparities (sex and age) are also associated with demonstrated clinical/physiologic differences at the time the patient enters the SNF that can determine risk, independent of the quality of care being provided. Analyses indicate that readmission risk does vary by sex, with higher readmission rates associated with males ages 70 and older (see Figure 2 in the “Measure Exclusions” portion of the MJF). Additionally, these findings are consistent with evidence from prior published research that readmissions among SNF patients do vary by sex (O’Malley, Caudry, Grabowski 2011), so we included sex in our models.</p> <p>To capture patients’ primary reason for their prior proximal hospitalization, we aggregated the principal discharge diagnosis and all the procedures from the prior proximal hospitalization using the Agency for Healthcare Research and Quality (AHRQ) Clinical Classification System (CCS) single-level codes. The CCS collapses more than 15,000 diagnosis codes and 4,000 procedure codes from the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) into a clinically meaningful, mutually exclusive set of 280 condition categories and 231 procedure categories. AHRQ has posted a beta version of the mapping between ICD-10 procedure codes and the CCS codes on their website (<a href="http://www.hcup-us.ahrq.gov/toolssoftware/beta/icd_10_beta.jsp">http://www.hcup-us.ahrq.gov/toolssoftware/beta/icd_10_beta.jsp</a>). We plan to use the same CCS groupings in our models after the transition to ICD-10. The grouper is expected in October 2014. We will continue to monitor and review these mappings of CCS codes to ICD-10 in order to identify any potential changes that may impact this</p>	<ul style="list-style-type: none"> <li>-Two-person Assist</li> <li>-Cognition Not Intact or Complete</li> <li>Prognosis</li> <li>-End-stage Prognosis</li> <li>-Re-entry</li> <li>-Respiratory Failure</li> <li>-Hospice Care</li> <li>Clinical Condition</li> <li>-Daily Pain</li> <li>-Stage Two Pressure Ulcer</li> <li>-Stage Three Pressure Ulcer</li> <li>-Stage Four Pressure Ulcer</li> <li>-Unstageable Pressure Ulcer</li> <li>-Venous Arterial Ulcer</li> <li>-Diabetic Foot Ulcer</li> <li>Diagnosis</li> <li>-Anemia</li> <li>-Asthma</li> <li>-Diabetes Mellitus</li> <li>-Heart Failure</li> <li>-Septicemia</li> <li>-Viral Hepatitis</li> <li>-Internal Bleeding</li> <li>Services and Treatment</li> <li>-Dialysis</li> <li>-Insulin</li> <li>-Ostomy Care</li> <li>-Cancer Chemotherapy</li> <li>-Radiation Therapy</li> <li>-Continue IV Medication</li> <li>-Continue Oxygen</li> <li>-Continue Tracheostomy</li> <li>Provided in response box S.15a</li> </ul>
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	<p>measure.</p> <p>Our model controls for 198 primary conditions using the AHRQ CCS grouper and two additional groupings—one that summed over 29 CCS categories with few patients in each that increased readmission risk and another that summed over 5 CCS categories with few patients that decreased readmission risk. See Tables 6 and 7 uploaded in excel in Section S.2b.Data Dictionary, Code Table, or Value Sets. We also included 72 comorbidities grouped using CMS’ hierarchical condition categories (HCCs) in our models. The CMS contractor for the HCCs is currently finalizing the ICD-10 mapping into the HCCs. We plan to use the same set of HCCs, and will review the mapping to ensure that there are no changes that impact this measure.</p> <p>Covariates used in models:</p> <ul style="list-style-type: none"> <li>- Age</li> <li>- Sex</li> <li>- Length of stay during prior proximal hospitalization</li> <li>- Any time spent in the intensive care unit (ICU) during the prior proximal hospitalization</li> <li>- Disabled as a reason for Medicare coverage</li> <li>- End-stage renal disease (ESRD)</li> <li>- Number of acute care hospitalizations in the 365 days prior to the prior proximal hospitalization</li> <li>- Principal diagnosis as categorized using AHRQ’s single-level CCS</li> <li>- System-specific surgical indicators</li> <li>- Individual comorbidities as grouped by CMS’ hierarchical condition categories (HCCs) or other comorbidity indices</li> <li>- Presence of multiple comorbidities, modeled using two variables: (a) the count of HCCs if count is &gt;2 and (b) the square of this count of HCCs</li> </ul> <p>References</p> <p>1. O'Malley AJ, Caudry DJ, and Grabowski DC: Predictors of Nursing Home Residents' Time to Hospitalization. Health Serv. Res., 46(1p1), 82-104, 2011.</p> <p>Available in attached Excel or csv file at S.2b</p>	
