



## Measure Information

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

### Brief Measure Information

**NQF #: 1789**

**Corresponding Measures:**

**De.2. Measure Title:** Hospital-Wide All-Cause Unplanned Readmission Measure (HWR)

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

**De.3. Brief Description of Measure:** This measure estimates a hospital-level, risk-standardized readmission rate (RSRR) of unplanned, all-cause readmission within 30 days of discharge from an index admission with an eligible condition or procedure. The measure reports a single summary RSRR, derived from the volume-weighted results of five different models, one for each of the following specialty cohorts based on groups of discharge condition categories or procedure categories: surgery/gynecology, general medicine, cardiorespiratory, cardiovascular, and neurology. The measure also indicates the hospital-level standardized readmission ratios (SRR) for each of these five specialty cohorts. The outcome is defined as unplanned readmission for any cause within 30 days of the discharge date from the index admission (the admission included in the measure cohort). A specified set of readmissions are planned and do not count in the readmission outcome. CMS annually reports the measure for Medicare fee-for-service (FFS) patients who are 65 years or older and are hospitalized in non-federal short-term acute care hospitals.

For the All-Cause Readmission (ACR) measure version used in the Shared Savings Program (SSP) beginning in 2017, the measure estimates an Accountable Care Organization (ACO) facility-level RSRR of unplanned, all-cause readmission after admission for any eligible condition or procedure within 30 days of hospital discharge. The ACR measure is calculated using the same five specialty cohorts and estimates an ACO-level standardized risk ratio for each. CMS annually reports the measure for patients who are 65 years or older, are enrolled in Medicare FFS, and are ACO assigned beneficiaries.

The updates in this form reflect changes both to the original HWR measure and the ACS measure version. For instances where the two versions differ, we provide additional clarifications below the original description.

**1b.1. Developer Rationale:** The goal of this measure is to improve patient outcomes by providing patients, physicians, hospitals, ACOs, and policy makers with information about risk-standardized all-cause unplanned readmission rates among Medicare beneficiaries 65 years and older admitted to all non-federal US acute care hospitals. Measurement of patient outcomes allows for a broad view of quality of care that encompasses more than what can be captured by individual process-of-care measures. Complex and critical aspects of care, such as communication between providers, prevention of and response to complications, patient safety, and coordinated transitions to the outpatient environment, all contribute to patient outcomes but are difficult to measure by individual process measures. The goal of outcomes measurement is to risk adjust for patients' conditions at the time of hospital admission and then evaluate patient outcomes. This measure was developed to identify institutions' whose performance is better or worse than would be expected based on their patient case mix and hospital service mix, and therefore promote hospital quality improvement and better inform consumers about care quality.

Hospital-wide readmission is a priority area for outcomes measure development as it is an outcome that is likely attributable to care processes and is an important outcome for patients. Measuring and reporting readmission rates will inform healthcare providers and facilities about opportunities to improve care, strengthen incentives for quality improvement, and ultimately improve the quality of care received by Medicare patients. The measure will also provide patients with information that could guide their choices, as well as increase transparency for consumers.

For the ACR measure, several ACOs have shared with CMS the interventions they have implemented to reduce hospital readmissions. ACOs are redesigning care to improve results on the ACR measure. Some specific examples include:

1. Care coordination focusing on transitions or special populations

One ACO works to prevent readmissions to the hospital through the Transitions of Care program. A medical assistant care transition

navigator conducts telephone outreach to patients at 48 hours and two weeks post-discharge.

Another ACO focuses on reducing readmissions via a home connection program for high-risk populations. Key components include ensuring a physician follow-up appointment is scheduled before discharge, ensuring patients have a personal contact for urgent needs, and ensuring patients understand how to manage their medications. Many ACOs focus on improved transitions of care for patients with end-stage renal disease to prevent readmissions.

2. Pharmacy involvement: Strategies include medication reconciliation as well as data integration with labs and pharmacies. Another strategy is increased pharmacist involvement in transitions of care: One ACO has a pharmacist focusing on transitions of care to reduce readmissions for patients with heart failure, Chronic Obstructive Pulmonary Disease (COPD), and pneumonia.

**S.4. Numerator Statement:** The outcome for both the original HWR and ACR measures is 30-day readmission. We define readmission as an inpatient admission for any cause, except for certain planned readmissions, within 30 days from the date of discharge from an eligible index admission. If a patient has more than one unplanned admission (for any reason) within 30 days after discharge from the index admission, only 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, any subsequent unplanned readmission is not counted as an outcome for that index admission because the unplanned readmission could be related to care provided during the intervening planned readmission rather than during the index admission.

**S.6. Denominator Statement:** The measure includes admissions for Medicare beneficiaries who are 65 years and older and are discharged from all non-federal, acute care inpatient US hospitals (including territories) with a complete claims history for the 12 months prior to admission.

ACR-Specific: The measure at the ACO level includes all relevant admissions for ACO assigned beneficiaries who are 65 and older, and are discharged from all non-Federal short-stay acute care hospitals, including critical access hospitals.

Additional details are provided in S.7 Denominator Details.

**S.8. Denominator Exclusions:** Both the original HWR and ACR versions of the measure exclude index admissions for patients:

1. Admitted to Prospective Payment System (PPS)-exempt cancer hospitals;
2. Without at least 30 days post-discharge enrollment in Medicare FFS;
3. Discharged against medical advice;
4. Admitted for primary psychiatric diagnoses;
5. Admitted for rehabilitation; or
6. Admitted for medical treatment of cancer.

**De.1. Measure Type:** Outcome

**S.17. Data Source:** Claims

**S.20. Level of Analysis:** Facility

**IF Endorsement Maintenance – Original Endorsement Date:** Apr 24, 2012 **Most Recent Endorsement Date:** Oct 26, 2018

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

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

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

## 1. Evidence, Performance Gap, Priority – Importance to Measure and Report

Extent to which the specific measure focus is evidence-based, important to making significant gains in healthcare quality, and improving health outcomes for a specific high-priority (high-impact) aspect of healthcare where there is variation in or overall less-than-optimal performance. **Measures must be judged to meet all sub criteria to pass this criterion and be evaluated against the remaining criteria.**

**1a. Evidence to Support the Measure Focus – See attached Evidence Submission Form**

[NQF\\_1789\\_HWR\\_NQF\\_Evidence\\_Attachment\\_02-15-16\\_v1.0-637263622403255319.docx](#)

**1a.1 For Maintenance of Endorsement: Is there new evidence about the measure since the last update/submission?**

Do not remove any existing information. If there have been any changes to evidence, the Committee will consider the new evidence.

Please use the most current version of the evidence attachment (v7.1). Please use red font to indicate updated evidence.

### 1b. Performance Gap

Demonstration of quality problems and opportunity for improvement, i.e., data demonstrating:

- considerable variation, or overall less-than-optimal performance, in the quality of care across providers; and/or
- Disparities in care across population groups.

**1b.1. Briefly explain the rationale for this measure** (e.g., how the measure will improve the quality of care, the benefits or improvements in quality envisioned by use of this measure)

*If a COMPOSITE (e.g., combination of component measure scores, all-or-none, any-or-none), SKIP this question and answer the composite questions.*

The goal of this measure is to improve patient outcomes by providing patients, physicians, hospitals, ACOs, and policy makers with information about risk-standardized all-cause unplanned readmission rates among Medicare beneficiaries 65 years and older admitted to all non-federal US acute care hospitals. Measurement of patient outcomes allows for a broad view of quality of care that encompasses more than what can be captured by individual process-of-care measures. Complex and critical aspects of care, such as communication between providers, prevention of and response to complications, patient safety, and coordinated transitions to the outpatient environment, all contribute to patient outcomes but are difficult to measure by individual process measures. The goal of outcomes measurement is to risk adjust for patients' conditions at the time of hospital admission and then evaluate patient outcomes. This measure was developed to identify institutions' whose performance is better or worse than would be expected based on their patient case mix and hospital service mix, and therefore promote hospital quality improvement and better inform consumers about care quality.

