

# Patient Experience and Function, Fall 2018 Cycle: CDP Report

TECHNICAL REPORT

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**NATIONAL  
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# Patient Experience and Function, Fall 2018 Cycle

## TECHNICAL REPORT

### Executive Summary

Patient Experience and Function is a National Quality Forum (NQF) measure topic area encompassing patient function and experience of care as they relate to health-related quality of life and many factors that influence it, including communication, care coordination, transitions of care, and use of health information technology.

During the fall 2018 review cycle, the Standing Committee evaluated five new measures against NQF's standard evaluation criteria. The Committee recommended all five measures for endorsement, and the Consensus Standards Approval Committee (CSAC) upheld the Committee's recommendations. The endorsed measures are:

- 3455 Timely Follow-Up After Acute Exacerbations of Chronic Conditions
- 3477 Discharge to Community-Post Acute Care Measure for Home Health Agencies
- 3479 Discharge to Community-Post Acute Care Measure for Inpatient Rehabilitation Facilities (IRF)
- 3481 Discharge to Community-Post Acute Care Measure for Skilled Nursing Facilities (SNF)
- 3480 Discharge to Community-Post Acute Care Measure for Long-Term Care Hospitals (LTCH)

The body of this report briefly summarizes the measures currently under review; [Appendix A](#) provides detailed summaries of the Committee's discussion and ratings of the criteria for each measure.

## Introduction

The Centers for Medicare and Medicaid Services (CMS) Meaningful Measures Initiative includes the identification of measures that are patient-centered and meaningful to patients, clinicians, and providers—one of seven principles for focusing our healthcare quality improvement efforts as a country. Ensuring that each person and family is engaged within a care partnership is critical to achieving better patient outcomes. Over the past decade, there have been efforts to change the healthcare paradigm from one that identifies persons as passive recipients of care to one that empowers individuals to participate actively in their care. Healthcare treatments can be tailored to individual patients in terms of patient preferences and individual clinical factors when the patient voice is captured as part of routine care.

Care coordination is also a fundamental component for the success of this integrated approach, providing a multidimensional framework that spans the continuum of care and ensures quality care, better patient experiences, and more meaningful outcomes. Well-coordinated care encompasses effective communication between patients, caregivers, and providers, and facilitates linkages between communities and healthcare systems. It also ensures that accountable structures and processes are in place for communication and integration of comprehensive plans of care across providers and settings that align with patient and family preferences and goals.

In order to view the value of healthcare through a person-centered lens of priority, patients and family members must be engaged throughout the care process through centralized care coordination planning. Patient- and family-engaged care is a key component in the delivery of high-quality care that aims to improve health outcomes, achieve better patient and family experiences, and lower costs. Patient- and family-engaged care is planned, delivered, managed, and continually improved in active partnership with patients and their families (or care partners as defined by the patient) to ensure integration of their health and healthcare goals, preferences, and values.<sup>1</sup> As such, effective engaged care must adapt readily to individual and family circumstances, as well as differing cultures, languages, disabilities, health literacy levels, and socioeconomic backgrounds.<sup>2</sup>

Poorly coordinated and fragmented care not only compromises the quality of care patients receive, but may also lead to negative, unintended consequences, including medication errors and preventable hospital admissions.<sup>3</sup> For patients living with multiple chronic conditions—including more than two-thirds of Medicare beneficiaries—poor care transitions between different providers can contribute to poor outcomes and hospitalizations.<sup>4</sup> Nearly 15 percent of Medicare beneficiaries discharged from the hospital are readmitted within 30 days, with half of the patients not having yet seen an outpatient doctor for follow-up, and most of these readmissions occur through the emergency department (ED).<sup>5,6</sup> The coordination of care is essential to reduce preventable hospitalizations, improve patient experiences and outcomes, and lower costs in today's healthcare system. Delivery of coordinated care necessarily brings together disparate sectors of the health and healthcare system. Research indicates that improved care coordination can reduce admissions, readmissions, and emergency department visits, and may also reduce costs.<sup>7,8,9</sup>

The existing evidence suggests that care today in the U.S. is largely uncoordinated, even though evidence also suggests that quality improvement strategies within care can improve performance.<sup>10</sup> Care coordination is positively associated with patient- and family-reported receipt of family-centered care, resulting in greater satisfaction with services, lower financial burden, and fewer emergency department visits.<sup>11</sup> A variety of tools and approaches, when leveraged, can promote effective communication, increase coordination of care, and improve patient experience and engagement. Electronic health records (EHRs) and interoperable health information can ensure that current and useful information follows the patient and is available across every setting and at each health interaction, which in turn reduces unnecessary and costly duplication of patient services. Patient education and the reconciliation of medication lists can also reduce costs by decreasing the number of serious medication events.<sup>12</sup> Shared decision making has been shown to promote better outcomes for patients and to support patients in choosing less costly, more effective interventions.<sup>13,14</sup> Innovative care models such as Patient-Centered Medical Homes (PCMH), which invest in care coordination infrastructure, have led to sustained decreases in the number of ED and primary care visits, as well as increased screening for some types of cancer.<sup>15</sup>

## NQF Portfolio of Performance Measures for Patient Experience and Function

The Patient Experience and Function Standing Committee ([Appendix C](#)) oversees NQF’s portfolio of Patient Experience and Function (PEF) measures ([Appendix B](#)) that includes measures of functional status, communication, shared decision making, care coordination, patient experience, and long-term services and supports. This portfolio contains 53 measures: three process measures, one composite measure, and 49 outcome measures, of which 28 are PRO performance measures (see table below).

**Table 1. NQF Patient Experience and Function Portfolio of Measures**

	Process	Outcome/Patient-Reported Outcome	Composite
<b>Functional status change and assessment</b>	1	24	–
<b>Shared decision making</b>	–	2	–
<b>Care coordination</b>	2	5	–
<b>Patient experience</b>	–	14	1
<b>Long-term services and supports</b>	–	4	–
<b>Total</b>	3	49	1

Additional measures related to PEF are assigned to other projects, including Cost and Efficiency (i.e., emergency department timing measures), Patient Safety (i.e., medication reconciliation measures), and Geriatric and Palliative Care (i.e., home health measures, advance care plan measures, and family experience with hospice and end-of-life care measures).

## Patient Experience and Function Measure Evaluation

On February 11, 13, and 15, 2019, the Patient Experience and Function Standing Committee evaluated five new measures against [NQF's standard evaluation criteria](#).

**Table 2. Patient Experience and Function Measure Evaluation Summary**

	Maintenance	New	Total
Measures under consideration	0	5	5
Measures endorsed	0	5	5

### Comments Received Prior to Committee Evaluation

NQF solicits comments on endorsed measures on an ongoing basis through the [Quality Positioning System \(QPS\)](#). In addition, NQF solicits comments for a continuous 16-week period during each evaluation cycle via an online tool located on the project webpage. For this evaluation cycle, the commenting period opened on December 5, 2018 and closed on April 16, 2019. No comments were submitted prior to the measure evaluation meeting.

### Comments Received After Committee Evaluation

The continuous 16-week public commenting period with NQF member support closed on April 16, 2019. Following the Committee's evaluation of the measures under consideration, NQF received eight comments from two organizations (both member organizations) pertaining to the draft report and to the measures under consideration. All comments for each measure under consideration have been summarized in [Appendix A](#).

Throughout the 16-week continuous public commenting period, NQF members had the opportunity to express their support ("support" or "do not support") for each measure submitted for endorsement consideration to inform the Committee's recommendations. Two NQF members expressed their nonsupport. One NQF member did not support 3477; two NQF members did not support 3479; and one did not support 3480. No members expressed support or lack of support for 3481.

### Overarching Issues

During the Standing Committee's discussion of the measures, two overarching issues emerged that were factored into the Committee's ratings and recommendations for multiple measures and are not repeated in detail with each individual measure.

#### *Evidence to Support Discharge to Community*

The Committee was interested in a good synthesis of evidence surrounding discharge to the community. The measure developer noted a dearth of literature to support setting-specific interventions related to the outcome of each of the measures. The Committee agreed that, for outcomes measures, the developer was not required to show processes that result in the outcome, only that there are sufficient performance gaps between providers. The Committee was satisfied with the measure developer's

reference to NQF criteria associated with demonstration of a between-provider performance gap as sufficient to meet evidence requirements for outcomes measures.

### *Complexity of Numerators and Denominators*

The majority of the measures that the Committee discussed had very complicated numerator and denominator statements. The technical components of the measures struck the Committee as not only challenging from an implementation standpoint, but potentially confusing to consumers who may encounter the measures on one of CMS' "Compare" websites. The measure developer noted that the measures are presented on the "Compare" websites using language that was designed to be consumer friendly. The Committee pointed out that this language was also above a desirable literacy level for the average consumer, a point that the measure developer agreed to address.

### Summary of Measure Evaluation

The following brief summaries of the measure evaluation highlight the major issues that the Committee considered. Details of the Committee's discussion and ratings of the criteria for each measure are included in [Appendix A](#).

#### *Follow-Up Care Measure*

##### **3455 Timely Follow-Up After Acute Exacerbations of Chronic Conditions (IMPAQ International): Endorsed**

**Description:** The percentage of issuer-product-level acute events requiring either an emergency department (ED) visit or hospitalization for one of the following 6 chronic conditions: hypertension, asthma, heart failure (HF), coronary artery disease (CAD) chronic obstructive pulmonary disease (COPD), or diabetes mellitus (Type I or Type II), where follow-up was received within the timeframe recommended by clinical practice guidelines in a non-emergency outpatient setting; **Measure Type:** Process; **Level of Analysis:** Health Plan, Other; **Setting of Care:** Emergency Department and Services, Inpatient/Hospital; **Data Source:** Claims

This new process measure assesses the percentage of acute events requiring either an emergency department visit or hospitalization for one of six chronic conditions. The Committee initiated the discussion around evidence by examining the rationale of appropriateness of the roll-up of the conditions and considered whether the measure may be better as six individual measures specific to each of the six chronic conditions. The Committee expressed concern that there may not be strong evidence to combine the conditions under one measure, though this was counterbalanced by the Committee's view that the conditions under discussion are the most prominent amongst health plan populations. The Committee expressed concern that the evidence for some of the conditions—namely acute exacerbation of hypertension and diabetes—did not have strong accompanying literature examining outcomes associated with follow-up in the post-acute period, despite strong recommendations within clinical practice guidelines. The Committee viewed the evidence as insufficient, but gave an exception to the evidence requirement given the strong recommendation of the guideline, the accompanying evidence of positive outcomes in other conditions, and the sense that accountability on this measure would lead health plans to take a more active hand in patient care coordination.

The Committee viewed the performance gap as significant. The discussion around reliability focused on the score-level difference in reliability for Medicare Advantage health plans and qualified health plans on the commercial exchanges. The Committee determined that the high reliability in the Medicare Advantage sample was sufficient, and that the lower reliability of the qualified health plans was an artifact of the low sample size that the measure developer had available for analysis. The Committee viewed the validity testing as appropriate and accepted the measure developer's rationale for not risk adjusting the measure. The Committee agreed that the measure is feasible to implement. On use and usability, the Committee noted that the measure would provide health plans with a holistic view of the within-network performance of their providers for patients with multiple chronic conditions. The Standing Committee recommended the measure for NQF endorsement.