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Stratification	Not applicable	N/A
Type Score	Rate/proportion better quality = lower score	Rate/proportion better quality = lower score
Algorithm	<p>Using a diagram (Figure 1 attached in the Appendix), we depict the SNF readmission measure 30-day risk window starting from the prior proximal hospitalization discharge date. If the readmission occurred during the SNF stay within the 30-day risk window or after the SNF stay but still within the 30-day risk window, it is counted in the numerator.</p> <p>Step one: Identify patients meeting the denominator criteria.</p> <p>Step two: Identify patients meeting the numerator criteria taking into account the planned readmission algorithm.</p> <p>Step three: Identify presence or absence of risk adjustment variables for each patient.</p> <p>Step four: Calculate the predicted and expected number of readmissions for each SNF using the hierarchical logistic regression model, and the SNF standardized risk ratio. These calculations are specified in more detail with equations in the Appendix, Section S.18.</p> <p>Step five: Calculate the risk-standardized SNF 30-day readmission rate To aid interpretation, the SNF standardized risk ratio, or SRR, which is calculated in Step four, is then multiplied by the overall national raw readmission rate for all SNF stays to produce the SNF risk-standardized readmission rate (RSRR). See the Appendix, Section S.18 for the corresponding equation for this step.</p> <p>NOTE: Because the statistic described in Step five is a complex function of parameter estimates, re-sampling and simulation techniques (e.g., bootstrapping) are necessary to derive a confidence interval estimate for the final risk-standardized rate, to characterize the uncertainty of the estimate. The results of bootstrapping are reported in the Identification of Statistically Significant &amp; Meaningful Differences in Performance (Section 2b5.) of the Measure Testing form. Available in attached appendix at A.1</p>	<p>The formula for a facility's adjusted rehospitalization rate is as follows:</p> $(\text{Observed Rate of Rehospitalization within 30 days}) / (\text{Expected Rate of Rehospitalization within 30 days}) * (\text{National rate}).$ <p>Note- the national rate and the expected rate need to be calculated for the same measure period.</p> <p>1. Observed Rate Calculation</p> <ul style="list-style-type: none"> <li>•The formula for a facility's observed Rehospitalization rate is as follows:</li> </ul> $(\text{Observed count of discharges to hospitals within 30 days of admission}) / (\text{Observed count of admissions from hospitals})$ <ul style="list-style-type: none"> <li>•The denominator is the number of any admissions from a hospital during a rolling 12 month time period. (This is a count of events, not of residents.)</li> <li>•The numerator is the number of all admissions to the SNF during a rolling 12 month time period who then went back to the hospital within 30 days of their admission date. (This is a count of events, not of residents.)</li> </ul> <p>2. Expected Rate Calculation</p> <p>2.1 First the expected rate for every single resident admission is calculated using the formula below.</p> <p>The calculation must be performed at least 45 days after the end of the target rolling 12-month period. This is to allow 30 days to elapse to capture rehospitalizations that occur from admission to the SNF on the last day of the target period and another 14 days to allow facilities to submit data to CMS. We recommend waiting an additional 2 to 3 weeks to ensure maximum data availability for MDS assessments not submitted during the 14 day period.</p> <p>VARIABLE CALCULATION</p> <p>Intercept: -2.8252</p> <p>Age Under 65: if age&lt;65 then Variable=1; else Variable=0; (If Date of Birth is missing, then Variable=0)</p> <p>End Stage Prognosis:if J1400=1 then Variable=1; else Variable=0;</p>