Hospital-wide readmission is a priority area for outcomes measure development as it is an outcome that is likely attributable to care processes and is an important outcome for patients. Measuring and reporting readmission rates will inform healthcare providers and facilities about opportunities to improve care, strengthen incentives for quality improvement, and ultimately improve the quality of care received by Medicare patients. The measure will also provide patients with information that could guide their choices, as well as increase transparency for consumers.

For the ACR measure, several ACOs have shared with CMS the interventions they have implemented to reduce hospital readmissions. ACOs are redesigning care to improve results on the ACR measure. Some specific examples include:

#### 1. Care coordination focusing on transitions or special populations

One ACO works to prevent readmissions to the hospital through the Transitions of Care program. A medical assistant care transition navigator conducts telephone outreach to patients at 48 hours and two weeks post-discharge.

Another ACO focuses on reducing readmissions via a home connection program for high-risk populations. Key components include ensuring a physician follow-up appointment is scheduled before discharge, ensuring patients have a personal contact for urgent needs, and ensuring patients understand how to manage their medications. Many ACOs focus on improved transitions of care for patients with end-stage renal disease to prevent readmissions.

#### 2. Pharmacy involvement: Strategies include medication reconciliation as well as data integration with labs and pharmacies.

Another strategy is increased pharmacist involvement in transitions of care: One ACO has a pharmacist focusing on transitions of care to reduce readmissions for patients with heart failure, Chronic Obstructive Pulmonary Disease (COPD), and pneumonia.

**1b.2. Provide performance scores on the measure as specified (current and over time) at the specified level of analysis.** *(This is required for maintenance of endorsement. Include mean, std dev, min, max, interquartile range, scores by decile. Describe the data source including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities include.) This information also will be used to address the sub-criterion on improvement (4b1) under Usability and Use.*

The following results display the RSRRs for the HWR measure in calendar years 2011, 2012, 2013 and 2014.

Distribution of RSRRs for the HWR measure over Different Time Periods

Results for each data year

Characteristic//07/2011-06/2012//07/2012-06/2013//07/2013-06/2014/

Number of Hospitals/4,821/ /4,794/ /4,772/

Number of Admissions/7,678,216/ /7,279,853/ /6,843,808/  
Mean (SD)/16.2(1.1)/15.6(0.92)/ /15.5 (0.8)/  
Range (min. – max.)/10.9-22.6/ /11.0-21.4/ /11.4-20.1/  
Minimum/10.9/ /11.0/ /11.4/  
10th percentile/15.1/ / 14.6/ /14.6/  
20th percentile/15.4/ /14.9/ /14.9/  
30th percentile/15.7/ /15.2/ /15.1/  
40th percentile/15.9/ /15.4/ /15.3/  
50th percentile/16.1/ /15.5/ /15.4/  
60th percentile/16.4/ /15.7/ /15.6/  
70th percentile/16.6/ /15.9/ /15.8/  
80th percentile/17.0/ /16.2/ /16.0/  
90th percentile/17.5/ /16.8/ /16.5/  
Maximum/22.6/ /21.4/ /20.1/

The following results display the RSRRs for the ACR measure in calendar years 2013, 2014, and 2015.

#### Distribution of RSRRs for the ACR measure over Different Time Periods

Results for each data year

Characteristic//01/2013-12/2013//01/2014-12/2014//01/2015-12/2015/

Number of ACOs/243//360//416/

Number of Admissions/915,855//1,311,746//1,721,598/

Mean (SD)/14.9(.72)//15.2(.76)//14.9(.70)/

Range (min.-max.)/13.3-18.0//13.2-18.1//13.1-17.5/

Minimum/13.3//13.2//13.1/

10th percentile/14.0//14.3//14.0/

20th percentile/14.3//14.6//14.3/

30th percentile/14.5//14.8//14.5/

40th percentile/14.7//14.9//14.6/

50th percentile/14.8//15.1//14.8/

60th percentile/15.0//15.3//15.0/

70th percentile/15.2//15.4//15.2/

80th percentile/15.4//15.7//15.5/

90th percentile/15.8//16.2//15.7/

Maximum/18.0//18.1//17.5/

**1b.3. If no or limited performance data on the measure as specified is reported in 1b2, then provide a summary of data from the literature that indicates opportunity for improvement or overall less than optimal performance on the specific focus of measurement.**

N/A

**1b.4. Provide disparities data from the measure as specified (current and over time) by population group, e.g., by race/ethnicity, gender, age, insurance status, socioeconomic status, and/or disability. (*This is required for maintenance of endorsement. Describe the data source including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included.*) For measures that show high levels of performance, i.e., “topped out”, disparities data may demonstrate an opportunity for improvement/gap in care for certain sub-populations. This information also will be used to address the sub-criterion on improvement (4b1) under Usability and Use.**

HWR

We do not expect this measure to be “topped out” for hospitals. The following results display the RSRRs for the HWR measure.

#### Distribution of RSRRs for the HWR measure by Proportion of Dual-Eligible Patients:

Dates of Data: July 2013 through June 2014

Data Source: Medicare FFS claims

Characteristic//Hospitals with a low proportion (=9.8%) Dual Eligible patients//Hospitals with a high proportion (=22.6%) Dual Eligible patients

Number of Measured Hospitals// 1,257 // 1,219

Number of Patients// 2,137,895 patients in low-proportion hospitals // 927,007 in high-proportion hospitals

Maximum// 18.7 // 20.1

90th percentile// 16.2 // 16.8

75th percentile// 15.7 // 16.0

Median (50th percentile)// 15.3 // 15.6

25th percentile// 14.8 // 15.2

10th percentile// 14.3 // 14.9

Minimum // 11.5 // 12.2

Distribution of RSRRs for the HWR measure by Proportion of African-American Patients:

Dates of Data: July 2013 through June 2014

Data Source: Medicare FFS claims

Characteristic// Hospitals with a low proportion (=2.2%) African-American patients//Hospitals with a high proportion (=9.4%) African-American patients

Number of Measured Hospitals// 1,156 // 1,180

Number of Patients// 222,648 patients in low-proportion hospitals/ 2,294,715 in high-proportion hospitals

Maximum// 19.1 // 19.9

90th percentile// 16.0 // 17.1

75th percentile// 15.6 // 16.3

Median (50th percentile)// 15.4 // 15.7

25th percentile// 15.1 // 15.2

10th percentile// 14.8 // 14.8

Minimum // 12.9 // 12.2

Distribution of RSRRs for the HWR measure by Proportion of Patients with AHRQ SES Index Scores Below 45.0:

Dates of Data: July 2013 through June 2014

Data Source: Medicare FFS claims and the American Community Survey (2008-2012) data

Characteristic//Hospitals with a low proportion of patients below AHRQ SES index score of 45.0 (=5.0%)// Hospitals with a high proportion of patients below AHRQ SES index score of 45.0 (=57.1%)

Number of Measures Hospitals// 1,209 // 1,217

Number of Patients// 1,651,852 patients in hospitals with low proportion of patients below AHRQ SES index score of 45.0 //795,899 patients in hospitals with high proportion of patients below AHRQ SES index score of 45.0

Maximum// 19.9 // 20.1

90th percentile// 16.2 // 16.6

75th percentile// 15.7 // 16.0

Median (50th percentile)// 15.3 // 15.5

25th percentile// 14.9 // 15.2

10th percentile// 14.5 // 14.8

Minimum // 11.5 // 13.0

ACR

We do not expect this measure to be “topped out” for ACOs. The following results display the RSRRs for the ACR measure.