### *Discharge to Community Measures*

#### **3477 Discharge to Community-Post Acute Care Measure for Home Health Agencies (Centers for Medicare & Medicaid Services – Discharge to Community Post-Acute Care): Endorsed**

**Description:** The Discharge to Community-Post Acute Care Measure for Home Health Agencies (DTC-PAC HHA) measure was developed to address the resource use and other measures domain of Discharge to the Community, a domain mandated by the Improving Medicare Post-Acute Care Transformation Act of 2014 (IMPACT Act). The measure was developed using calendar year 2012-2013 data. This Medicare claims-based outcome measure assesses successful discharge to community from an HHA, with successful discharge to community including no unplanned hospitalization and no death in the 31 days following discharge. Specifically, this measure reports an HHA's risk-standardized rate of Medicare fee-for-service (FFS) patients who are discharged to the community following an HHA stay, and do not have an unplanned admission to an acute care hospital or long-term care hospital (LTCH) in the 31 days following discharge to community, and who remain alive during the 31 days following discharge to community. The measure is based on Medicare FFS claims data and is calculated using two consecutive years of data. This measure submission is based on CY 2015-2016 data; i.e., HHA discharges from January 1, 2015 through December 31, 2016. The measure was adopted by the Centers for Medicare & Medicaid Services (CMS) for the HH Quality Reporting Program finalized in the Calendar Year (CY) 2017 HH Quality Reporting Program (QRP) Final Rule and implementation began October 2016. Confidential feedback reports on measure performance were distributed to HH providers in early 2018. The measure will be publicly reported on the Home Health Compare website (<https://www.medicare.gov/homehealthcompare>) in January 2019 using CY 2016-2017 data. Four claims-based discharge to community measures were developed for IRF, LTCH, skilled nursing facility, and home health agency settings, respectively to meet the mandate of the IMPACT Act. These measures were conceptualized uniformly across the four settings, in terms of the definition of the discharge to community outcome, the approach to risk adjustment, and the measure calculation; **Measure Type:** Outcome; **Level of Analysis:** Facility; **Setting of Care:** Post-Acute Care; **Data Source:** Claims, Enrollment Data, Other

NQF 3477 is a new outcome measure, one of a set of four submitted during this project's review cycle that assesses successful discharge to the community from a home health agency (HHA). Successful discharge requires no unplanned hospitalizations or deaths in the 31 days following discharge. During their discussion, the Committee agreed that for consumers, discharge to the community is very



important, and it is critical to assess these discharge rates. This measure would allow consumers to evaluate the efficacy of different home health agencies. However, Committee members noted that the measure is extremely complex and did note concerns that it would be hard for consumers to understand. The developer stated that a plain language version is available on the “Compare” websites. The Committee agreed there is a performance gap. The Scientific Methods Panel reviewed this outcome measure for Reliability and Validity. While the Methods Panel noted that the data element level testing was insufficient, the measure passed because score level testing was provided. The Committee had some concerns about the lack of risk adjustment for dual eligible status; the developer explained it was a CMS policy decision not to include dual eligibles, but that will be examined in the future as the data become available.

During the Feasibility discussion, the Committee again requested more refinements of the plain language version of the measure, but ultimately agreed that the measure met this criterion. There is a plan to use the measure; the Committee noted the long lead time before results are available (two years, to allow small facilities to collect enough data) but otherwise had no major concerns on the usability. The Standing Committee recommended the measure for NQF endorsement. Two comments were received on this measure, raising concerns that the risk-adjustment models for the measures were not adequately tested and that people with dual eligible status were not included in the risk model due to a CMS policy decision, rather than empiric evidence. The developer conducted some additional analyses in response to the comments that showed no difference in outcomes when the measure was stratified, and the Committee agreed that these analyses addressed the concerns raised.

#### **3479 Discharge to Community – Post Acute Care Measure for Inpatient Rehabilitation Facilities (Centers for Medicare & Medicaid Services): Endorsed**

**Description:** The Discharge to Community-Post Acute Care Measure for Inpatient Rehabilitation Facilities (DTC-PAC IRF) was developed to address the resource use and other measures domain of Discharge to the Community mandated by the Improving Medicare Post-Acute Care Transformation Act of 2014 (IMPACT Act). This outcome measure assesses successful discharge to community from an IRF, with successful discharge to community including no unplanned rehospitalizations and no death in the 31 days following IRF discharge. The measure reports an IRF’s risk-standardized rate of Medicare fee-for-service (FFS) patients who are discharged to the community following an IRF stay, and do not have an unplanned readmission to an acute care hospital or long-term care hospital (LTCH) in the 31 days following discharge to community, and who remain alive during the 31 days following discharge to community. The measure is calculated using two consecutive years of Medicare FFS claims data and was developed using calendar year (CY) 2012-2013 data. This submission is based on fiscal year (FY) 2016-2017 data; i.e., IRF discharges from October 1, 2015 through September 30, 2017. The measure was adopted by the Centers for Medicare & Medicaid Services (CMS) for the IRF Quality Reporting Program (QRP) finalized in the FY 2017 IRF Prospective Payment System (PPS) Final Rule and implementation began October 1, 2016 [1]. Confidential feedback reports on measure performance were distributed to IRF providers in Fall 2017. The measure will be publicly reported on the IRF Compare website (<https://www.medicare.gov/inpatientrehabilitationfacilitycompare/>) in fall 2018 using FY 2016-2017 data. Four claims-based discharge to community measures were developed for IRF, LTCH, skilled nursing facility, and home health agency settings to meet the mandate of the IMPACT Act. These measures were

conceptualized uniformly across the four settings, in terms of the definition of the discharge to community outcome, the approach to risk-adjustment, and the measure calculation; **Measure Type:** Outcome; **Level of Analysis:** Facility; **Setting of Care:** Post-Acute Care; **Data Source:** Assessment Data, Claims, Management Data

NQF 3479 is a new outcome measure, part of a set that assesses successful discharge to the community from an inpatient rehabilitation facility (IRF). The discussion began by noting the similarities of this measure and measure 3477, although for this measure patients are discharged to home health or self-care. Committee members noted the need to ensure that discharged patients are doing well and do not have worsening conditions. The Committee had some questions about unplanned readmissions for patients who should not go back to the community due to a need for more care, and the developer explained that the goal of the measure is to ensure that sites of care are working to enable patients to be in the community. Committee members agreed there was a moderate performance gap for this measure. The Committee agreed to carry the vote on Reliability from the previous measure, as the testing was the same. For Validity, they had some questions on risk adjustment and concerns regarding patient case mixes (especially wanting to ensure that facilities are not incentivized to take the least compromised patients), but the measure ultimately passed validity. The Committee agreed to carry over the votes for Feasibility, Use, and Usability from measure 3477 since the issues are the same. The Standing Committee recommended the measure for NQF endorsement. Two comments were received on this measure, raising concerns that the risk-adjustment models for the measures were not adequately tested and that people with dual eligible status were not included in the risk model due to a CMS policy decision, rather than empiric evidence. The developer conducted some additional analyses in response to the comments that showed no difference in outcomes when the measure was stratified, and the Committee agreed that these analyses addressed the concerns raised.

#### **3480 Discharge to Community – Post Acute Care Measure for Long-Term Care Hospitals (Centers for Medicare & Medicaid Services): Endorsed**

**Description:** The Discharge to Community-Post Acute Care Measure for Long-Term Care Hospitals (DTC-PAC LTCH) was developed to address the resource use and other measures domain of Discharge to the Community mandated by the Improving Medicare Post-Acute Care Transformation Act of 2014 (IMPACT Act). This outcome measure assesses successful discharge to community from an LTCH, with successful discharge to community including no unplanned rehospitalizations and no death in the 31 days following LTCH discharge. The measure reports an LTCH's risk-standardized rate of Medicare fee-for-service (FFS) patients who are discharged to the community following an LTCH stay, and do not have an unplanned readmission to an acute care hospital or long-term care hospital (LTCH) in the 31 days following discharge to community, and who remain alive during the 31 days following discharge to community. The measure is calculated using two consecutive years of Medicare FFS claims data and was developed using calendar year (CY) 2012-2013 data. This submission is based on fiscal year (FY) 2016-2017 data; i.e., LTCH discharges from October 1, 2015 through September 30, 2017. The measure was adopted by the Centers for Medicare & Medicaid Services (CMS) for the LTCH Quality Reporting Program (QRP) finalized in the FY 2017 Inpatient Prospective Payment System (IPPS)/LTCH PPS Final Rule and implementation began October 1, 2016 [1]. Confidential feedback reports on measure performance were distributed to LTCH providers in Fall 2017. The measure will be publicly reported on the LTCH

Compare website (<https://www.medicare.gov/longtermcarehospitalcompare/>) in Fall 2018 using FY 2016-2017 data. Four claims-based discharge to community measures were developed for LTCH, inpatient rehabilitation facility, skilled nursing facility, and home health agency settings to meet the mandate of the IMPACT Act. These measures were conceptualized uniformly across the four settings, in terms of the definition of the discharge to community outcome, the approach to risk-adjustment, and the measure calculation; **Measure Type:** Outcome; **Level of Analysis:** Facility; **Setting of Care:** Post-Acute Care; **Data Source:** Assessment Data, Claims, Management Data

NQF 3480 is a new outcome measure, part of a set that assesses successful discharge to the community from a long-term care facility (LTAC). Many of the Committee's comments on this measure resembled those for the previous two measures, but Committee members noted that the literature on LTACs is quite limited. The Committee did not reach consensus on the evidence criteria during the measure evaluation period. They did agree that a performance gap in care exists for this area. For reliability and validity, the Committee had no new concerns and agreed to accept the votes from the Methods Panel, and the measure passed this criterion.

The measure is being implemented under the IMPACT Act, and the Committee agreed that it is very feasible and voted to pass it on the use criterion. For usability, they again acknowledged the challenges with the two-year delay in results, meaning the measure cannot be used for quality improvement purposes within a facility, but the Committee asserted that the measure is good for payment and public reporting. However, the Committee noted that little evidence indicates that the measure has any impact on the way consumers make choices about their care. The measure ultimately passed usability.

At the post-comment call, the Committee discussed the evidence base for the measure again. While the Committee agrees that empirical evidence for this measure is limited, there are clear differences in care and a substantial performance gap. The Committee voted to pass evidence and recommended the measure for endorsement. Two comments were received on this measure, raising concerns that the risk-adjustment models for the measures were not adequately tested and that people with dual eligible status were not included in the risk model due to a CMS policy decision, rather than empiric evidence. The developer conducted some additional analyses in response to the comments that showed no difference in outcomes when the measure was stratified, and the Committee agreed that these analyses addressed the concerns raised.

### **3481 Discharge to Community – Post Acute Care Measure for Skilled Nursing Facilities (Centers for Medicare & Medicaid Services): Endorsed**

**Description:** The Discharge to Community-Post Acute Care Measure for Skilled Nursing Facilities (DTC-PAC SNF) was developed to address the resource use and other measures domain of Discharge to the Community mandated by the Improving Medicare Post-Acute Care Transformation Act of 2014 (IMPACT Act). This outcome measure assesses successful discharge to community from a SNF, with successful discharge to community including no unplanned rehospitalizations and no death in the 31 days following SNF discharge. The measure reports a SNF's risk-standardized rate of Medicare fee-for-service (FFS) residents who are discharged to the community following a SNF stay, and do not have an unplanned readmission to an acute care hospital or long-term care hospital (LTCH) in the 31 days following discharge to community, and who remain alive during the 31 days following discharge to community.

The measure is calculated using one year of Medicare FFS claims data and was developed using calendar year (CY) 2013 data. This submission is based on fiscal year (FY) 2017 data; i.e., SNF admissions from October 1, 2016 through September 30, 2017. The measure was adopted by the Centers for Medicare & Medicaid Services (CMS) for the SNF Quality Reporting Program (QRP) finalized in the FY 2017 SNF Prospective Payment System (PPS) Final Rule and implementation began October 1, 2016. Confidential feedback reports on measure performance were distributed to SNF providers in Fall 2017. The measure will be publicly reported on the SNF Compare website (<https://www.medicare.gov/nursinghomecompare/search.html>) in fall 2018 using FY 2017 data. Four claims-based discharge to community measures were developed for SNF, LTCH, inpatient rehabilitation facility, and home health agency settings to meet the mandate of the IMPACT Act. These measures were conceptualized uniformly across the four settings, in terms of the definition of the discharge to community outcome, the approach to risk adjustment, and the measure calculation; **Measure Type:** Outcome; **Level of Analysis:** Facility; **Setting of Care:** Skilled Nursing Facilities; **Data Source:** Assessment Data, Claims, Management Data

NQF 3481, the final measure in this new set of outcome measures, assesses discharge to the community from a skilled nursing facility (SNF). The Committee had no major concerns on the evidence for this measure that had not been raised during discussion of the three preceding measures. They noted a significant performance gap in care and opportunity for improvement. They also noted the high rates of variability between outcomes at different LTACs. Committee members were unsure if consumers use or know what to do with this type of information but agreed it could help improve how people choose their care. They cautioned that the success of discharge rates from SNFs is impacted by the availability of home and community-based services in a given community; however, it is still important for consumers to know how facilities are doing on rehab. The Committee agreed to accept the Methods Panel's votes on reliability and validity.