		<p>Hospice Care: if O0100K2=1 then Variable=1; else Variable=0;</p> <p>Male: if A0800=1 then Variable=1; else Variable=0;</p> <p>Medicare: if A0310B = 01 or 06, then Variable=1;else Variable=0;</p> <p>SNF Admission is Return to Same SNF Following Hospitalization: if A0310B=06 AND A1600 minus A2000 (on a previous MDS where A2100=3) &lt; 30 then Variable=1; else if A1700=2 then Variable=1; else Variable=0;</p> <p>Diagnoses</p> <p>Anemia: if I0200=1 then Variable=1; else Variable=0;</p> <p>Asthma: if I6200=1 then Variable=1; else Variable=0;</p> <p>Diabetes Mellitus: if I2900=1 then Variable=1; else Variable=0;</p> <p>Diabetic Foot Ulcer: if M1040B=1 then Variable=1; else Variable=0;</p> <p>Pressure Ulcer Stage 2: if M0300B2&gt;0 then Variable=1; else Variable=0;</p> <p>Pressure Ulcer Stage 3: if M0300C2&gt;0 then Variable=1; else Variable=0;</p> <p>Pressure Ulcer Stage 4: if M0300D2&gt;0 then Variable=1; else Variable=0;</p> <p>Pressure Ulcer Unstageable: if M0300E2&gt;0 or M0300F2&gt;0 or M0300G2&gt;0 then Variable=1; else Variable=0;</p> <p>Respiratory Failure: if I6300=1 then Variable=1; else Variable=0;</p> <p>Septicemia: if I2100=1 then Variable=1; else Variable=0;</p> <p>Vascular Ulcer: if M1030&gt;0 then Variable=1; else Variable=0;</p> <p>Viral Hepatitis: if I2400=1 then Variable=1; else Variable=0;</p> <p>Heart Failure: if I0600=1 then Variable=1; else Variable=0;</p> <p>Internal Bleeding:if J1550D=1 then Variable=1; else Variable=0;</p> <p>Functional Status</p> <p>Daily Pain: if J0400=1 or J0850=3 then Variable=1; else Variable=0;</p> <p>Eating Dependence- Total: if G0110H1 = 4,7, or 8, then Variable=1; else Variable=0;</p> <p>Two Person assist Needed with One or More ADLs: if G0110A2=3 or G0110B2=3 or G0110C2=3 or G0110D2=3 or G0110E2=3 or G0110F2=3 or G0110G2=3 or G0110H2=3 or G0110I2=3 or G0110J2=3 then Variable=1; else Variable=0;</p> <p>Cognition not Completely Intact: if C0100=1 AND if C0500=15 then</p>
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		<p>Variable=0;  if C0100=1 AND if C0500 &lt;&gt;15 then Variable=1;if C0100=0 AND if C0700=0 AND C0800=0 AND C1000=0 AND C0900A=1 AND C0900B=1 AND C0900C=1 AND C0900D=1 then Variable=0; else Variable=1;  Total Bowel Incontinence: if H0400&gt;0 then Variable=1; else Variable=0;  Treatment  Cancer Chemotherapy: if O0100A1=1 then Variable=1; else Variable=0;  Dialysis: if O0100J1=1 then Variable=1; else Variable=0;  Insulin: if N0350A&gt;0 or N0350B&gt;0 then Variable=1; else Variable=0;  IV Medications Continuing from Hospital: if O0100H1=1 and O0100H2=1 then Variable=1; else Variable=0;  Ostomy Care: if H0100C=1 then Variable=1; else Variable=0;  Oxygen Continuing from Hospital: if O0100C1=1 and O0100C2=1 then Variable=1; else Variable=0;  Radiation Therapy: if O0100B1=1 then Variable=1; else Variable=0;  Tracheostomy Continuing from Hospital: if O0100E1=1 and O0100E2=1 then Variable=1; else Variable=0;  FORMULA  LogOdds=</p> <table> <tr> <td>-</td><td>2.8252</td><td></td></tr> <tr> <td>-</td><td>0.7846</td><td>* End Stage Prognosis</td></tr> <tr> <td>-</td><td>1.5085</td><td>* Hospice_care</td></tr> <tr> <td>+</td><td>0.0923</td><td>* Anemia</td></tr> <tr> <td>+</td><td>0.1033</td><td>* Asthma</td></tr> <tr> <td>+</td><td>0.0611</td><td>* Daily Pain</td></tr> <tr> <td>+</td><td>0.0462</td><td>* Diabetes_Mellitus</td></tr> <tr> <td>+</td><td>0.1459</td><td>* Diabetic Foot Ulcer</td></tr> <tr> <td>+</td><td>0.6038</td><td>* Dialysis</td></tr> <tr> <td>+</td><td>0.1777</td><td>* Insulin</td></tr> <tr> <td>+</td><td>0.3263</td><td>* Ostomy Care</td></tr> <tr> <td>+</td><td>0.167</td><td>* Pressure Ulcer Stage 2</td></tr> <tr> <td>+</td><td>0.1334</td><td>* Pressure Ulcer Stage 3</td></tr> <tr> <td>+</td><td>0.1569</td><td>* Pressure Ulcer Stage 4</td></tr> </table>	-	2.8252		-	0.7846	* End Stage Prognosis	-	1.5085	* Hospice_care	+	0.0923	* Anemia	+	0.1033	* Asthma	+	0.0611	* Daily Pain	+	0.0462	* Diabetes_Mellitus	+	0.1459	* Diabetic Foot Ulcer	+	0.6038	* Dialysis	+	0.1777	* Insulin	+	0.3263	* Ostomy Care	+	0.167	* Pressure Ulcer Stage 2	+	0.1334	* Pressure Ulcer Stage 3	+	0.1569	* Pressure Ulcer Stage 4