Distribution of RSRRs for the ACR measure by Proportion of Dual-Eligible Patients

Dates of Data: January 1, 2015- December 31, 2015

Data Source: Medicare FFS claims for ACO assigned/aligned beneficiaries.

Characteristic//ACOs with a low proportion (=5.1%) Dual Eligible patients// ACOs with a high proportion (=13.3%) Dual Eligible patients

Number of ACOs// 103// 104

Number of Patients// 247,252 in low-proportion of ACOs // 217,145 in high-proportion ACOs

Maximum// 16.2 // 17.5

90th percentile// 15.4 // 16.2

75th percentile// 14.9 // 15.7

Median (50th percentile)// 14.6 // 15.3

25th percentile// 14.2 // 14.7

10th percentile// 13.9 // 14.5

Minimum// 13.1 // 13.8

Characteristic// ACOs with a low proportion of patients below median AHRQ SES index score (=31.8%)// ACOs with a high proportion of patients below median AHRQ SES index score (=66.4%)

Number of ACOs// 104 // 104

Number of patients// 336,504 // 185,644

Maximum// 17.2 // 16.7

90th percentile// 15.9 // 15.9

75th percentile// 15.4 // 15.4

Median// 14.8 // 14.9

25th percentile// 14.4 // 14.6

10th percentile// 14.1 // 14.2

Minimum // 13.1 // 13.5

**1b.5. If no or limited data on disparities from the measure as specified is reported in 1b.4, then provide a summary of data from the literature that addresses disparities in care on the specific focus of measurement. Include citations. Not necessary if performance data provided in 1b.4**

N/A

## 2. Reliability and Validity—Scientific Acceptability of Measure Properties

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

**2a.1. Specifications** The measure is well defined and precisely specified so it can be implemented consistently within and across organizations and allows for comparability. eMeasures should be specified in the Health Quality Measures Format (HQMF) and the Quality Data Model (QDM).

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

Cardiovascular, Cardiovascular : Arrythmia, Cardiovascular : Congestive Heart Failure, Cardiovascular : Coronary Artery Disease, Cardiovascular : Coronary Artery Disease (AMI), Cardiovascular : Coronary Artery Disease (PCI), Cardiovascular : Hyperlipidemia, Cardiovascular : Hypertension, Critical Care, Endocrine, Endocrine : Diabetes, Endocrine : Thyroid Disorders, Gastrointestinal (GI), Gastrointestinal (GI) : Gall Bladder Disease, Gastrointestinal (GI) : Gastroenteritis, Gastrointestinal (GI) : Gastro-Esophageal Reflux Disease (GERD), Gastrointestinal (GI) : Peptic Ulcer, Genitourinary (GU), Genitourinary (GU) : Incontinence/pelvic floor disorders, Infectious Diseases (ID), Infectious Diseases (ID) : HIV/AIDS, Infectious Diseases (ID) : Pneumonia and respiratory infections, Infectious Diseases (ID) : Sexually Transmitted, Infectious Diseases (ID) : Tuberculosis, Liver : Viral Hepatitis, Musculoskeletal, Musculoskeletal : Falls and Traumatic Injury, Musculoskeletal : Joint Surgery, Musculoskeletal : Low Back Pain, Musculoskeletal : Osteoarthritis, Musculoskeletal : Osteoporosis, Musculoskeletal : Rheumatoid Arthritis, Neurology, Neurology : Brain Injury, Neurology : Stroke/Transient Ischemic Attack (TIA), Renal, Renal : Chronic Kidney Disease (CKD), Renal : End Stage Renal Disease (ESRD), Respiratory, Respiratory : Asthma, Respiratory : Chronic Obstructive Pulmonary Disease (COPD), Respiratory : Dyspnea, Respiratory : Pneumonia, Respiratory : Sleep Apnea, Surgery, Surgery : Cardiac Surgery, Surgery : General Surgery, Surgery : Perioperative and Anesthesia, Surgery : Thoracic Surgery, Surgery : Vascular Surgery

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

Care Coordination, Care Coordination : Readmissions, Care Coordination : Transitions of Care, Safety, Safety : Complications, Safety : Healthcare Associated Infections, Safety : Medication, Screening

**De.7. Target Population Category** (Check all the populations for which the measure is specified and tested if any):

Elderly

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

<https://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1219069855841> For ACR - <https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/sharedsavingsprogram/program-guidance-and-specifications.html>

**S.2a. If this is an eMeasure**, HQMF specifications must be attached. Attach the zipped output from the eMeasure authoring tool (MAT) - if the MAT was not used, contact staff. (Use the specification fields in this online form for the plain-language description of the specifications)

This is not an eMeasure Attachment:

**S.2b. Data Dictionary, Code Table, or Value Sets** (and risk model codes and coefficients when applicable) must be attached. (Excel or csv file in the suggested format preferred - if not, contact staff)

Attachment Attachment: [DelAP\\_4-107f\\_NQF1789HWR\\_DataDictionary\\_Final082819-637263622402629808.xlsx](#)

**S.2c.** Is this an instrument-based measure (i.e., data collected via instruments, surveys, tools, questionnaires, scales, etc.)? Attach copy of instrument if available.

Attachment:

**S.2d.** Is this an instrument-based measure (i.e., data collected via instruments, surveys, tools, questionnaires, scales, etc.)? Attach copy of instrument if available.

**S.3.1. For maintenance of endorsement:** Are there changes to the specifications since the last updates/submission. If yes, update the specifications for S1-2 and S4-22 and explain reasons for the changes in S3.2.

**S.3.2. For maintenance of endorsement**, please briefly describe any important changes to the measure specifications since last measure update and explain the reasons.

The original HWR measure was adopted by the SSP at the ACO-level in 2017. There now exist two versions of the measure (NQF #1789): the original HWR measure (initially endorsed in 2012) and the ACR version (initially endorsed in 2018).

**S.4. Numerator Statement** (Brief, narrative description of the measure focus or what is being measured about the target population, i.e., cases from the target population with the target process, condition, event, or outcome) DO NOT include the rationale for the measure.

IF an OUTCOME MEASURE, state the outcome being measured. Calculation of the risk-adjusted outcome should be described in the calculation algorithm (S.14).

The outcome for both the original HWR and ACR measures is 30-day readmission. We define readmission as an inpatient admission for any cause, except for certain planned readmissions, within 30 days from the date of discharge from an eligible index admission. If a patient has more than one unplanned admission (for any reason) within 30 days after discharge from the index admission, only 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, any subsequent unplanned readmission is not counted as an outcome for that index admission because the unplanned readmission could be related to care provided during the intervening planned readmission rather than during the index admission.

**S.5. Numerator Details** (All information required to identify and calculate the cases from the target population with the target process, condition, event, or outcome such as definitions, time period for data collection, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b)

IF an OUTCOME MEASURE, describe how the observed outcome is identified/counted. Calculation of the risk-adjusted outcome should be described in the calculation algorithm (S.14).

#### Outcome definition

The measure counts readmissions to any short-term acute care hospital for any cause within 30 days of the date of discharge from an eligible index admission, excluding planned readmissions as defined below.