There were no new issues raised for feasibility. The measure is in use in Nursing Home Compare. Similar issues for usability were raised, with Committee members noting that the measure may not currently be affecting healthcare decisions, but over time it may become more important. They again flagged the need for a true plain-language version of the measure to ensure consumers can understand it. The Standing Committee recommended the measure for NQF endorsement. Two comments were received on this measure, raising concerns that the risk-adjustment models for the measures were not adequately tested and that people with dual eligible status were not included in the risk model due to a CMS policy decision, rather than empiric evidence. The developer conducted some additional analyses in response to the comments that showed no difference in outcomes when the measure was stratified, and the Committee agreed that these analyses addressed the concerns raised.

## Measures Withdrawn from Consideration

Two measures previously endorsed by NQF have not been re-submitted for maintenance of endorsement. Endorsement for these measures has been removed.

**Table 3. Measures Withdrawn from Consideration**

<b>Measure</b>	<b>Reason for withdrawal</b>
0429 Change in Basic Mobility as Measured by the AM-PAC	Developer chose not to re-submit the measure for maintenance of endorsement.
0430 Change in Daily Activity Function as Measured by the AM-PAC	Developer chose not to re-submit the measure for maintenance of endorsement.

## References

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<sup>15</sup> Rosenthal MB, Alidina S, Friedberg MW, et al. A difference-in-difference analysis of changes in quality, utilization and cost following the Colorado multi-payer patient-centered medical home pilot. *J of Gen Intern Med*. 2016;31(3):289-296.

## Appendix A: Details of Measure Evaluation

**Rating Scale:** H=High; M=Moderate; L=Low; I=Insufficient; NA=Not Applicable

### Endorsed Measures

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#### 3455 Timely Follow-Up After Acute Exacerbations of Chronic Conditions

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

**Description:** The percentage of issuer-product-level acute events requiring either an emergency department (ED) visit or hospitalization for one of the following 6 chronic conditions: hypertension, asthma, heart failure (HF), coronary artery disease (CAD), chronic obstructive pulmonary disease (COPD), or diabetes mellitus (Type I or Type II), where follow-up was received within the timeframe recommended by clinical practice guidelines in a non-emergency outpatient setting.

**Numerator Statement:** The numerator is the sum of the issuer-product-level denominator events (Emergency Room [ED], observation hospital stay or inpatient hospital stay) for acute exacerbation of hypertension, asthma, heart failure (HF), coronary artery disease (CAD), chronic obstructive pulmonary disease (COPD), or diabetes where follow-up was received within the timeframe recommended by clinical practice guidelines, as detailed below:

- Hypertension: Within 7 days of the date of discharge
- Asthma: Within 14 days of the date of discharge
- HF: Within 14 days of the date of discharge
- CAD: Within 14 days of the date of discharge
- COPD: Within 30 days of the date of discharge
- Diabetes: Within 30 days of the date of discharge

**Denominator Statement:** The denominator is the sum of the plan-product-level acute exacerbations that require either an ED visit, observation stay, or inpatient stay (i.e., acute events) for any of the six conditions listed above (hypertension, asthma, HF, CAD, COPD, or diabetes).

**Exclusions:** The measure excludes events with:

1. Subsequent acute events that occur two days after the prior discharge, but still during the follow-up interval of the prior event for the same reason. To prevent double-counting, only the first acute event will be included in the denominator.
2. Acute events after which the patient does not have continuous enrollment for 30 days in the same product.
3. Acute events where the discharge status of the last claim is not “to community” (“Left against medical advice” is not a discharge to community.)
4. Acute events for which the calendar year ends before the follow-up window ends (e.g., acute asthma events ending fewer than 14 days before December 31)
5. Acute events where the patient enters a skilled nursing facility (SNF), non-acute care, or hospice care within the follow-up interval

**Adjustment/Stratification:** N/A

**Level of Analysis:** Health Plan, Other

**Setting of Care:** Emergency Department and Services, Inpatient/Hospital



**Type of Measure:** Process

**Data Source:** Claims

**Measure Steward:** IMPAQ International

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## **STANDING COMMITTEE MEETING [2/15/2019]**

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

(1a. Evidence, 1b. Performance Gap)

1a. Evidence: **H-0; M-1; L-2; I-11**; Evidence Exception: **Y-13; N-1**

1b. Performance Gap: **H-8; M-6; L-0; I-0**

#### Rationale:

- The Committee initiated discussion around evidence by examining the rationale of appropriateness of the roll up of the conditions and considered whether the measure may be better suited as six individual measures specific to each of the six chronic conditions.
- The Committee expressed concern that there may not be strong evidence to combine the conditions under one measure, though this was counterbalanced by the Committee's view that the conditions under discussion are the most prominent amongst health plan populations.
- The Committee expressed concern that the evidence for some of the conditions—namely acute exacerbation of hypertension and diabetes—did not have strong accompanying literature examining outcomes associated with follow-up in the post-acute period, despite strong recommendations within clinical practice guidelines.
- The evidence for two of the six conditions was not considered sufficient by the Committee. In the Committee's view, this implied that the entire measure would necessarily have insufficient evidence as a rollup of six conditions.
- The Committee voted to grant an exception to Evidence based on general consensus that the practice guideline recommendations for follow-up post-acute exacerbation were strong,
- The Committee viewed the evidence as insufficient but voted to grant an exception to the Evidence requirement given the strong recommendation of the guideline; the accompanying evidence of positive outcomes in other conditions, suggesting that comparable conditions produce good outcomes if best practices related to follow up are implemented; and the sense that accountability on this measure would lead health plans to take a more active hand in patient care coordination.
- The Committee viewed the performance gap to be significant.

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### **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-0; M-12; L-1; I-1**; 2b. Validity: **H-0; M-13; L-0; I-1**

#### Rationale:

- The discussion around reliability focused on the score-level difference in reliability for Medicare Advantage health plans and qualified health plans on the commercial exchanges. The Committee determined that the high reliability in the Medicare Advantage sample was sufficient, and that the lower reliability of the qualified health plans was an artifact of the low sample size that the measure developer had available for analysis.

- The Committee viewed the validity testing as appropriate and accepted the measure developer's rationale as to why the measure was not risk adjusted.

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### **3. Feasibility: H-5; M-8; 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 agreed the measure is feasible to implement.

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### **4. Use and Usability**

*4a. Use; 4a1. Accountability and transparency; 4a2. Feedback on the measure by those being measured and others; 4b. Usability; 4b1. Improvement; 4b2. The benefits to patients outweigh evidence of unintended negative consequences to patients)*

4a. Use: **Pass-12; No Pass-2** 4b. Usability: **H-2; M-11; L-1; I-0**

#### Rationale:

- On use and usability, the Committee noted that the measure would provide health plans with a holistic view of the within-network performance of their providers for patients with multiple chronic conditions.

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

- This measure is related to, but not competing with, three NQF endorsed measures:
  - 0229: Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following heart failure (HF) hospitalization
  - 1789: Hospital-Wide All-Cause Unplanned Readmission Measure (HWR)
  - 1891: Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following chronic obstructive pulmonary disease (COPD) hospitalization

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### **6. Standing Committee Recommendation for Endorsement: Y-12; N-2 (2/15/19)**

#### Rationale

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### **7. Public and Member Comment**

No comments were received for this measure.

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### **8. Consensus Standards Approval Committee (CSAC) Vote: Y-14; N-0 (6/5/2019)**

Decision: Approved for endorsement

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### **9. Appeals**

No appeals received.

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## 3477 Discharge to Community-Post Acute Care Measure for Home Health Agencies

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

**Description:** The Discharge to Community-Post Acute Care Measure for Home Health Agencies (DTC-PAC HHA) measure was developed to address the resource use and other measures domain of Discharge to the Community, a domain mandated by the Improving Medicare Post-Acute Care Transformation Act of 2014 (IMPACT Act). The measure was developed using calendar year 2012-2013 data.

This Medicare claims-based outcome measure assesses successful discharge to community from an HHA, with successful discharge to community including no unplanned hospitalizations and no death in the 31 days following discharge. Specifically, this measure reports an HHA's risk-standardized rate of Medicare fee-for-service (FFS) patients who are discharged to the community following an HHA stay, and do not have an unplanned admission to an acute care hospital or long-term care hospital (LTCH) in the 31 days following discharge to community, and who remain alive during the 31 days following discharge to community. The measure is based on Medicare FFS claims data and is calculated using two consecutive years of data. This measure submission is based on CY 2015-2016 data; i.e., HHA discharges from January 1, 2015 through December 31, 2016.

The measure was adopted by the Centers for Medicare & Medicaid Services (CMS) for the HH Quality Reporting Program finalized in the Calendar Year (CY) 2017 HH Quality Reporting Program (QRP) Final Rule and implementation began October 2016. Confidential feedback reports on measure performance were distributed to HH providers in early 2018. The measure will be publicly reported on the Home Health Compare website (<https://www.medicare.gov/homehealthcompare>) in January 2019 using CY 2016-2017 data. Four claims-based discharge to community measures were developed for IRF, LTCH, skilled nursing facility, and home health agency settings, respectively to meet the mandate of the IMPACT Act. These measures were conceptualized uniformly across the four settings, in terms of the definition of the discharge to community outcome, the approach to risk adjustment, and the measure calculation.

**Numerator Statement:** The measure does not have a simple form for the numerator and denominator—that is, the risk-adjustment method does not make the observed number of community discharges the numerator, and a predicted number the denominator.

The measure numerator is the risk-adjusted predicted estimate of the number of patients who are discharged to the community, do not have an unplanned readmission to an acute care hospital or LTCH in the 31-day post-discharge observation window, and who remain alive during the post-discharge observation window.

This estimate starts with the observed number of discharges to community, defined as

- (i) discharges to home or self-care based on Patient Discharge Status Codes 01, 81, the Medicare FFS claim [1]; and
- (ii) no unplanned acute or LTCH hospitalizations in the 31-day post-discharge window; and
- (iii) no death in the 31-day post-discharge window.

Discharges to community are risk-adjusted for patient characteristics and a statistical estimate of the facility effect beyond case-mix (described below).

The numerator uses a model estimated on full national data specific to the PAC setting; it is applied to the HHA's patient stays included in the measure and includes the estimated effect of that HHA. The prediction equation is based on a logistic regression model with a two-level hierarchical structure.

The patient stays in the model have an indicator of the HHA they are discharged from; the effect of the HHA is measured as a positive or negative shift in the intercept term of the equation. The HHA 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.

The risk adjustment logistic model is re-estimated for every measurement period and model coefficients corresponding to the measurement period are used for measure calculation. Results of the hierarchical logistic regression model presented in this submission are based FY 2016-2017 data.

**Denominator Statement:** The target population for the measure is the group of Medicare HH FFS beneficiaries who are discharged from an HHA during the measure time window and are not excluded based on the measure exclusion criteria (see S.8. and S.9.).

The measure denominator is the risk-adjusted expected number of discharges to community. This estimate includes risk adjustment for patient characteristics with the facility effect removed. The “expected” number of discharges to community is the predicted number of risk-adjusted discharges to community if the same patients were treated at the average facility. The hierarchical logistic regression model used to calculate the denominator is developed using all non-excluded facility stays in the national data.

**Exclusions:** Measure exclusion criteria are based on administrative data from Medicare claims and eligibility files. Exclusion criteria were selected to maintain clinical validity of the measure by excluding stays for which discharge to community would not be appropriate, to ensure data availability and completeness, to exclude stays with problematic claims data, and to maintain relevance to the HH Quality Reporting Program (e.g., excluding HHAs not included in the HHA QRP based on regional location). Stays ending in transfers to the same level of care (i.e., HHA-to-HHA discharge) are excluded, because the HHA episode of care had not ended. We also excluded certain discharge status codes on the HHA FFS claim that indicated that the patient was not appropriate for community discharge (e.g., discharges against medical advice).