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		Unstageable	+	0.181	*	Pressure Ulcer
			+	0.0891	*	Septicemia
			+	0.1848	*	Total Bowel Incontinence
			+	0.1862	*	Venous Arterial Ulcer
			+	0.4017	*	Viral Hepatitis
			+	0.177	*	Age Under 65
			+	0.6001	*	Cancer Chemotherapy
		from Hospital	+	0.188	*	IV Medication Continued
		Hospital	+	0.3395	*	Oxygen Continuing from
		from Hospital	+	0.1336	*	Tracheostomy Continuing
			+	0.4718	*	Eating Dependency
			+	0.2004	*	Heart Failure
			+	0.892	*	Internal Bleeding
			+	0.1622	*	Male
			+	0.14	*	Return to Same SNF
		Following Hospitalizations				
			+	0.5543	*	Medicare
			+	0.2389	*	Two Person Assist
		Required for One or More ADLs				
			+	0.6111	*	Radiation Therapy
			+	0.1159	*	Respiratory Failure
			+	0.3327	*	Cognition Not Completely
		Intact				
		$30\text{day\_Rehosp\_Risk\_Probability} = 1/(1+\exp(-\text{LogOdds}))$ <p>2.2 Once the above calculation is performed for all admissions within the sample time-frame, the results should be averaged to obtain the facility's expected rate for the measure. Hence, the expected rate for a facility is the average of the expected rehospitalization probabilities for each admission during the target time period.</p>				

		<p>Procedure for Calculating the Measure</p> <ol style="list-style-type: none"> <li>1. Establish the 12 month rolling time period and collect all assessments with entry dates that fall within the time period. The count of these entries is the observed denominator.</li> <li>2. For each entry date, determine whether the resident was discharged back to an acute hospital within 30 days of the entry date. The count of these discharges is the observed numerator.</li> <li>3. Divide the numerator by the denominator to obtain the observed rate for the SNF.</li> <li>4. Calculate the expected rate for the facility using the expected probability model for admissions during the sample period, then averaging them for the 12-month period.</li> <li>5. Divide the observed rate by the expected rate and multiply by the national rate to obtain the adjusted all cause rate for the facility. No diagram provided</li> </ol>
Submission items	<p>5.1 Identified measures: 1551 : Hospital-level 30-day, all-cause risk-standardized readmission rate (RSRR) following elective primary total hip arthroplasty (THA) and/or total knee arthroplasty (TKA)</p> <p>0330 : Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following heart failure hospitalization</p> <p>0506 : Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following pneumonia hospitalization</p> <p>0505 : Hospital 30-day all-cause risk-standardized readmission rate (RSRR) following acute myocardial infarction (AMI) hospitalization.</p> <p>0695 : Hospital 30-Day Risk-Standardized Readmission Rates following Percutaneous Coronary Intervention (PCI)</p> <p>1550 : Hospital-level risk-standardized complication rate (RSCR) following elective primary total hip arthroplasty (THA) and total knee arthroplasty (TKA)</p> <p>0001 : Asthma assessment</p> <p>1789 : Hospital-Wide All-Cause Unplanned Readmission Measure (HWR)</p> <p>1768 : Plan All-Cause Readmissions (PCR)</p> <p>5a.1 Are specs completely harmonized? No</p>	<p>5.1 Identified measures:</p> <p>5a.1 Are specs completely harmonized?</p> <p>5a.2 If not completely harmonized, identify difference, rationale, impact: N/A</p> <p>5b.1 If competing, why superior or rationale for additive value: N/A</p>

5a.2 If not completely harmonized, identify difference, rationale, impact: The SNFRM is harmonized to the greatest extent possible with CMS' 30-day All-Cause Hospital-Wide Unplanned Readmission Measure (HWR), developed by Yale University. The SNFRM is harmonized to some extent with the several other measures (listed below) developed using the same modeling techniques and applied to disease specific patient populations. However, the HWR measure is the primary focus for harmonization, as it has the same general population approach (as opposed to a disease specific approach) as the SNFRM. As the HWR population is different from the SNFRM population, this necessitates different approaches to stratification, risk adjustment, and the exclusion