#### Rationale

From a patient perspective, an unplanned readmission from any cause is an adverse event. Outcomes occurring within 30 days of discharge can be influenced by hospital care and the early transition to the non-acute care setting. The 30-day time frame is a clinically meaningful period for hospitals to collaborate with their communities to reduce readmissions. However, planned readmissions are generally not a signal of quality of care. Including planned readmissions in a readmission measure could create a disincentive to provide appropriate care to patients who are scheduled for elective or necessary procedures within 30 days of discharge.

It is important to note that for the HWR measure, a readmission is included as an index admission if it meets all other eligibility criteria. This differs from the publicly reported condition-specific and procedure-specific readmission measures, which do not consider a readmission as a new index admission within the same measure.

#### Planned Readmission Algorithm (Version 4.0)

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.

The Planned Readmission Algorithm has three fundamental principles:

1. A few specific, limited types of care are always considered planned (obstetric delivery, transplant surgery, maintenance chemotherapy/radiotherapy/immunotherapy, rehabilitation);
2. Otherwise, a planned readmission is defined as a non-acute readmission for a scheduled procedure; and
3. Admissions for acute illness or for complications of care are never planned.

The algorithm was developed in 2011 as part of the HWR measure. In 2013, CMS applied the algorithm to its other readmission measures.

For more details on the Planned Readmission Algorithm, please see Appendix E of the report titled “2019 All-Cause Hospital-Wide Measure Updates and Specifications Report: Hospital-Wide Readmission”

Wallace Lori, Grady J, Djordjevic Darinka, et al. 2019 All-Cause Hospital Wide Measure Updates and Specifications Report.

<https://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1219069855841>

#### **S.6. Denominator Statement** *(Brief, narrative description of the target population being measured)*

The measure includes admissions for Medicare beneficiaries who are 65 years and older and are discharged from all non-federal, acute care inpatient US hospitals (including territories) with a complete claims history for the 12 months prior to admission.

ACR-Specific: The measure at the ACO level includes all relevant admissions for ACO assigned beneficiaries who are 65 and older, and are discharged from all non-Federal short-stay acute care hospitals, including critical access hospitals.

Additional details are provided in S.7 Denominator Details.

#### **S.7. Denominator Details** *(All information required to identify and calculate the target population/denominator such as definitions, time period for data collection, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b.)*

*IF an OUTCOME MEASURE, describe how the target population is identified. Calculation of the risk-adjusted outcome should be described in the calculation algorithm (S.14).*

To be included in the measure cohort, patients must meet the following inclusion criteria:

1. Enrolled in Medicare FFS Part A for the 12 months prior to the date of admission and during the index admission;
2. Aged 65 or older;
3. Discharged alive from a non-federal short-term acute care hospital; and
4. Not transferred to another acute care facility.

ACR- Specific: An additional criterion for the ACO version of this measure is that only hospitalizations for ACO-assigned beneficiaries that meet all of the other criteria listed above are included. The cohort definition is otherwise identical to that of the HWR described below.

The measure first assigns admissions with qualifying Agency for Healthcare Research and Quality (AHRQ) Clinical Classifications Software (CCS) procedure categories to the Surgery/Gynecology Cohort. This cohort includes admissions likely cared for by surgical or gynecological teams.

The measure then sorts admissions into one of the four remaining specialty cohorts based on the AHRQ CCS diagnosis category of the principal discharge diagnosis:

The Cardiorespiratory Cohort includes several condition categories with very high readmission rates such as pneumonia, chronic obstructive pulmonary disease, and heart failure. These admissions are combined into a single cohort because they are often clinically indistinguishable, and patients are often simultaneously treated for several of these diagnoses.

The Cardiovascular Cohort includes condition categories such as acute myocardial infarction that in large hospitals might be cared for by a separate cardiac or cardiovascular team.

The Neurology Cohort includes neurologic condition categories such as stroke that in large hospitals might be cared for by a separate neurology team.

The Medicine Cohort includes all non-surgical patients who were not assigned to any of the other cohorts.

The full list of the specific diagnosis and procedure AHRQ CCS categories used to define the specialty cohorts can be found in the attached data dictionary.

**S.8. Denominator Exclusions** *(Brief narrative description of exclusions from the target population)*

Both the original HWR and ACR versions of the measure exclude index admissions for patients:

1. Admitted to Prospective Payment System (PPS)-exempt cancer hospitals;
2. Without at least 30 days post-discharge enrollment in Medicare FFS;
3. Discharged against medical advice;
4. Admitted for primary psychiatric diagnoses;
5. Admitted for rehabilitation; or
6. Admitted for medical treatment of cancer.

**S.9. Denominator Exclusion Details** *(All information required to identify and calculate exclusions from the denominator such as definitions, time period for data collection, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b.)*

Both the original HWR and ACR versions of the measure exclude index admissions for patients:

1. Admitted to PPS-exempt cancer hospitals; identified by the Medicare provider ID

Rationale: These hospitals care for a unique population of patients that cannot reasonably be compared to patients admitted to other hospitals.

2. Without at least 30 days of post-discharge enrollment in Medicare FFS; determined using data captured in the Medicare Enrollment Database (EDB)

Rationale: The 30-day readmission outcome cannot be assessed in this group since claims data are used to determine whether a patient was readmitted.

3. Discharged against medical advice; identified using the discharge disposition indicator in claims data.

Rationale: Providers did not have the opportunity to deliver full care and prepare the patient for discharge.

4. Admitted for primary psychiatric diagnoses

Rationale: Patients admitted for psychiatric treatment are typically cared for in separate psychiatric or rehabilitation centers that are not comparable to short-term acute care hospitals.

5. Admitted for rehabilitation

Rationale: These admissions are not typically to a short-term acute care hospital and are not for acute care.

6. Admitted for medical treatment of cancer

Rationale: These admissions have a different mortality and readmission profile than the rest of the Medicare population, and outcomes for these admissions do not correlate well with outcomes for other admissions. Patients with cancer admitted for other diagnoses or for surgical treatment of their cancer remain in the measure.

**S.10. Stratification Information** *(Provide all information required to stratify the measure results, if necessary, including the stratification variables, definitions, specific data collection items/responses, code/value sets, and the risk-model covariates and coefficients for the clinically-adjusted version of the measure when appropriate – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format with at S.2b.)*

N/A

**S.11. Risk Adjustment Type** (Select type. Provide specifications for risk stratification in measure testing attachment)

Statistical risk model

If other:

**S.12. Type of score:**

Rate/proportion

If other:

**S.13. Interpretation of Score** (Classifies interpretation of score according to whether better quality is associated with a higher score, a lower score, a score falling within a defined interval, or a passing score)

Better quality = Lower score

**S.14. Calculation Algorithm/Measure Logic** (Diagram or describe the calculation of the measure score as an ordered sequence of steps including identifying the target population; exclusions; cases meeting the target process, condition, event, or outcome; time period for data, aggregating data; risk adjustment; etc.)

The measure estimates hospital-level 30-day all-cause RSRRs using hierarchical logistic regression models. In brief, the approach simultaneously models data at the patient and hospital levels to account for variance in patient outcomes within and between hospitals (Normand et al., 2007). At the patient level, it models the log-odds of hospital readmission within 30 days of discharge using age, selected clinical covariates, and a hospital-specific effect. At the hospital level, the approach models the hospital-specific effects as arising from a normal distribution. The hospital effect represents the underlying risk of a readmission at the hospital, after accounting for patient risk. The hospital-specific effects are given a distribution to account for the clustering (non-independence) of patients within the same hospital (Normand et al., 2007). If there were no differences among hospitals, then after adjusting for patient risk, the hospital effects should be identical across all hospitals.