Measure exclusion criteria are as follows:

- Age under 18 years;
- Discharges to a psychiatric hospital;
- Discharges against medical advice;
- Discharges to disaster alternative care site or a federal hospital;
- Discharges to court/law enforcement;
- Discharges to hospice or patient stays with a hospice benefit in the 31-day post-discharge window;
- Stays for patients without continuous Parts A and B FFS Medicare enrollment during the 12 months prior to the HHA admission date and the 31 days after the HHA discharge;
- HHA stays preceded by a short-term acute care or psychiatric stay for non-surgical treatment of cancer;
- Stays ending in transfer to a HHA; and
- Stays with problematic claims data (e.g. anomalous records for stays that overlap wholly or in part, or are otherwise erroneous or contradictory).
- Medicare Part A benefits exhausted

**Adjustment/Stratification:** Statistical risk model/ N/A

**Level of Analysis:** Facility

**Setting of Care:** Post-Acute Care

**Type of Measure:** Outcome

**Data Source:** Claims, Enrollment Data, Other

**Measure Steward:** CMS - DCPAC

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## **STANDING COMMITTEE MEETING [2/11/2019]**

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

(1a. Evidence, 1b. Performance Gap)

1a. Evidence: **Y-12; N-2**; 1b. Performance Gap: **H-10; M-6; L-0; I-0**

#### Rationale:

- During their discussion, the Committee agreed that for consumers, discharge to the community is very important, and it is critical to measure these discharge rates. This measure would allow consumers to evaluate the efficacy of different home health agencies. The evidence specifically for home health agencies is based on relatively small studies, but the Committee agreed there are processes that agencies can do to impact patient outcomes. For this measure, since home health is the lowest acuity of post-acute care, discharge means patients need no further care.
  - However, Committee members noted that the measure is extremely complex and noted concerns that it would be hard for consumers to understand. The developer stated that a plain language version is available on “Compare” websites.
  - The Committee agreed there is a gap with an opportunity for improvement, and that were demonstrated disparities in care.
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### **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-11; L-0; I-1**; 2b. Validity: **H-3; M-12; L-1; I-0**

#### Rationale:

- This is a complex measure that was reviewed for Reliability and Validity by the Methods Panel.
  - While the Methods Panel noted that the data element level testing was insufficient, the measure passed because score level testing was provided. In addition, face validity was also provided.
  - The Committee agreed the reliability testing results were acceptable.
  - The Committee had some concerns about the lack of risk adjustment for dual eligible status; the developer explained it was a CMS policy decision not to include dual eligibles, but that will be examined in the future as the data become available. The developer also noted that after they submitted the measure, they did some additional analyses and found a strong correlation for adjusted and non-adjusted scores.
  - Committee members expressed an interest in seeing further information on risk adjustment for this measure in the future.
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### **3. Feasibility:** **H-14; 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:

- During the Feasibility discussion, the Committee noted the data are already being collected and agreed that the measure met this criterion.

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#### 4. Use and Usability

*4a. Use; 4a1. Accountability and transparency; 4a2. Feedback on the measure by those being measured and others; 4b. Usability; 4b1. Improvement; 4b2. The benefits to patients outweigh evidence of unintended negative consequences to patients)*

4a. Use: **Pass-15; No Pass-1** 4b. Usability: **H-1; M-10; L-5; I-0**

##### Rationale:

- The measure is in use in Home Health Compare.
- The Committee noted the long lead time before results are available (two years, to allow small facilities to collect enough data) but otherwise had no major concerns on the usability.

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#### 5. Related and Competing Measures

- No related or competing measures noted.

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#### 6. Standing Committee Recommendation for Endorsement: Y-16; N-0 (2/11/19)

##### Rationale

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#### 7. Public and Member Comment

NQF received two comments on this measure during the post-measure evaluation meeting commenting period. Both comments expressed that the measure should not be endorsed due to concerns over the lack of inclusion of dual eligible status in the risk-adjustment model. Commenters believed that the measure did not adequately test or adjust for social risk factors and were concerned about what was included or excluded in the measure, both due to a CMS policy having nothing to do with empiric evidence.

**Developer Response:** CMS, RTI International and Abt Associates Inc. thank the American Medical Association (AMA) and Federation of American Hospitals (FHA) for their comments. In addition to policy considerations impacting our approach, we conducted an extensive and thoughtful empirical assessment of the need for social risk factor adjustment. We first assessed the impact of dual status adjustment on provider scores. We found that dual-adjusted and non-dual-adjusted DTC scores were very strongly associated in all post-acute care (PAC) settings, both for providers with low and high proportions of dual eligible beneficiaries with full Medicaid benefit (full-dual). The strong association between dual-adjusted and non-dual-adjusted scores demonstrates that the measure provides reliable and valid assessment of provider performance without adjustment for dual status. We will continue to monitor outcomes of dually eligible beneficiaries and those with other social risk factors as part of measure monitoring and evaluation and will assess the need for social risk factor adjustment in the future.

### Committee Response:

The Committee discussed the set of comments during their post-comment call. At the request of the Committee, the developer provided a high-level review of their response. The Committee notes that the developer did stratify the measure and did not find a difference in outcomes; the correlations were high and the interclass correlation coefficients (ICCs) were in the correct range. During the discussion, the developer clarified that they had not included this analysis in the original submissions as it was conducted in response to the comments received during the comment period.

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## 8. Consensus Standards Approval Committee (CSAC) Vote: Y-14; N-0 (6/5/2019)

Decision: Approved for endorsement

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## 9. Appeals

No appeals received.

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## 3479 Discharge to Community-Post Acute Care Measure for Inpatient Rehabilitation Facilities (IRF)

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

**Description:** The Discharge to Community-Post Acute Care Measure for Inpatient Rehabilitation Facilities (DTC-PAC IRF) was developed to address the resource use and other measures domain of Discharge to the Community mandated by the Improving Medicare Post-Acute Care Transformation Act of 2014 (IMPACT Act). This outcome measure assesses successful discharge to community from an IRF, with successful discharge to community including no unplanned rehospitalizations and no death in the 31 days following IRF discharge. The measure reports an IRF's risk-standardized rate of Medicare fee-for-service (FFS) patients who are discharged to the community following an IRF stay, and do not have an unplanned readmission to an acute care hospital or long-term care hospital (LTCH) in the 31 days following discharge to community, and who remain alive during the 31 days following discharge to community. The measure is calculated using two consecutive years of Medicare FFS claims data and was developed using calendar year (CY) 2012-2013 data. This submission is based on fiscal year (FY) 2016-2017 data; i.e., IRF discharges from October 1, 2015 through September 30, 2017.

The measure was adopted by the Centers for Medicare & Medicaid Services (CMS) for the IRF Quality Reporting Program (QRP) finalized in the FY 2017 IRF Prospective Payment System (PPS) Final Rule and implementation began October 1, 2016 [1]. Confidential feedback reports on measure performance were distributed to IRF providers in Fall 2017. The measure will be publicly reported on the IRF Compare website (<https://www.medicare.gov/inpatientrehabilitationfacilitycompare/>) in Fall 2018 using FY 2016-2017 data. Four claims-based discharge to community measures were developed for IRF, LTCH, skilled nursing facility, and home health agency settings to meet the mandate of the IMPACT Act. These measures were conceptualized uniformly across the four settings, in terms of the definition of the discharge to community outcome, the approach to risk-adjustment, and the measure calculation.

References



[1] Medicare Program; Inpatient Rehabilitation Facility Prospective Payment System for Federal Fiscal Year 2017 Federal Register, Vol. 81, No. 151. <https://www.gpo.gov/fdsys/pkg/FR-2016-08-05/pdf/2016-18196.pdf>

**Numerator Statement:** The measure numerator is the risk-adjusted predicted estimate of the number of patients who are discharged to the community, and do not have an unplanned readmission to an acute care hospital or LTCH in the 31-day post-discharge observation window, and who remain alive during the post-discharge observation window.

This estimate starts with the observed number of discharges to community, defined as:

- (i) discharges to home or self care with or without home health services, based on Patient Discharge Status Codes 01, 06, 81, or 86 on the Medicare FFS claim [2]; and
- (ii) no unplanned acute or LTCH hospitalizations in the 31-day post-discharge window; and
- (iii) no death in the 31-day post-discharge window.

The discharge to community outcome is risk-adjusted for patient characteristics and a statistical estimate of the facility effect beyond case-mix (described below).

#### References

[2] National Uniform Billing Committee Official UB-04 Data Specifications Manual 2018, Version 12, July 2017, Copyright 2017, American Hospital Association.

**Denominator Statement:** The target population for the measure is the group of Medicare FFS beneficiaries who are discharged from an IRF during the measurement period and are not excluded based on the measure exclusion criteria (see S.8. and S.9.).

The measure denominator is the risk-adjusted expected number of discharges to community. This estimate includes risk-adjustment for patient characteristics with the facility effect removed. The “expected” number of discharges to community is the predicted number of risk-adjusted discharges to community if the same patients were treated at the average facility. The logistic regression model used to calculate the denominator is developed using all non-excluded facility stays in the national data. The denominator is computed in the same way as the numerator, but the facility effect is set at the average.

**Exclusions:** Measure exclusion criteria are based on administrative data from Medicare claims and eligibility files. Exclusion criteria were selected to maintain clinical validity of the measure by excluding stays for which discharge to community would not be appropriate, to ensure data availability and completeness, to exclude stays with problematic claims data, and to maintain relevance to the IRF QRP (e.g., excluding IRFs not included in the IRF QRP based on regional location). Only IRF stays that are preceded by a short-term acute care stay in the 30 days prior to the IRF admission date are included in the measure; this is because risk-adjustment variables come from the short-term acute care stay in the 30 days prior to IRF admission. Stays ending in transfers to the same level of care (i.e., IRF-to-IRF discharge) are excluded, because the IRF episode of care had not ended. We also excluded certain discharge status codes on the IRF FFS claim that indicated that the patient was not appropriate for community discharge (e.g., discharges against medical advice). See section S.9 for detailed rationale and data sources for each exclusion.

Measure exclusion criteria are as follows:

- Age under 18 years;
- No short-term acute care hospital discharge within the thirty days preceding an IRF admission;
- Discharges to a psychiatric hospital;
- Discharges against medical advice;
- Discharges to disaster alternative care site or a federal hospital;



- Discharges to court/law enforcement;
- Discharges to hospice or patient stays with a hospice benefit in the 31-day post-discharge window;
- Planned discharges to an acute or LTCH setting;
- Stays for patients without continuous Part A FFS Medicare enrollment during the 12 months prior to the IRF admission date and the 31 days after the IRF discharge;
- IRF stays preceded by a short-term acute care stay for non-surgical treatment of cancer;
- Stays ending in transfer to an IRF;
- Stays with problematic claims data (e.g. anomalous records for stays that overlap wholly or in part or are otherwise erroneous or contradictory; claims not paid);
- Exhaustion of Medicare Part A benefit during the IRF stay; and
- IRF stays in facilities outside of the United States, Puerto Rico, or another U.S. territory.