of planned readmissions; however, the overall analytic approach is harmonized as much as possible. The risk adjustment method is similar in that hierarchical logistic regression is applied to account for SNFs as clusters, but the exact covariates used to adjust the model are different to account for the differences in patient population. The HWR measure has created different stratifications (i.e., cohorts), based on the principal diagnosis, which correspond to hospital care teams. The SNFRM tested the use of SNF cohorts and found that they did not improve the risk adjustment model, so SNF cohorts were not applied in the final model. Patient frailty over the previous 12 months was taken into account by including a count of the number of HCCs for each patient as well as a quadratic term to account for nonlinearity of the effect of additional comorbidities (i.e., that a patient's readmission risk increases exponentially as the number of HCCs increases.) Also, the list of planned readmissions excluded from the HWR measure was expanded for the SNFRM measure, to include procedures commonly seen in the SNF population that may not be seen in the general Medicare population (See Appendix A). The other measure specifications, with regard to other exclusions, numerator/denominator specifications, time windows, and others, are harmonized.

Additionally, the American Health Care Association (AHCA) is developing a Re-Hospitalization Metric, AHCA's PointRight's OnPoint30 Re-Hospitalization Metric, which was examined for potential alignment and harmonization. The SNFRM and PointRight's OnPoint30 Re-Hospitalization Metric each provide

	<p>different insights into the issue of hospital readmissions from Skilled Nursing Facilities (SNFs). Although both are all-cause hospital readmission measures, these two measures provide SNFs with two different perspectives on their hospital readmission rates. The SNFRM is designed more for quality reporting purposes by focusing on the readmissions most likely to be attributable to the facility, by reporting the rate of unplanned readmissions on a more selected set of patients. The SNFRM excludes certain types of hospitalizations, including planned readmissions, observation stays, and readmissions for medical cancer treatment, whereas PointRight's measure does not contain any such exclusions. The broader population captured by the PointRight metric, provides a more comprehensive general rate useful for quality improvement efforts. SNFs may even find it useful to compare the readmission rates, to determine what factors are driving their individual results. Additionally, the two measures rely on different data sources - the SNFRM uses Medicare fee-for-service claims (FFS), whereas PointRight uses the MDS. There are distinct advantages and disadvantages to each. The SNFRM was designed based on FFS claims, in order to be harmonized with CMS' current Hospital-Wide Readmission measure as well as other readmission measures being developed for other settings (i.e., inpatient rehabilitation facilities (IRFs), long-term care hospitals (LTCHs), home health agencies (HHAs), and end-stage renal (ESRD) facilities), and to promote shared accountability for improving care transitions across all settings. One disadvantage to claims data however, is that there is a six month lag in the availability of claims, meaning that it is more difficult for SNFs to use claims to monitor the results of quality improvement efforts, whereas MDS data is available sooner. Therefore, the PointRight measure can provide facilities with information about their readmission rates on a faster and more frequent time scale. Facilities may find it useful to supplement their annual readmission rates as determine from the claims data with more real-time information from the MDS in order to evaluate rapid-cycle quality improvement activities, allowing for both measures to add value to the process.</p> <p>5b.1 If competing, why superior or rationale for additive value: There are no measures with the same SNF target population and same</p>	
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	measure focus.	
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