Admissions are assigned to one of five mutually exclusive specialty cohort groups consisting of related conditions or procedures. For each specialty cohort group, the SRR is calculated as the ratio of the number of “predicted” readmissions to the number of “expected” readmissions at a given hospital. For each hospital, the numerator of the ratio is the number of readmissions within 30 days, predicted based on the hospital’s performance with its observed case mix and service mix, and the denominator is the number of readmissions expected based on the nation’s performance with that hospital’s case mix and service mix. This approach is analogous to a ratio of “observed” to “expected” used in other types of statistical analyses. It conceptually allows a particular hospital’s performance, given its case mix and service mix, to be compared to an average hospital’s performance with the same case mix and service mix. Thus, a lower ratio indicates lower-than-expected readmission rates or better quality, while a higher ratio indicates higher-than-expected readmission rates or worse quality.

For each specialty cohort, the “predicted” number of readmissions (the numerator) is calculated by using the coefficients estimated by regressing the risk factors and the hospital-specific effect on the risk of readmission. The estimated hospital-specific effect for each cohort is added to the sum of the estimated regression coefficients multiplied by patient characteristics. The results are log-transformed and summed over all patients attributed to a hospital to calculate a predicted value. The “expected” number of readmissions (the denominator) is obtained in the same manner, but a common effect using all hospitals in our sample is added in place of the hospital-specific effect. The results are log-transformed and summed over all patients attributed to a hospital to calculate an expected value. To assess hospital performance for each reporting period, we re-estimate the model coefficients using the data in that period.

The specialty cohort SRRs are then pooled for each hospital using a volume-weighted geometric mean to create a hospital-wide combined SRR. The combined SRR is multiplied by the national observed readmission rate to produce the RSRR. The statistical modeling approach is described fully in the original methodology report (Horwitz et al., 2012).

ACR-specific: The ACR quality measure was adapted from the HWR quality measure. The unit of analysis was changed from the hospital to the ACO. This was possible because both the HWR and ACR measures assess readmission performance for a population that clusters patients together (either in hospitals or in ACOs). The goal is to isolate the effects of beneficiary characteristics on the probability that a patient will be readmitted from the effects of being in a specific hospital or ACO. In addition, planned readmissions are excluded for the ACR quality measure in the same way that they are excluded for the HWR measure. The ACR measure is calculated identically to what is described above for the HWR measure.

References:

Horwitz L, Partovian C, Lin Z, et al. Hospital-Wide All-Cause Unplanned Readmission Measure: Final Technical Report. 2012; <https://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1219069855841>  
Normand S-LT, Shahian DM. 2007. Statistical and Clinical Aspects of Hospital Outcomes Profiling. Stat Sci 22(2): 206-226.

**S.15. Sampling** (If measure is based on a sample, provide instructions for obtaining the sample and guidance on minimum sample size.)

IF an instrument-based performance measure (e.g., PRO-PM), identify whether (and how) proxy responses are allowed.

N/A. This measure is not based on a sample.

**S.16. Survey/Patient-reported data** (If measure is based on a survey or instrument, provide instructions for data collection and guidance on minimum response rate.)

Specify calculation of response rates to be reported with performance measure results.

N/A. This measure is not based on a survey or patient-reported data.

**S.17. Data Source** (Check ONLY the sources for which the measure is SPECIFIED AND TESTED).

If other, please describe in S.18.

Claims

**S.18. Data Source or Collection Instrument** (Identify the specific data source/data collection instrument (e.g. name of database, clinical registry, collection instrument, etc., and describe how data are collected.)

IF instrument-based, identify the specific instrument(s) and standard methods, modes, and languages of administration.

Data sources for the Medicare FFS measure:

HWR

1. Medicare Part A claims data for calendar years 2007 and 2008 were combined and then randomly split into two equal subsets (development sample and validation sample). Risk variable selection was done using the development sample, the risk models for each of the five specialty cohorts in the measure were applied to the validation sample and the models' performance was compared. In addition we re-tested the models in Medicare Part A claims data from calendar year 2009 to look for temporal stability in the models' performance. The number of measured entities and index admissions are listed below by specialty cohort.

2. Medicare Enrollment Database (EDB): This database contains Medicare beneficiary demographic, benefit/coverage, and vital status information. This data source was used to obtain information on several inclusion/exclusion indicators such as Medicare status on admission and following discharge from index admission

ACR

1. Medicare Part A claims data for calendar years 2013, 2014, and 2015.

2. Medicare Enrollment Database (EDB).

Reference:

Fleming C., Fisher ES, Chang CH, Bubolz D, Malenda J. Studying outcomes and hospital utilization in the elderly: The advantages of a merged data base for Medicare and Veterans Affairs Hospitals. Medical Care. 1992; 30(5): 377-91.

**S.19. Data Source or Collection Instrument** (available at measure-specific Web page URL identified in S.1 OR in attached appendix at A.1)

Available in attached appendix at A.1

**S.20. Level of Analysis** (Check ONLY the levels of analysis for which the measure is SPECIFIED AND TESTED)

Facility

**S.21. Care Setting** (Check ONLY the settings for which the measure is SPECIFIED AND TESTED)

Inpatient/Hospital, Outpatient Services

If other:

**S.22. COMPOSITE Performance Measure** - Additional Specifications (Use this section as needed for aggregation and weighting rules, or calculation of individual performance measures if not individually endorsed.)

N/A.

**2. Validity – See attached Measure Testing Submission Form**

NQF\_1789\_NQF\_Testing\_Attachment\_052617\_v2.0-636531148699583936-637263622404661555.docx

**2.1 For maintenance of endorsement**

Reliability testing: If testing of reliability of the measure score was not presented in prior submission(s), has reliability testing of the measure score been conducted? If yes, please provide results in the Testing attachment. Please use the most current version of the testing attachment (v7.1). Include information on all testing conducted (prior testing as well as any new testing); use red font to indicate updated testing.

## 2.2 For maintenance of endorsement

*Has additional empirical validity testing of the measure score been conducted? If yes, please provide results in the Testing attachment. Please use the most current version of the testing attachment (v7.1). Include information on all testing conducted (prior testing as well as any new testing); use red font to indicate updated testing.*

## 2.3 For maintenance of endorsement

*Risk adjustment: For outcome, resource use, cost, and some process measures, risk-adjustment that includes social risk factors is not prohibited at present. Please update sections 1.8, 2a2, 2b1,2b4.3 and 2b5 in the Testing attachment and S.140 and S.11 in the online submission form. NOTE: These sections must be updated even if social risk factors are not included in the risk-adjustment strategy. You MUST use the most current version of the Testing Attachment (v7.1) -- older versions of the form will not have all required questions.*

## 3. Feasibility

Extent to which the specifications including measure logic, require data that are readily available or could be captured without undue burden and can be implemented for performance measurement.

### 3a. Byproduct of Care Processes

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

#### 3a.1. Data Elements Generated as Byproduct of Care Processes.

Coded by someone other than person obtaining original information (e.g., DRG, ICD-9 codes on claims)

If other:

### 3b. Electronic Sources

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

**3b.1. To what extent are the specified data elements available electronically in defined fields (i.e., data elements that are needed to compute the performance measure score are in defined, computer-readable fields)** Update this field for **maintenance of endorsement**.

ALL data elements are in defined fields in electronic claims

**3b.2. If ALL the data elements needed to compute the performance measure score are not from electronic sources, specify a credible, near-term path to electronic capture, OR provide a rationale for using other than electronic sources.** For **maintenance of endorsement**, if this measure is not an eMeasure (eCQM), please describe any efforts to develop an eMeasure (eCQM).