**Adjustment/Stratification:** Statistical risk model/ N/A

**Level of Analysis:** Facility

**Setting of Care:** Post-Acute Care

**Type of Measure:** Outcome

**Data Source:** Assessment Data, Claims, Management Data

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

## **STANDING COMMITTEE MEETING [2/13/2019]**

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

(1a. Evidence, 1b. Performance Gap)

1a. Evidence: **Y-11; N-5**; 1b. Performance Gap: **H-3; M-8; L-0; I-5**

#### Rationale:

- The discussion began by noting the similarities of this measure and measure 3477, although for this measure patients are discharged to home health or self-care. The developer clarified in response to a question from the Committee that nursing home facilities are not considered a community setting.
- Committee members noted the need to ensure that discharged patients are doing well and not having worsening conditions.
- The Committee had some questions about unplanned readmissions for patients who should not go back to the community due to a need for more care, and the developer explained that the goal of the measure is to ensure that sites of care are working to enable patients to be in the community and that they are doing well there.
- Committee members agreed that like 3477, this is an important measure to consumers.
- Committee members agreed there was a moderate gap for 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-4; M-11; L-0; I-1**; 2b. Validity: **H-2; M-14; L-0; I-1**

Rationale:

- The Committee agreed to carry the vote on Reliability from the previous measure (3477) as the testing was the same.
  - For Validity, they had some questions on the inclusion of social risk factors in the risk adjustment model; the developer responded that they were continuing to work on the model.
  - Committee members also raised concerns regarding patient case mixes and functional status, especially wanting to ensure that facilities are not incentivized to take the least compromised patients and asking how to compare facilities that focus on knee rehabilitation versus those focusing on brain and spinal injuries. The developer explained that they had done extensive work to standardize a set of data for functional status to allow comparisons. They continue to review the data quarterly to refine the models. The developer also noted the measures are not intended to compare providers across settings (home health agencies to LTACs) but to compare different facilities within a setting (IRF to IRF).
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**3. Feasibility: H-14; 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:

- The Committee agreed to carry the votes for Feasibility from measure 3477 since the issues are the same.
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**4. Use and Usability**

*4a. Use; 4a1. Accountability and transparency; 4a2. Feedback on the measure by those being measured and others; 4b. Usability; 4b1. Improvement; 4b2. The benefits to patients outweigh evidence of unintended negative consequences to patients)*

4a. Use: **Pass-15; No Pass-1** 4b. Usability: **H-1; M-10; L-5; I-0**

Rationale:

- The Committee agreed to carry the votes for Use and Usability from measure 3477 since the issues are the same.
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**5. Related and Competing Measures**

- No related or competing measures noted.
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**6. Standing Committee Recommendation for Endorsement: Y-13; N-4 (2/13/19)**

Rationale

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**7. Public and Member Comment**

NQF received two comments on this measure during the post-measure evaluation meeting commenting period. Both comments expressed that the measure should not be endorsed due to concerns over the lack of inclusion of dual eligible status in the risk-adjustment model. Commenters believed that the measure did not adequately test or adjust for social risk factors and were concerned about what was

included or excluded in the measure, both due to a CMS policy having nothing to do with empiric evidence.

**Developer Response:** CMS, RTI International and Abt Associates Inc. thank the AMA and FAH for their comments. In addition to policy considerations impacting our approach, we conducted an extensive and thoughtful empirical assessment of the need for social risk factor adjustment. We first assessed the impact of dual status adjustment on provider scores. We found that dual-adjusted and non-dual-adjusted DTC scores were very strongly associated in all post-acute care (PAC) settings, both for providers with low and high proportions of dual eligible beneficiaries with full Medicaid benefit (full-dual). The strong association between dual-adjusted and non-dual-adjusted scores demonstrates that the measure provides reliable and valid assessment of provider performance without adjustment for dual status. We will continue to monitor outcomes of dually eligible beneficiaries and those with other social risk factors as part of measure monitoring and evaluation and will assess the need for social risk factor adjustment in the future.

**Committee Response:**

The Committee discussed the set of comments during their post-comment call. At the request of the Committee, the developer provided a high-level review of their response. The Committee notes that the developer did stratify the measure and did not find a difference in outcomes; the correlations were high and the ICCs were in the correct range. During the discussion, the developer clarified that they had not included this analysis in the original submissions as it was conducted in response to the comments received during the comment period.

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**8. Consensus Standards Approval Committee (CSAC) Vote: Y-14; N-0 (6/5/2019)**

Decision: Approved for endorsement

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**9. Appeals**

No appeals received.

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**3480 Discharge to Community-Post Acute Care Measure for Long-Term Care Hospitals (LTCH)**

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

**Description:** The Discharge to Community-Post Acute Care Measure for Long-Term Care Hospitals (DTC-PAC LTCH) was developed to address the resource use and other measures domain of Discharge to the Community mandated by the Improving Medicare Post-Acute Care Transformation Act of 2014 (IMPACT Act). This outcome measure assesses successful discharge to community from an LTCH, with successful discharge to community including no unplanned rehospitalizations and no death in the 31 days following LTCH discharge. The measure reports an LTCH's risk-standardized rate of Medicare fee-for-service (FFS) patients who are discharged to the community following an LTCH stay, and do not have an unplanned readmission to an acute care hospital or long-term care hospital (LTCH) in the 31 days following discharge to community, and who remain alive during the 31 days following discharge to community. The measure is calculated using two consecutive years of Medicare FFS claims data and was developed

using calendar year (CY) 2012-2013 data. This submission is based on fiscal year (FY) 2016-2017 data; i.e., LTCH discharges from October 1, 2015 through September 30, 2017.

The measure was adopted by the Centers for Medicare & Medicaid Services (CMS) for the LTCH Quality Reporting Program (QRP) finalized in the FY 2017 Inpatient Prospective Payment System (IPPS)/LTCH PPS Final Rule and implementation began October 1, 2016 [1]. Confidential feedback reports on measure performance were distributed to LTCH providers in Fall 2017. The measure will be publicly reported on the LTCH Compare website (<https://www.medicare.gov/longtermcarehospitalcompare/>) in Fall 2018 using FY 2016-2017 data. Four claims-based discharge to community measures were developed for LTCH, inpatient rehabilitation facility, skilled nursing facility, and home health agency settings to meet the mandate of the IMPACT Act. These measures were conceptualized uniformly across the four settings, in terms of the definition of the discharge to community outcome, the approach to risk-adjustment, and the measure calculation.

#### References

[1] Medicare Program; Hospital Inpatient Prospective Payment Systems for Acute Care Hospitals and the Long-Term Care Hospital Prospective Payment System and Policy Changes and Fiscal Year 2017 Rates; Quality Reporting Requirements for Specific Providers; Graduate Medical Education; Hospital Notification Procedures Applicable to Beneficiaries Receiving Observation Services; Technical Changes Relating to Costs to Organizations and Medicare Cost Reports; Finalization of Interim Final Rules With Comment Period on LTCH PPS Payments for Severe Wounds, Modifications of Limitations on Redesignation by the Medicare Geographic Classification Review Board, and Extensions of Payments to MDHs and Low-Volume Hospitals, Vol. 81, No. 162. <https://www.gpo.gov/fdsys/pkg/FR-2016-08-22/pdf/2016-18476.pdf>

**Numerator Statement:** The measure numerator is the risk-adjusted predicted estimate of the number of patients who are discharged to the community, and do not have an unplanned readmission to an acute care hospital or LTCH in the 31-day post-discharge observation window, and who remain alive during the post-discharge observation window.

This estimate starts with the observed number of discharges to community, defined as:

- (i) discharges to home or self care with or without home health services, based on Patient Discharge Status Codes 01, 06, 81, or 86 on the Medicare FFS claim [2]; and
- (ii) no unplanned acute or LTCH hospitalizations in the 31-day post-discharge window; and
- (iii) no death in the 31-day post-discharge window.

The discharge to community outcome is risk-adjusted for patient characteristics and a statistical estimate of the facility effect beyond case-mix (described below).

#### References

[2] National Uniform Billing Committee Official UB-04 Data Specifications Manual 2018, Version 12, July 2017, Copyright 2017, American Hospital Association.

**Denominator Statement:** The target population for the measure is the group of Medicare FFS beneficiaries who are discharged from an LTCH during the measurement period and are not excluded based on the measure exclusion criteria (see S.8. and S.9.).

The measure denominator is the risk-adjusted expected number of discharges to community. This estimate includes risk-adjustment for patient characteristics with the facility effect removed. The “expected” number of discharges to community is the predicted number of risk-adjusted discharges to community if the same patients were treated at the average facility. The logistic regression model used to calculate the denominator is developed using all non-excluded facility stays in the national data. The denominator is computed in the same way as the numerator, but the facility effect is set at the average.

**Exclusions:** Measure exclusion criteria are based on administrative data from Medicare claims and eligibility files. Exclusion criteria were selected to maintain clinical validity of the measure by excluding stays for which discharge to community would not be appropriate, to ensure data availability and completeness, to exclude stays with problematic claims data, and to maintain relevance to the LTCH QRP (e.g., excluding LTCHs not included in the LTCH QRP based on regional location). Only LTCH stays that are preceded by a short-term acute care stay in the 30 days prior to the LTCH admission date are included in the measure; this is because risk-adjustment variables come from the short-term acute care stay in the 30 days prior to LTCH admission. Stays ending in transfers to the same level of care (i.e., LTCH-to-LTCH discharge) are excluded, because the LTCH episode of care had not ended. We also excluded certain discharge status codes on the LTCH FFS claim that indicated that the patient was not appropriate for community discharge (e.g., discharges against medical advice). See section S.9 for detailed rationale and data sources for each exclusion.

Measure exclusion criteria are as follows:

- Age under 18 years;
- No short-term acute care hospital discharge within the thirty days preceding an LTCH admission;
- Discharges to a psychiatric hospital;
- Discharges against medical advice;
- Discharges to disaster alternative care site or a federal hospital;
- Discharges to court/law enforcement;
- Discharges to hospice or patient stays with a hospice benefit in the 31-day post-discharge window;
- Planned discharges to an acute or LTCH setting;
- Stays for patients without continuous Part A FFS Medicare enrollment during the 12 months prior to the LTCH admission date and the 31 days after the LTCH discharge;
- LTCH stays preceded by a short-term acute care stay for non-surgical treatment of cancer;
- Stays ending in transfer to an LTCH;
- Stays with problematic claims data (e.g. anomalous records for stays that overlap wholly or in part or are otherwise erroneous or contradictory, claims not paid);
- Exhaustion of Medicare Part A benefit during the LTCH stay; and
- LTCH stays in facilities outside of the United States, Puerto Rico, or another U.S. territory.

**Adjustment/Stratification:** Statistical risk model/ N/A

**Level of Analysis:** Facility

**Setting of Care:** Post-Acute Care

**Type of Measure:** Outcome

**Data Source:** Assessment Data, Claims, Management Data

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

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## STANDING COMMITTEE MEETING [2/13/2019]

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

(1a. Evidence, 1b. Performance Gap)

1a. Evidence: **Y-12; N-2**; 1b. Performance Gap: **H-4; M-9; L-0; I-4**

#### Rationale:

- Many of the Committee’s comments on this measure resembled those for the previous two measures, but Committee members noted that the literature on LTACs is quite limited and there are only 400 LTACs in the United States. Committee members noted that people with better functional status are more likely to go home, but that we also know therapy makes a difference in discharge rates.
- The Committee noted that for patients, it is extraordinarily important to know the rate of discharge to home and community-based settings from an LTAC, because this population is severely compromised and there is a large variability in the outcomes between different facilities.
- The Committee did not reach consensus on the evidence criteria during the initial evaluation period due to the limited evidence available in the field. While Committee members noted that studies done in post-acute care situations do provide data that can be extrapolated to this setting, the actual evidence for this specific setting is limited, due in part to the small number of LTACs. They did agree there is a gap in care and disparities for this area.
- During the post-comment call, the Committee discussed the evidence base for the measure again. While the Committee agrees empirical evidence for this measure is limited, there are clear differences in care and a substantial performance gap. From a patient perspective there is a strong relationship between the outcome and a structure, process, intervention, or service provided by healthcare providers. Discharge to the community is a key measure of how successfully a rehabilitation plan of care is designed and executed in any post-acute care setting. The entire goal of rehabilitation is to return the patient to his or her previous level of health, function and independent living to the maximum extent possible. The discharge to community measure is an accurate surrogate for this process. The Committee also agrees the four measures assess a continuum of post-acute care and the measures are best kept together. Ultimately the Committee agreed this measure met the evidence criteria and voted to recommend the measure for endorsement.

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## **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-11; L-0; I-1**; 2b. Validity: **H-2; M-14; L-0; I-1**

#### Rationale:

- For reliability and validity, the Committee had no new concerns and agreed with the passing recommendation from the Methods Panel.

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## **3. Feasibility: H-9; M-5; 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 measure is being implemented under the IMPACT Act, and the Committee agreed it is very feasible.

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## **4. Use and Usability**

*4a. Use; 4a1. Accountability and transparency; 4a2. Feedback on the measure by those being measured and others; 4b. Usability; 4b1. Improvement; 4b2. The benefits to patients outweigh evidence of unintended negative consequences to patients)*

4a. Use: **Pass-13; No Pass-1** 4b. Usability: **H-1; M-8; L-3; I-2**

Rationale:

- For usability, the Committee again noted the challenges with two-year delay in results, meaning the measure cannot be used for quality improvement purposes within a facility, but that it was good for payment and public reporting.
- However, some Committee members noted there is little evidence that the measure has any impact on the way consumers make decisions or choices about their care.

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## 5. Related and Competing Measures

- No related or competing measures noted.

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## 6. Standing Committee Recommendation for Endorsement: Y-12; N-2 (5/15/19)

Rationale

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## 7. Public and Member Comment

One comment received noted the report had limited information on why the Committee did not reach consensus on evidence. Staff have revised the report to address this concern.

Two comments other were submitted and focused on one theme: a concern that the risk-adjustment models for the measures were not adequately tested and that people with dual eligible status were not included in the risk model due to a CMS policy decision, rather than empiric evidence.

### Measure Steward/Developer Response:

CMS, RTI International and Abt Associates Inc. thank the American Medical Association (AMA)/the Federation of American Hospitals (FAH) for their comments. We agree that quality measures must be specified to ensure reliable and valid comparisons of providers. We believe we have empirically demonstrated a high level of reliability and validity of the Discharge to Community (DTC) measures. In addition to policy considerations impacting our approach, we conducted an extensive and thoughtful empirical assessment of the need for social risk factor adjustment. We first assessed the impact of dual status adjustment on provider scores. We found that dual-adjusted and non-dual-adjusted DTC scores were very strongly associated in all post-acute care (PAC) settings, both for providers with low and high proportions of dual eligible beneficiaries with full Medicaid benefit (full-dual). Pearson and Spearman correlations between dual-adjusted and non-dual-adjusted DTC scores were close to 1, while intraclass correlation coefficients were between 0.9 and 1, with most being close to 1. Further, we found that amongst providers with the highest proportions of full-dual beneficiaries, nearly 71% of home health agencies (HHAs), nearly 50% of inpatient rehabilitation facilities (IRFs), over 25% of long-term care hospitals (LTCHs), and over 10% skilled nursing facilities (SNFs) had DTC measure scores above the national rate. The strong association between dual-adjusted and non-dual-adjusted scores demonstrates that the measure provides reliable and valid assessment of provider performance without



adjustment for dual status. The presence of high performing providers amongst those with high proportions of full-dual beneficiaries shows that it is possible for providers serving dual eligible beneficiaries to achieve high DTC rates, without adjustment for dual status. Based on these findings, we do not believe that dual status risk adjustment is indicated at this time. On the contrary, dual status adjustment poses the risk of disincentivizing providers from working towards successfully discharging dual eligible beneficiaries to the community.

In addition to dual eligibility, we assessed the impact of three other social risk factors: race, urbanicity of beneficiary residence, and socioeconomic status (SES) of beneficiary residence area (Agency of Healthcare Research and Quality (AHRQ) SES Index) (see Appendix). We found an inconsistent impact of these social risk factors across PAC settings. We also found that these additional social risk factors had little impact on scores beyond dual status adjustment (i.e., there was little difference in scores based on dual adjustment only vs. adjustment for all four social risk factors) (data not shown).

We will continue to monitor outcomes of dually eligible beneficiaries and those with other social risk factors as part of measure monitoring and evaluation and will assess the need for social risk factor adjustment in the future.

We provide a conceptual model for social risk factors in section 2b3.3b of the testing form and statistical results of social risk factor testing in section 2b3.4a.

#### **Committee Response:**

The Committee discussed the set of comments during their post-comment call. At the request of the Committee, the developer provided a high-level review of their response. The Committee notes that the developer did stratify the measure and did not find a difference in outcomes; the correlations were high and the ICCs were in the correct range. During the discussion, the developer clarified that they had not included this analysis in the original submissions as it was conducted in response to the comments received during the comment period.

#### **NQF Response:**

NQF added the following additional text to the report to provide more information on the vote: *The Committee did not reach consensus on the evidence due to the limited evidence available in the field. While Committee members noted that studies done in post-acute care situations do provide data that can be extrapolated to this setting, the actual evidence for this specific setting is limited, due in part to the small number of LTACs.* In addition, following the post-comment call, this report was updated with the Committee's final decision to pass the measure on evidence and to recommend it for endorsement.

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### **8. Consensus Standards Approval Committee (CSAC) Vote: Y-14; N-0 (6/5/2019)**

Decision: Approved for endorsement

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### **9. Appeals**

No appeals received.



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## 3481 Discharge to Community-Post Acute Care Measure for Skilled Nursing Facilities (SNF)

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

**Description:** The Discharge to Community-Post Acute Care Measure for Skilled Nursing Facilities (DTC-PAC SNF) was developed to address the resource use and other measures domain of Discharge to the Community mandated by the Improving Medicare Post-Acute Care Transformation Act of 2014 (IMPACT Act). This outcome measure assesses successful discharge to community from a SNF, with successful discharge to community including no unplanned rehospitalizations and no death in the 31 days following SNF discharge. The measure reports a SNF's risk-standardized rate of Medicare fee-for-service (FFS) residents who are discharged to the community following a SNF stay, and do not have an unplanned readmission to an acute care hospital or long-term care hospital (LTCH) in the 31 days following discharge to community, and who remain alive during the 31 days following discharge to community. The measure is calculated using one year of Medicare FFS claims data and was developed using calendar year (CY) 2013 data. This submission is based on fiscal year (FY) 2017 data; i.e., SNF admissions from October 1, 2016 through September 30, 2017.

The measure was adopted by the Centers for Medicare & Medicaid Services (CMS) for the SNF Quality Reporting Program (QRP) finalized in the FY 2017 SNF Prospective Payment System (PPS) Final Rule and implementation began October 1, 2016 [1]. Confidential feedback reports on measure performance were distributed to SNF providers in Fall 2017. The measure will be publicly reported on the SNF Compare website (<https://www.medicare.gov/nursinghomecompare/search.html?>) in Fall 2018 using FY 2017 data. Four claims-based discharge to community measures were developed for SNF, LTCH, inpatient rehabilitation facility, and home health agency settings to meet the mandate of the IMPACT Act. These measures were conceptualized uniformly across the four settings, in terms of the definition of the discharge to community outcome, the approach to risk adjustment, and the measure calculation.

### References

[1] Medicare Program; Prospective Payment System and Consolidated Billing for Skilled Nursing Facilities for FY 2017, SNF Value-Based Purchasing Program, SNF Quality Reporting Program, and SNF Payment Models Research, Vol. 81, No. 151. <https://www.gpo.gov/fdsys/pkg/FR-2016-08-05/pdf/2016-18113.pdf>

**Numerator Statement:** The measure numerator is the risk-adjusted predicted estimate of the number of residents who are discharged to the community, and do not have an unplanned readmission to an acute care hospital or LTCH in the 31-day post-discharge observation window, and who remain alive during the post-discharge observation window.

This estimate starts with the observed number of discharges to community, defined as:

- (i) discharges to home or self care with or without home health services, based on Patient Discharge Status Codes 01, 06, 81, or 86 on the Medicare FFS claim [2]; and
- (ii) no unplanned acute or LTCH hospitalizations in the 31-day post-discharge window; and
- (iii) no death in the 31-day post-discharge window.

The discharge to community outcome is risk-adjusted for resident characteristics and a statistical estimate of the facility effect beyond case-mix (described below).

### References

[2] National Uniform Billing Committee Official UB-04 Data Specifications Manual 2018, Version 12, July 2017, Copyright 2017, American Hospital Association.

**Denominator Statement:** The target population for the measure is the group of Medicare FFS beneficiaries who are admitted to a SNF during the measurement period and are not excluded based on the measure exclusion criteria (see S.8. and S.9.).

The measure denominator is the risk-adjusted expected number of discharges to community. This estimate includes risk adjustment for resident characteristics with the facility effect removed. The “expected” number of discharges to community is the predicted number of risk-adjusted discharges to community if the same residents were treated at the average facility. The logistic regression model used to calculate the denominator is developed using all non-excluded facility stays in the national data. The denominator is computed in the same way as the numerator, but the facility effect is set at the average.

**Exclusions:** Measure exclusion criteria are based on administrative data from Medicare claims and eligibility files. Exclusion criteria were selected to maintain clinical validity of the measure by excluding stays for which discharge to community would not be appropriate, to ensure data availability and completeness, to exclude stays with problematic claims data, and to maintain relevance to the SNF Quality Reporting Program (e.g., excluding CAH swing bed providers or other SNFs not included in the SNF QRP based on regional location). Only SNF stays that are preceded by a short-term acute care stay in the 30 days prior to the SNF admission date are included in the measure; this is because risk adjustment variables come from the short-term acute care stay in the 30 days prior to SNF admission. Stays ending in transfers to the same level of care (i.e., SNF-to-SNF discharge) are excluded, because the SNF episode of care had not ended. We also excluded certain discharge status codes on the SNF FFS claim that indicated that the resident was not appropriate for community discharge (e.g., discharges against medical advice). See section S.9 for detailed rationale and data sources for each exclusion.

Measure exclusion criteria are as follows:

- Age under 18 years;
- No short-term acute care hospital discharge within the thirty days preceding SNF admission;
- Discharges to a psychiatric hospital;
- Discharges against medical advice;
- Discharges to disaster alternative care site or a federal hospital;
- Discharges to court/law enforcement;
- Discharges to hospice or resident stays with a hospice benefit in the 31-day post-discharge window;
- Planned discharges to an acute or LTCH setting;
- Stays for residents without continuous Part A FFS Medicare enrollment during the 12 months prior to the SNF admission date and the 31 days after the SNF discharge;
- SNF stays preceded by a short-term acute care stay for non-surgical treatment of cancer;
- Stays ending in transfer to a SNF;
- Stays with problematic claims data (e.g. anomalous records for stays that overlap wholly or in part, or are otherwise erroneous or contradictory; claims not paid);
- Exhaustion of Medicare Part A benefit during the SNF stay;
- SNF stays in facilities outside of the United States, Puerto Rico, or another U.S. territory; and
- Swing bed stays in critical access hospitals.

**Adjustment/Stratification:** Statistical risk model/ N/A

**Level of Analysis:** Facility

**Setting of Care:** Post-Acute Care

**Type of Measure:** Outcome

**Data Source:** Assessment Data, Claims, Management Data

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

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## **STANDING COMMITTEE MEETING [2/15/2019]**

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

(1a. Evidence, 1b. Performance Gap)

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

#### Rationale:

- The Committee had no major concerns on the evidence for this measure that had not been raised during discussion of the measures that preceded this measure's review.
  - The Committee noted a significant gap in care and opportunity for improvement. They also noted the high rates of variability between outcomes at different LTACs. Committee members were unsure if consumers use or know what to do with this type of information but agreed it could help positively impact how people choose their care. They cautioned that the success of discharge rates from SNFs is impacted by the availability of home and community-based services in a given community; however, it is still important for consumers to know how facilities are doing on rehab.
  - Committee members noted the success of discharge from SNFs is largely related to the level of support received in the home and community-based environment. They also noted that some SNFs put a lot of emphasis on an aggressive and intensive rehabilitation program, and others do not; there were concerns that new incentive programs would discourage SNFs financially from providing a lot of therapy. However, they agreed this is a very important measure for consumers to assist them in knowing which facilities are more likely to discharge them to home versus sending patients to nursing homes.
- 

### **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-11; L-0; I-1**; 2b. Validity: **H-2; M-14; L-0; I-1**

#### Rationale:

- The Committee agreed with the Methods Panel's recommendation for Reliability and Validity. They had no concerns to discuss.
- 

### **3. Feasibility: H-9; M-5; 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:

- There were no new issues raised for feasibility that had not been discussed during the previous measures (3477, 3479, and 3480).

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#### 4. Use and Usability

*4a. Use; 4a1. Accountability and transparency; 4a2. Feedback on the measure by those being measured and others; 4b. Usability; 4b1. Improvement; 4b2. The benefits to patients outweigh evidence of unintended negative consequences to patients)*

4a. Use: **Pass-14; No Pass-0** 4b. Usability: **H-4; M-7; L-2; I-1**

##### Rationale:

- The measure is in use in Nursing Home Compare.
- Similar issues for usability of this measure were raised, with Committee members noting that the measure may not currently be affecting healthcare decisions, but over time it may become more important. They again flagged the need for a true plain-language version of the measure to ensure consumers can understand it.

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#### 5. Related and Competing Measures

- No related or competing measures noted.