**3b.3. If this is an eMeasure, provide a summary of the feasibility assessment in an attached file or make available at a measure-specific URL. Please also complete and attach the NQF Feasibility Score Card.**

Attachment:

### 3c. Data Collection Strategy

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

**3c.1. Required for maintenance of endorsement.** Describe difficulties (as a result of testing and/or operational use of the measure) regarding data collection, availability of data, missing data, timing and frequency of data collection, sampling, patient confidentiality, time and cost of data collection, other feasibility/implementation issues.

**IF instrument-based,** consider implications for both individuals providing data (patients, service recipients, respondents) and those whose performance is being measured.

Administrative data are routinely collected as part of the billing process.

**3c.2. Describe any fees, licensing, or other requirements to use any aspect of the measure as specified (e.g., value/code set, risk model, programming code, algorithm).**

There are no fees associated with the use of this measure.

## 4. Usability and Use

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

### 4a. Accountability and Transparency

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

#### 4.1. Current and Planned Use

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

Specific Plan for Use	Current Use (for current use provide URL)
	<p>Public Reporting</p> <p>Hospital Inpatient Quality Reporting (IQR) Program</p> <p><a href="http://cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/HospitalQualityInits/HospitalRHQDAPU.html">http://cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/HospitalQualityInits/HospitalRHQDAPU.html</a></p> <p>Hospital Inpatient Quality Reporting (IQR) Program</p> <p><a href="http://cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/HospitalQualityInits/HospitalRHQDAPU.html">http://cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/HospitalQualityInits/HospitalRHQDAPU.html</a></p> <p>Payment Program</p> <p>Medicare SSP; Next Generation, and Pioneer ACO Model</p> <p><a href="https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/sharesavingsprogram/index.html">https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/sharesavingsprogram/index.html</a></p>

#### 4a1.1 For each CURRENT use, checked above (update for maintenance of endorsement), provide:

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

HWR

Program Name, Sponsor: Hospital Inpatient Quality Reporting (IQR) Program, Centers for Medicare and Medicaid Services (CMS)

Purpose: The Hospital Inpatient Quality Reporting (Hospital IQR) program was originally mandated by Section 501(b) of the Medicare Prescription Drug, Improvement, and Modernization Act (MMA) of 2003. This section of the MMA authorized CMS to pay hospitals that successfully report designated quality measures a higher annual update to their payment rates. Initially, the MMA provided for a 0.4 percentage point reduction in the annual market basket (the measure of inflation in costs of goods and services used by hospitals in treating Medicare patients) update for hospitals that did not successfully report. The Deficit Reduction Act of 2005 increased that reduction to 2.0 percentage points.

In addition to giving hospitals a financial incentive to report the quality of their services, the hospital reporting program provides

CMS with data to help consumers make more informed decisions about their health care. Some of the hospital quality of care information gathered through the program is available to consumers on the Hospital Compare website at: [www.hospitalcompare.hhs.gov](http://www.hospitalcompare.hhs.gov).

Geographic area and number and percentage of accountable entities and patients included:

The IQR program includes all IPPS non-federal acute care hospitals and Veteran Affairs (VA) hospitals in the United States. The number and percentage of accountable hospitals included in the program, as well as the number of patients included in the measure, varies by reporting year. For 2015 public reporting, the RSRR was reported for 4,772 hospitals across the U.S. The final index cohort includes 6,843,808 admissions.

#### ACR

The following programs and models use the ACO ACR measure, which has been in the Medicare SSP, Pioneer ACO Model, and the Next Generation ACO Model measure set since the Program's inception.

**Medicare SSP:** The Medicare SSP was established by Section 3022 of the Affordable Care Act. The SSP is a key component of the Medicare delivery system reform initiatives included in the Affordable Care Act and is a new approach to the delivery of health care. Through ACOs, the SSP facilitates coordination and cooperation among providers to improve the quality of care for Medicare FFS beneficiaries and lower the growth in Medicare expenditures. Eligible providers, hospitals, and suppliers may participate in the SSP by creating or participating in an ACO. The mean performance rate for SSP ACOs was 14.86 (range: 13.1-17.49) in 2015. As of January 2017, there are 480 SSP ACOs with over 9 million assigned beneficiaries across the 50 states, Puerto Rico, and Washington DC. An ACO may serve patients across multiple regions. ACOs include networks of individual practices, group practices, hospital/professional partnerships, hospitals employing ACO professionals, federally qualified health centers, rural health clinics, and critical access hospitals. An ACO may report multiple of these characteristics.

**Pioneer ACO Model:** The Pioneer ACO Model is designed for health care organizations and providers that are already experienced in coordinating care for patients across care settings. It will allow these provider groups to move more rapidly from a shared savings payment model to a population-based payment model on a track consistent with, but separate from, the Medicare SSP. It is designed to work in coordination with private payers by aligning provider incentives, which will improve quality and health outcomes for patients across the ACO, and achieve cost savings for Medicare, employers, and patients.

The mean performance rate for Pioneer ACOs was 15.41 (range: 13.98-16.71) in 2015. The Pioneer ACO Model began with 32 ACOs in 2012 and concluded December 31, 2016 with 8 ACOs participating. Pioneer ACOs are located across the US.

<https://innovation.cms.gov/initiatives/Pioneer-aco-model/>

**Next Generation ACO Model:** The Next Generation ACO Model is an initiative for ACOs that are experienced in coordinating care for populations of patients. It will allow these provider groups to assume higher levels of financial risk and reward than are available under the current Pioneer Model and SSP. The goal of the Model is to test whether strong financial incentives for ACOs, coupled with tools to support better patient engagement and care management, can improve health outcomes and lower expenditures for Original Medicare fee-for-service (FFS) beneficiaries. <https://innovation.cms.gov/initiatives/Next-Generation-ACO-Model/>

Eighteen ACOs participated in the Next Generation ACO Model for the 2016 performance year, and twenty-eight ACOs are joining the Model for 2017.

ACOs voluntarily participate in the SSP/Pioneer ACO Model/Next Generation ACO Model following an application and CMS approval process. In these ACOs, the ACR measure reflects the RSRR at an ACO-level rather than a hospital level. ACOs vary substantially in composition and typically include multiple types of care delivery entities. For example, some ACOs are networks of group practices, some involve partnerships between ACO professionals and hospitals, and some are hospital-based ACOs. While ACOs may include hospitals as participants, ACOs are not required to have hospitals as participants. For instance, as of January 2017, only 38% of ACOs participating in the SSP involve partnerships between ACO professionals and hospitals.

In the SSP/Pioneer ACO Model/Next Generation ACO Model, the ACR measure is pay for reporting 2 years before phasing into pay for performance. ACOs receive full points for pay for reporting measures when they completely report data to CMS. For the ACR measure, no quality reporting is required by ACOs because CMS uses administrative claims to calculate the measure. The pay for reporting period of 2 performance years gives ACOs the opportunity to become familiar with the measure and understand their performance before CMS begins assessing ACO performance against a measure benchmark. Under pay for performance, ACO

performance is compared to a benchmark that is calculated using all Medicare FFS data. In addition, benchmarks are set for 2 performance years to give ACOs a steady target for improving performance. ACOs may also receive quality improvement points in calculating the ACO Overall Quality Score, if they demonstrate a significant improvement in performance from one year to the next. The ACR measure performance is included in these quality improvement point calculations.

**4a1.2. If not currently publicly reported OR used in at least one other accountability application (e.g., payment program, certification, licensing) what are the reasons?** (e.g., Do policies or actions of the developer/steward or accountable entities restrict access to performance results or impede implementation?)

N/A. This measure is currently publicly reported.

**4a1.3. If not currently publicly reported OR used in at least one other accountability application, provide a credible plan for implementation within the expected timeframes -- any accountability application within 3 years and publicly reported within 6 years of initial endorsement.** (Credible plan includes the specific program, purpose, intended audience, and timeline for implementing the measure within the specified timeframes. A plan for accountability applications addresses mechanisms for data aggregation and reporting.)

N/A. This measure is currently publicly reported.

**4a2.1.1. Describe how performance results, data, and assistance with interpretation have been provided to those being measured or other users during development or implementation.**

**How many and which types of measured entities and/or others were included? If only a sample of measured entities were included, describe the full population and how the sample was selected.**

Original HWR Measure:

For the HWR measure included in the Inpatient Quality Reporting (IQR) Program, the exact number of measured entities (short-term acute care hospitals) varies with each new measurement period. In 2019, 4,673 hospitals were included in measure calculation, and results were publicly reported for 4,481 hospitals (Wallace et al., 2019). These were all U.S. Section D, and critical access hospitals with at least 25 index admissions with an eligible condition or procedure that belonged to one or more of the five specialty cohort between July 2017 and June 2018.

Each hospital receives their measure results in April of each calendar year through CMS's QualityNet website. The results are then publicly reported on CMS's Hospital Compare website in July of each calendar year. Since the measure is risk-standardized using data from all hospitals, hospitals cannot independently calculate their score.

However, CMS provides each hospital with several resources that aid in the interpretation of their results (described in detail below). These include Hospital-Specific Reports (HSRs) with details about every patient from their facility that was included in the measure calculation (for example, dates of admission and discharge, discharge diagnoses, outcome [died or not], transfer status, and facility transferred from). These reports facilitate quality improvement (QI) activities such as review of individual deaths and patterns of deaths; make visible to hospitals post-discharge outcomes that they may otherwise be unaware of; and allow hospitals to look for patterns that may inform QI work (e.g. among patient transferred in from particular facilities).

The HSRs also provide hospitals with more detailed benchmarks with which to gauge their performance relative to peer hospitals and interpret their results, including comorbidity frequencies for their patients relative to other hospitals in their state and the country.

Additionally, the code used to process the claims data and calculate measure results is written in SAS (Cary, NC) and is provided each year to hospitals upon request to make the measure methodology completely transparent.

ACR-Specific Measure:

Each year, beginning with the 2012 performance year, all Medicare SSP ACOs are provided an annual Quality Performance Report, following the conclusion of the performance year. Included on these reports is the ACO's performance on the Risk-Standardized All Condition Readmission measure (ACO-8) and the mean ACO performance rate. In 2018, 18 Next Generation Model ACOs received reports (NORC at the University of Chicago, 2018).

We've provided additional education to ACOs on how the data is collected, how the measure is calculated, and the interpretation of the results. Annually, we review the measure with ACOs in our webinar series focused on educating ACOs on the SSP quality measures. During the webinars, we respond to stakeholder questions about the quality measure. In addition, we've developed a quick reference guide, which outlines, among other things, how the measure is calculated and how to interpret the results. SSP ACOs receive a raw readmission rate in quarterly reports and ACOs receive CCLF data monthly on all the patients they see to help them identify and redesign care for patients with readmissions.

Wallace Lori, Grady J, Djordjevic Darinka, et al. 2019 All-Cause Hospital Wide Measure Updates and Specifications Report.

<https://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1219069855841>

NORC at the University of Chicago. 2018. First Annual Report. Next Generation (NG) Accountable Care Organization (ACO) Model

Evaluation. <https://innovation.cms.gov/Files/reports/nextgenaco-firstannrpt.pdf>

**4a2.1.2. Describe the process(es) involved, including when/how often results were provided, what data were provided, what educational/explanatory efforts were made, etc.**

In April of each year, hospitals have access to the following list of updated resources related to the measure which is provided directly or posted publicly for hospitals to use:

1. Hospital-Specific Reports (HSR): available for hospitals to download from QualityNet in April of each calendar year; includes information on all index admissions included in the measure calculation for each facility, detailed measure results, and state and national results.
2. HSR User Guide: available with the HSR and posted on QualityNet; provides instructions for interpreting the results and descriptions of each data field in the HSR.
3. Mock HSR: posted on QualityNet; provides real national results and simulated state and hospital results for stakeholders who do not receive an HSR.
4. Inpatient Quality Reporting (IQR) Preview Reports and Preview Report Help Guide: available for hospitals to download from QualityNet in April of each calendar year; includes measure results that will be publicly reported on Hospital Compare.
5. Measure Updates and Specification Reports: posted in April of each calendar year on QualityNet with detailed measure specifications, descriptions of changes made to the measure specifications with rationale and impact analysis when appropriate, updated risk variable frequencies and coefficients for the national cohort, and updated national results for the new measurement period.
6. Frequently asked Questions (FAQs): includes general and measure-specific questions and responses, as well as infographics that explain complex components of the measure's methodology, and are posted in April of each calendar year on QualityNet.
7. The SAS code used to calculate the measure with documentation describing what data files are used and how the SAS code works. This code and documentation is updated each year and are released upon request beginning in July of each year.
8. Measure Fact Sheets: provides a brief overview of measures, measure updates, and are posted in April of each calendar year on QualityNet.

In July of each year, the publicly-reported measure results are posted on Hospital Compare, a tool to find hospitals and compare their quality of care that CMS created in collaboration with organizations representing consumers, hospitals, doctors, employers, accrediting organizations, and other federal agencies. Measure results are updated in July of each calendar year.

**4a2.2.1. Summarize the feedback on measure performance and implementation from the measured entities and others described in 4d.1.**

**Describe how feedback was obtained.**

**Questions and Answers (Q&A)**

The measured entities (acute care hospitals) and other stakeholders or interested parties submit questions or comments about the measure through an email inbox (CMSmortalitymeasures@yale.edu). Experts on measure specifications, calculation, or implementation prepare responses to those inquiries and reply directly to the sender. We consider issues raised through the Q&A process about measure specifications or measure calculation in measure reevaluation.

**Literature Reviews**

In addition, we continually scan the literature for scholarly articles describing research related to this measure. We summarize new information obtained through these reviews every three years as a part of comprehensive reevaluation as mandated by the Measure Management System (MMS) Blueprint.

**4a2.2.2. Summarize the feedback obtained from those being measured.**

For the HWR measure, we have received the following inquiries from hospitals since the completion of measure maintenance in October 2018:

1. Requests for detailed measure specifications including Condition Categories (CC)-to-ICD-9 code crosswalks and CCS-to-ICD-9 and ICD-10 codes used to define the measure cohort or in the risk-adjustment model;
2. Queries about measure calculation and how each variable in the equation is obtained;
3. Request for information regarding measure methodology including Planned Readmission Algorithm;
4. Requests for the SAS code and measure calculation package used to calculate measure results;
5. Inquiries about risk-adjustment methodology and what codes are used in the risk adjustment model;
6. Queries about the inclusion and exclusion criteria;
7. Questions about what is considered an outcome and determining the beginning of the outcome timeframe;
8. Questions about how transfers and multiple readmissions are handled in the measure calculation; and
9. Inquiries about percentile statistics and benchmarks for readmission.