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#### 6. Standing Committee Recommendation for Endorsement: Y-13; N-1 (2/15/19)

##### Rationale

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#### 7. Public and Member Comment

NQF received two comments on this measure during the post-measure evaluation meeting commenting period. Both comments expressed that the measure should not be endorsed due to concerns over the lack of inclusion of dual eligible status in the risk-adjustment model. Commenters believed that the measure did not adequately test or adjust for social risk factors and were concerned about what was included or excluded in the measure, both due to a CMS policy having nothing to do with empiric evidence.

**Developer Response:** CMS, RTI International and Abt Associates Inc. thank the AMA and FAH for their comments. In addition to policy considerations impacting our approach, we conducted an extensive and thoughtful empirical assessment of the need for social risk factor adjustment. We first assessed the impact of dual status adjustment on provider scores. We found that dual-adjusted and non-dual-adjusted DTC scores were very strongly associated in all post-acute care (PAC) settings, both for providers with low and high proportions of dual eligible beneficiaries with full Medicaid benefit (full-dual). The strong association between dual-adjusted and non-dual-adjusted scores demonstrates that the measure provides reliable and valid assessment of provider performance without adjustment for dual status. We will continue to monitor outcomes of dually eligible beneficiaries and those with other social risk factors as part of measure monitoring and evaluation and will assess the need for social risk factor adjustment in the future.

##### **Committee Response:**

The Committee discussed the set of comments during their post-comment call. At the request of the Committee, the developer provided a high-level review of their response. The Committee notes that the developer did stratify the measure and did not find a difference in outcomes; the

correlations were high and the ICCs were in the correct range. During the discussion, the developer clarified that they had not included this analysis in the original submissions as it was conducted in response to the comments received during the comment period.

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**8. Consensus Standards Approval Committee (CSAC) Vote: Y-14; N-0 (6/5/2019)**

Decision: Approved for endorsement

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**9. Appeals**

No appeals received.

## Appendix B: Patient Experience and Function Portfolio—Use in Federal Programs<sup>a</sup>

NQF #	Title	Federal Programs: Finalized or Implemented as of May 31, 2019
0005	CAHPS Clinician & Group Surveys (CG-CAHPS)-Adult, Child	<ul style="list-style-type: none"> <li>• Merit-based Incentive Payment System (MIPS) Program (Finalized)</li> <li>• Physician Compare (Implemented)</li> </ul>
0006	Consumer Assessment of Healthcare Providers and Systems (CAHPS) Health Plan Survey, Version 5.0 (Medicaid and Commercial)	<ul style="list-style-type: none"> <li>• Medicaid (Implemented)</li> </ul>
0166	HCAHPS	<ul style="list-style-type: none"> <li>• Hospital Compare (Implemented)</li> <li>• Hospital Inpatient Quality Reporting (Implemented)</li> <li>• Hospital Value-Based Purchasing (Implemented)</li> <li>• Prospective Payment System-Exempt Cancer Hospital Quality Reporting (Implemented)</li> </ul>
0228	3-Item Care Transition Measure (CTM-3)	<ul style="list-style-type: none"> <li>• Hospital Compare (Implemented)</li> <li>• Hospital Inpatient Quality Reporting (Implemented)</li> <li>• Hospital Value-Based Purchasing (Implemented)</li> </ul>
0258	CAHPS In-Center Hemodialysis Survey	<ul style="list-style-type: none"> <li>• End-Stage Renal Disease Quality Incentive Program (Implemented)</li> </ul>
0291	EMERGENCY TRANSFER COMMUNICATION MEASURE	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
0422	Functional status change for patients with Knee impairments	<ul style="list-style-type: none"> <li>• Merit-based Incentive Payment System (MIPS) Program (Finalized)</li> </ul>
0423	Functional status change for patients with Hip impairments	<ul style="list-style-type: none"> <li>• Merit-based Incentive Payment System (MIPS) Program (Finalized)</li> </ul>
0424	Functional status change for patients with Foot and Ankle impairments	<ul style="list-style-type: none"> <li>• Merit-based Incentive Payment System (MIPS) Program (Finalized)</li> </ul>
0425	Functional status change for patients with lumbar impairments	<ul style="list-style-type: none"> <li>• Merit-based Incentive Payment System (MIPS) Program (Finalized)</li> </ul>
0426	Functional status change for patients with Shoulder impairments	<ul style="list-style-type: none"> <li>• Merit-based Incentive Payment System (MIPS) Program (Finalized)</li> </ul>
0427	Functional status change for patients with elbow, wrist and hand impairments	<ul style="list-style-type: none"> <li>• Merit-based Incentive Payment System (MIPS) Program (Finalized)</li> </ul>

<sup>a</sup> Per CMS Measures Inventory Tool as of 2/26/2019

NQF #	Title	Federal Programs: Finalized or Implemented as of May 31, 2019
0428	Functional status change for patients with General orthopaedic impairments	<ul style="list-style-type: none"> <li>• Merit-based Incentive Payment System (MIPS) Program (Finalized)</li> </ul>
0517	CAHPS® Home Health Care Survey (experience with care)	<ul style="list-style-type: none"> <li>• Home Health Quality Reporting (Implemented)</li> <li>• Home Health Value Based Purchasing (Implemented)</li> </ul>
0701	Functional Capacity in COPD patients before and after Pulmonary Rehabilitation	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
0726	Patient Experience of Psychiatric Care as Measured by the Inpatient Consumer Survey (ICS)	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
1741	Patient Experience with Surgical Care Based on the Consumer Assessment of Healthcare Providers and Systems (CAHPS)® Surgical Care Survey	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
1888	Workforce development measure derived from workforce development domain of the C-CAT	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
1892	Individual engagement measure derived from the individual engagement domain of the C-CAT	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
1894	Cross-cultural communication measure derived from the cross-cultural communication domain of the C-CAT	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
1896	Language services measure derived from language services domain of the C-CAT	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
1898	Health literacy measure derived from the health literacy domain of the C-CAT	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
1901	Performance evaluation measure derived from performance evaluation domain of the C-CAT	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
1905	Leadership commitment measure derived from the leadership commitment domain of the C-CAT	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
2286	Functional Change: Change in Self Care Score	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
2287	Functional Change: Change in Motor Score	<ul style="list-style-type: none"> <li>• N/A</li> </ul>

NQF #	Title	Federal Programs: Finalized or Implemented as of May 31, 2019
2321	Functional Change: Change in Mobility Score	<ul style="list-style-type: none"> <li>N/A</li> </ul>
2483	Gains in Patient Activation (PAM) Scores at 12 Months	<ul style="list-style-type: none"> <li>N/A</li> </ul>
2548	Child Hospital CAHPS (HCAHPS)	<ul style="list-style-type: none"> <li>N/A</li> </ul>
2612	CARE: Improvement in Mobility	<ul style="list-style-type: none"> <li>N/A</li> </ul>
2613	CARE: Improvement in Self Care	<ul style="list-style-type: none"> <li>N/A</li> </ul>
2614	CoreQ: Short Stay Discharge Measure	<ul style="list-style-type: none"> <li>N/A</li> </ul>
2615	CoreQ: Long-Stay Resident Measure	<ul style="list-style-type: none"> <li>N/A</li> </ul>
2616	CoreQ: Long-Stay Family Measure	<ul style="list-style-type: none"> <li>N/A</li> </ul>
2624	Functional Outcome Assessment	<ul style="list-style-type: none"> <li>Merit-based Incentive Payment System (MIPS) Program (Finalized)</li> </ul>
2631	Percent of Long-Term Care Hospital (LTCH) Patients With an Admission and Discharge Functional Assessment and a Care Plan That Addresses Function	<ul style="list-style-type: none"> <li>Home Health Quality Reporting (Finalized)</li> <li>Inpatient Rehabilitation Facility Quality Reporting (Implemented)</li> <li>Long-Term Care Hospital Quality Reporting (Implemented)</li> <li>Skilled Nursing Facility Quality Reporting (Implemented)</li> </ul>
2632	Long-Term Care Hospital (LTCH) Functional Outcome Measure: Change in Mobility Among Patients Requiring Ventilator Support	<ul style="list-style-type: none"> <li>Long-Term Care Hospital Quality Reporting (Implemented)</li> </ul>
2633	Inpatient Rehabilitation Facility (IRF) Functional Outcome Measure: Change in Self-Care Score for Medical Rehabilitation Patients	<ul style="list-style-type: none"> <li>Inpatient Rehabilitation Facility Quality Reporting (Implemented)</li> </ul>
2634	Inpatient Rehabilitation Facility (IRF) Functional Outcome Measure: Change in Mobility Score for Medical Rehabilitation Patients	<ul style="list-style-type: none"> <li>Inpatient Rehabilitation Facility Quality Reporting (Implemented)</li> </ul>
2635	Inpatient Rehabilitation Facility (IRF) Functional Outcome Measure: Discharge Self-Care Score for Medical Rehabilitation Patients	<ul style="list-style-type: none"> <li>Inpatient Rehabilitation Facility Quality Reporting (Implemented)</li> </ul>



NQF #	Title	Federal Programs: Finalized or Implemented as of May 31, 2019
2636	Inpatient Rehabilitation Facility (IRF) Functional Outcome Measure: Discharge Mobility Score for Medical Rehabilitation Patients	<ul style="list-style-type: none"> <li>Inpatient Rehabilitation Facility Quality Reporting (Implemented)</li> </ul>
2643	Average change in functional status following lumbar spine fusion surgery	<ul style="list-style-type: none"> <li>Merit-based Incentive Payment System (MIPS) Program (Finalized)</li> </ul>
2653	Average change in functional status following total knee replacement surgery	<ul style="list-style-type: none"> <li>Merit-based Incentive Payment System (MIPS) Program (Finalized)</li> </ul>
2769	Functional Change: Change in Self Care Score for Skilled Nursing Facilities	<ul style="list-style-type: none"> <li>N/A</li> </ul>
2774	Functional Change: Change in Mobility Score for Skilled Nursing Facilities	<ul style="list-style-type: none"> <li>N/A</li> </ul>
2775	Functional Change: Change in Motor Score for Skilled Nursing Facilities	<ul style="list-style-type: none"> <li>N/A</li> </ul>
2776	Functional Change: Change in Motor Score in Long Term Acute Care Facilities	<ul style="list-style-type: none"> <li>N/A</li> </ul>
2777	Functional Change: Change in Self Care Score for Long Term Acute Care Facilities	<ul style="list-style-type: none"> <li>N/A</li> </ul>
2778	Functional Change: Change in Mobility Score for Long Term Acute Care Facilities	<ul style="list-style-type: none"> <li>N/A</li> </ul>
2958	Informed, Patient Centered (IPC) Hip and Knee Replacement Surgery	<ul style="list-style-type: none"> <li>N/A</li> </ul>
2962	Shared Decision Making Process	<ul style="list-style-type: none"> <li>Medicare Shared Savings Program (Implemented)</li> </ul>
2967	CAHPS® Home- and Community-Based Services Measures	<ul style="list-style-type: none"> <li>Medicaid (Implemented)</li> </ul>
3420	CoreQ: AL Resident Satisfaction Measure	<ul style="list-style-type: none"> <li>N/A</li> </ul>
3422	CoreQ: AL Family Satisfaction Measure	<ul style="list-style-type: none"> <li>N/A</li> </ul>
3455	Timely Follow-Up After Acute Exacerbations of Chronic Conditions	<ul style="list-style-type: none"> <li>N/A</li> </ul>

NQF #	Title	Federal Programs: Finalized or Implemented as of May 31, 2019
3477	Discharge to Community-Post Acute Care Measure for Home Health Agencies	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
3479	Discharge to Community-Post Acute Care Measure for Inpatient Rehabilitation Facilities	<ul style="list-style-type: none"> <li>• Inpatient Rehabilitation Facility Quality Reporting (Implemented)</li> </ul>
3480	Discharge to Community-Post Acute Care Measure for Long-Term Care Hospitals	<ul style="list-style-type: none"> <li>• Long-Term Care Hospital Quality Reporting (Implemented)</li> </ul>
3481	Discharge to Community-Post Acute Care Measure for Skilled Nursing Facilities	<ul style="list-style-type: none"> <li>• Skilled Nursing Facility Quality Reporting (Implemented)</li> </ul>

## Appendix C: Patient Experience and Function Standing Committee and NQF Staff

### STANDING COMMITTEE

**Gerri Lamb, PhD, RN, FAAN (Co-chair)**

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## Appendix D: Measure Specifications

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### 3455 Timely Follow-Up After Acute Exacerbations of Chronic Conditions

#### STEWARD

IMPAQ International

#### DESCRIPTION

The percentage of issuer-product-level acute events requiring either an emergency department (ED) visit or hospitalization for one of the following 6 chronic conditions: hypertension, asthma, heart failure (HF), coronary artery disease (CAD), chronic obstructive pulmonary disease (COPD), or diabetes mellitus (Type I or Type II), where follow-up was received within the timeframe recommended by clinical practice guidelines in a non-emergency outpatient setting.