**4a2.2.3. Summarize the feedback obtained from other users**

For the HWR measure, we have received the following feedback from other stakeholders since the completion of measure maintenance in October 2018:

1. Requests for detailed measure specifications including CCS-to-ICD-9 code crosswalks and CC-to-ICD-9 and ICD-10 codes used to define the measure cohort or in the risk-adjustment model;
2. Request for the SAS code, measure calculation package, and CCs and CCS formats used for measure calculation;
3. Queries about measure specifications and where they are located;
4. Queries about the interpretation of measure results provided in the HSRs;
5. Questions about what is considered an outcome and how it is defined;
6. Questions about the inclusion and exclusion criteria and how they are applied;
7. Questions about measure calculation and risk adjustment methodology;
8. Inquiries about national readmission rates and where readmission rates can be found;
9. Queries about what is considered a transfer and how they are handled in the measure; and
10. Request for detailed explanation of the PRA and the codes included in the algorithm.

**4a2.3. Describe how the feedback described in 4a2.2.1 has been considered when developing or revising the measure specifications or implementation, including whether the measure was modified and why or why not.**

Each year issues raised through the Q&A or in the literature related to this measure are considered by measure and clinical experts. Any issues that warrant additional analytic work due to potential changes in the measure specifications are addressed as a part of annual measure reevaluation. If small changes are indicated after additional analytic work is complete, those changes are usually incorporated into the measure in the next measurement period. If the changes are substantial, CMS may propose the changes through rulemaking and adopt the changes only after CMS received public comment on the changes and finalizes those changes in the Inpatient prospective payment system (IPPS) or other rule. There were no questions or issues raised by stakeholders requiring additional analysis or changes to the measure since the completion of endorsement maintenance in 2016. There have been no changes, beyond annual updates to ICD-CM codes and the Hierarchical Condition Categories and adoption of the measure at the ACO-level, made to the measure since the completion of endorsement maintenance in 2016.

**Improvement**

Progress toward achieving the goal of high-quality, efficient healthcare for individuals or populations is demonstrated. If not in use for performance improvement at the time of initial endorsement, then a credible rationale describes how the performance results could be used to further the goal of high-quality, efficient healthcare for individuals or populations.

**4b1. Refer to data provided in 1b but do not repeat here. Discuss any progress on improvement (trends in performance results, number and percentage of people receiving high-quality healthcare; Geographic area and number and percentage of accountable entities and patients included.)**

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

N/A

**4b2. Unintended Consequences**

The benefits of the performance measure in facilitating progress toward achieving high-quality, efficient healthcare for individuals or populations outweigh evidence of unintended negative consequences to individuals or populations (if such evidence exists).

**4b2.1. Please explain any unexpected findings (positive or negative) during implementation of this measure including unintended impacts on patients.**

We did not identify any unexpected findings during the implementation of HWR measure. However, we are committed to monitoring this measure's use and assessing potential unintended consequences over time, such as the inappropriate shifting of care, increased patient morbidity and mortality, and other negative unintended consequences for patients.

Likewise, we did not identify any unexpected findings during the implementation of the ACR measure.

**4b2.2. Please explain any unexpected benefits from implementation of this measure.**

## 5. Comparison to Related or Competing Measures

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

### 5. Relation to Other NQF-endorsed Measures

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

Yes

#### 5.1a. List of related or competing measures (selected from NQF-endorsed measures)

0329 : Risk-Adjusted 30-Day All-Cause Readmission Rate

0330 : Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following heart failure (HF) 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

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

1551 : Hospital-level 30-day risk-standardized readmission rate (RSRR) following elective primary total hip arthroplasty (THA) and/or total knee arthroplasty (TKA)

1768 : Plan All-Cause Readmissions (PCR)

1891 : Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following chronic obstructive pulmonary disease (COPD) hospitalization

#### 5.1b. If related or competing measures are not NQF endorsed please indicate measure title and steward.

### 5a. Harmonization of Related Measures

The measure specifications are harmonized with related measures;

OR

The differences in specifications are justified

#### 5a.1. If this measure conceptually addresses EITHER the same measure focus OR the same target population as NQF-endorsed measure(s):

Are the measure specifications harmonized to the extent possible?

No

#### 5a.2. If the measure specifications are not completely harmonized, identify the differences, rationale, and impact on interpretability and data collection burden.

This measure and the National Committee for Quality Assurance (NCQA) Plan All-Cause Readmissions (PCR) Measure #1768 are related measures, but are not competing because they don't have the same measure focus and same target population. In addition, both have been previously harmonized to the extent possible under the guidance of the National Quality Forum Steering Committee in 2011. Each of these measures has different specifications. NCQA's Measure #1768 counts the number of inpatient stays for patients aged 18 and older during a measurement year that were followed by an acute readmission for any diagnosis to any hospital within 30 days. It contrasts this count with a calculation of the predicted probability of an acute readmission. NCQA's measure is intended for quality monitoring and accountability at the health plan level. This measure estimates the risk-standardized rate of unplanned, all-cause readmissions to a hospital or ACO for any eligible condition within 30 days of hospital discharge for patients aged 18 and older. The measure will result in a single summary risk-adjusted readmission rate for conditions or procedures that fall under five specialties: surgery/gynecology, general medicine, cardiorespiratory, cardiovascular, and neurology. This measure is specified for evaluating hospital or ACO performance. However, despite these differences in cohort specifications, both measures under NQF guidance have been harmonized to the extent possible through modifications such as exclusion of planned readmissions. 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. 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).

#### 5b. Competing Measures

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

**OR**

Multiple measures are justified.

**5b.1. If this measure conceptually addresses both the same measure focus and the same target population as NQF-endorsed measure(s):**

**Describe why this measure is superior to competing measures (e.g., a more valid or efficient way to measure quality); OR provide a rationale for the additive value of endorsing an additional measure. (Provide analyses when possible.)**

N/A

## Appendix

**A.1 Supplemental materials may be provided in an appendix.** All supplemental materials (such as data collection instrument or methodology reports) should be organized in one file with a table of contents or bookmarks. If material pertains to a specific submission form number, that should be indicated. Requested information should be provided in the submission form and required attachments. There is no guarantee that supplemental materials will be reviewed.

**Attachment** [Attachment: 2015\\_Measures\\_Reevaluation\\_Hospital-Wide\\_Readmission\\_AUS\\_Report\\_FINAL\\_508\\_Compliant\\_01-29-16\\_v1.0-637263622405286611.pdf](#)

## Contact Information

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

**Co.2 Point of Contact:** Helen, Dollar-Maples, [Helen.Dollar-Maples@cms.hhs.gov](mailto:Helen.Dollar-Maples@cms.hhs.gov), 410-786-7214-

**Co.3 Measure Developer if different from Measure Steward:** Yale New Haven Health Services Corporation/Center for Outcomes Research and Evaluation (YNHHSC/CORE)

**Co.4 Point of Contact:** Karen, Dorsey, [karen.dorsey@yale.edu](mailto:karen.dorsey@yale.edu), 203-764-5700-

## Additional Information

**Ad.1 Workgroup/Expert Panel involved in measure development**

**Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.**

The working group involved in the initial measure development is detailed in the original technical report available at [www.qualitynet.org](http://www.qualitynet.org).

Our measure development team consisted of the following members:

Leora Horwitz, MD, MHS

Chohreh Partovian, MD, PhD

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Jeph Herrin, PhD

Jacqueline Grady, MS

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Harlan Krumholz, MD, SM

Elizabeth Drye, MD, SM

**Measure Developer/Steward Updates and Ongoing Maintenance**

**Ad.2 Year the measure was first released:** 2009

<b>Ad.3 Month and Year of most recent revision:</b> 01, 2016 <b>Ad.4 What is your frequency for review/update of this measure?</b> Annual <b>Ad.5 When is the next scheduled review/update for this measure?</b> 05, 2017
<b>Ad.6 Copyright statement:</b> N/A <b>Ad.7 Disclaimers:</b> N/A
<b>Ad.8 Additional Information/Comments:</b> N/A