#### TYPE

Process

#### DATA SOURCE

Claims

#### LEVEL

Health Plan, Other

#### SETTING

Inpatient/Hospital, Emergency Department and Services

#### NUMERATOR STATEMENT

The numerator is the sum of the issuer-product-level denominator events (Emergency Room [ED], observation hospital stay or inpatient hospital stay) for acute exacerbation of hypertension, asthma, heart failure (HF), coronary artery disease (CAD), chronic obstructive pulmonary disease (COPD), or diabetes where follow-up was received within the timeframe recommended by clinical practice guidelines, as detailed below:

- Hypertension: Within 7 days of the date of discharge
- Asthma: Within 14 days of the date of discharge
- HF: Within 14 days of the date of discharge
- CAD: Within 14 days of the date of discharge
- COPD: Within 30 days of the date of discharge
- Diabetes: Within 30 days of the date of discharge

#### NUMERATOR DETAILS

This measure is defined at the issuer-by-product level, meaning that results are aggregated for each qualified insurance issuer and for each product. For clarity, a product is a discrete package of health insurance coverage benefits that issuers offer in the context of a particular network type, such as health maintenance organization (HMO), preferred provider organization (PPO), exclusive provider organization (EPO), point of service (POS), or indemnity. Issuers are broadly

defined as health insurance providers who participate in the Federally-facilitated Marketplaces and health insurance contracts offered in the Medicare Advantage market.

Timely follow-up is defined as a claim for the same patient after the discharge date of the acute event that is a non-emergency outpatient visit and has a CPT or HCPCS code indicating a visit that constitutes appropriate follow-up, as defined by clinical guidelines and clinical coding experts. The follow-up visit may be a general office visit or telehealth and take place in certain chronic care or transitional care management settings. The follow-up visit must occur within the condition-specific timeframe to be considered timely and for the conditions of the numerator/measure to be met. For a list of individual codes, please see the data dictionary attached in S.2b.

The follow-up visit timeframes for each of the 6 chronic conditions are based on evidence-based clinical practice guidelines (CPGs) as laid out in the evidence form.

#### DENOMINATOR STATEMENT

The denominator is the sum of the plan-product-level acute exacerbations that require either an ED visit, observation stay, or inpatient stay (i.e., acute events) for any of the six conditions listed above (hypertension, asthma, HF, CAD, COPD, or diabetes).

#### DENOMINATOR DETAILS

Acute events are defined as either an ED visit, observation stay, or inpatient stay. If a patient is discharged and another claim begins for the same condition on the same day or the following day, the claims are considered to be part of one continuous acute event. In this case, the discharge date of the last claim is the beginning of the follow-up interval. The final claim of the acute event must be a discharge to community.

An acute event is assigned to [condition] if:

1. The primary diagnosis is a sufficient code for [condition].

OR

2. The primary diagnosis is a related code for [condition] AND at least one additional diagnosis is a sufficient code for [condition].

a. In cases where the event has two or more conditions with a related code as the primary diagnosis and a sufficient code in additional diagnosis positions, assign the event to the condition with a sufficient code appearing in the “highest” (closest to primary) diagnosis position.

If the visits that make up an acute event are assigned different conditions, the event is assigned the condition that occurs last in the sequence. Following this methodology, only one condition is recorded in the denominator per acute event. For a list of individual codes, please see the data dictionary attached in S.2b.

#### EXCLUSIONS

The measure excludes events with:

1. Subsequent acute events that occur two days after the prior discharge, but still during the follow-up interval of the prior event for the same reason. To prevent double-counting, only the first acute event will be included in the denominator.

2. Acute events after which the patient does not have continuous enrollment for 30 days in the same product.

3. Acute events where the discharge status of the last claim is not “to community” (“Left against medical advice” is not a discharge to community.)
4. Acute events for which the calendar year ends before the follow-up window ends (e.g., acute asthma events ending fewer than 14 days before December 31)
5. Acute events where the patient enters a skilled nursing facility (SNF), non-acute care, or hospice care within the follow-up interval

#### EXCLUSION DETAILS

For a list of individual codes, please see the data dictionary attached in S.2b.

#### RISK ADJUSTMENT

No risk adjustment

#### STRATIFICATION

No risk stratification

#### TYPE SCORE

Rate/proportion

#### ALGORITHM

- 1) Denominator events are identified by hospitalization, observation, and ED events with appropriate codes (i.e., codes identifying an acute exacerbation of 1 of the 6 included chronic conditions).
- 2) Exclusions are applied to the population from step 1) to produce the eligible patient population for the measure (i.e., the count of all qualifying events).
- 3) For each qualifying event, it is determined whether or not claims included a subsequent code that satisfies the follow-up requirement for that particular qualifying event (e.g., a diabetes event received follow-up within the appropriate timeframe for diabetes, from an appropriate provider). Each event for which the follow-up requirement was satisfied is counted as ‘one’ in the numerator. Each event for which the follow-up requirement was not satisfied is counted as a ‘zero’ in the numerator.
- 4) The percentage score is calculated as the numerator divided by the denominator.

#### Measure Scoring Logic

Following NQF’s guideline, we employ Opportunity-Based Weighting to calculate the follow-up measure. (1) This means that each condition is weighted by the sum of acute exacerbations that require either an ED visit or an observation or inpatient stay for all the six conditions that occur, as reflected in the logic below.

$$\frac{[\text{NUM}(\text{ASM}) + \text{NUM}(\text{CAD}) + \text{NUM}(\text{HF}) + \text{NUM}(\text{COPD}) + \text{NUM}(\text{DIAB}) + \text{NUM}(\text{HTN})]}{[\text{DENOM}(\text{ASM}) + \text{DENOM}(\text{CAD}) + \text{DENOM}(\text{HF}) + \text{DENOM}(\text{COPD}) + \text{DENOM}(\text{DIAB}) + \text{DENOM}(\text{HTN})]}$$

\*\*\*Please note that, while the development team designed the measure to aggregate each condition score in the manner described above into a single overall score, programs may choose to also calculate individual scores for each chronic condition when implementing the measure. Individual measure scores would simply be calculated by dividing the condition-specific numerator by the condition specific denominator, as in the example for heart failure below:



NUM(HF) / DENOM(HF)

Both methods capture the same quality information, with different levels of granularity. Below is an example of each scoring method:

Aggregate: 30 patients experience acute events. 25 events are heart failure, 5 events are COPD. Of these 30 patients, 25 receive appropriate follow-up. The measured entity receives a score of 83% (25/30).

Individual: The same 30 patients experience acute events. 25 events are for heart failure. 5 events are for COPD. 25 receive appropriate follow-up. This number included 20 of the patients who experienced heart failure, and all 5 patients who experienced COPD. The measured entity receives a heart failure score of 80% (20/25) and a COPD score of 100% (5/5).

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The team considered several aggregation methods, including uniform weighting, opportunity-based weighting, and linear combination weighting for this measure. Each option has associated advantages and disadvantages.

The measure development team believes that opportunity-based weighting, described earlier in this section, is the best aggregation method for several reasons. First, sample sizes are relatively small, so rates for particular conditions may have high variance and produce erratic results. Second, with uniform weights (meaning each condition's score contributes an equal amount to the overall score regardless of the number of events per condition), a change in the number of follow-ups for less prevalent conditions affects the aggregate score more than changing the number of follow-ups for more prevalent conditions. This gives an incentive to plans (insurance products) to focus on improving follow-up for the least prevalent conditions in order to improve their score. In contrast, opportunity-based weighting incentivizes plans to improve the number of follow-ups for each type of condition, because any penalty associated with the reduction in follow-ups of any condition is a function of the measure as a whole. (2) Furthermore, because there is no evidence that follow-ups for some of the 6 conditions are more important than others, opportunity-based weighting represents the simplest, fairest, and most easily interpretable and implementable weighting option for managed care organizations. There was no compelling evidence or rationale to use another, more complex weighting method.

It is important to note that this measure, while specified at the issuer-product-level and written to be applicable to various CMS payment programs, will still be required to go through a separate process to be fully operationalized into specific payment programs. These processes include publishing the measure in a Call Letter, soliciting public comment, and other activities to ensure the measure is appropriate for a given program.

1) National Quality Forum. Composite Measure Evaluation Framework and National Voluntary Consensus Standards for Mortality and Safety—Composite Measures. 2009. Available from [https://www.qualityforum.org/Publications/2009/08/Composite\\_Measure\\_Evaluation\\_Framework\\_and\\_National\\_Voluntary\\_Consensus\\_Standards\\_for\\_Mortality\\_and\\_Safety%E2%80%94Composite\\_Measures.aspx](https://www.qualityforum.org/Publications/2009/08/Composite_Measure_Evaluation_Framework_and_National_Voluntary_Consensus_Standards_for_Mortality_and_Safety%E2%80%94Composite_Measures.aspx).

2) Shwartz, M., Restuccia, J. D., & Rosen, A. K. (2015). Composite Measures of Health Care Provider Performance: A Description of Approaches. *The Milbank Quarterly*, 93(4), 788–825. <http://doi.org/10.1111/1468-0009.12165>

\*\*Please note that the specifications of this measure have been slightly altered from what was submitted in the Intent to Submit form. These minor changes are intended to increase clarity.\*\*

Citations:

- 1) National Quality Forum. Composite Measure Evaluation Framework and National Voluntary Consensus Standards for Mortality and Safety—Composite Measures. 2009. Available from [https://www.qualityforum.org/Publications/2009/08/Composite\\_Measure\\_Evaluation\\_Framework\\_and\\_National\\_Voluntary\\_Consensus\\_Standards\\_for\\_Mortality\\_and\\_Safety%E2%80%94Composite\\_Measures.aspx](https://www.qualityforum.org/Publications/2009/08/Composite_Measure_Evaluation_Framework_and_National_Voluntary_Consensus_Standards_for_Mortality_and_Safety%E2%80%94Composite_Measures.aspx).
- 2) Shwartz, M., Restuccia, J. D., & Rosen, A. K. (2015). Composite Measures of Health Care Provider Performance: A Description of Approaches. *The Milbank Quarterly*, 93(4), 788–825. <http://doi.org/10.1111/1468-0009.12165>

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## 3477 Discharge to Community-Post Acute Care Measure for Home Health Agencies

STEWARD

Centers for Medicare & Medicaid Services – Discharge to Community Post Acute Care

DESCRIPTION

The Discharge to Community-Post Acute Care Measure for Home Health Agencies (DTC-PAC HHA) measure was developed to address the resource use and other measures domain of Discharge to the Community, a domain mandated by the Improving Medicare Post-Acute Care Transformation Act of 2014 (IMPACT Act). The measure was developed using calendar year 2012-2013 data.

This Medicare claims-based outcome measure assesses successful discharge to community from an HHA, with successful discharge to community including no unplanned hospitalizations and no death in the 31 days following discharge. Specifically, this measure reports an HHA’s risk-standardized rate of Medicare fee-for-service (FFS) patients who are discharged to the community following an HHA stay, and do not have an unplanned admission to an acute care hospital or long-term care hospital (LTCH) in the 31 days following discharge to community, and who remain alive during the 31 days following discharge to community. The measure is based on Medicare FFS claims data and is calculated using two consecutive years of data. This measure submission is based on CY 2015-2016 data; i.e., HHA discharges from January 1, 2015 through December 31, 2016.

The measure was adopted by the Centers for Medicare & Medicaid Services (CMS) for the HH Quality Reporting Program finalized in the Calendar Year (CY) 2017 HH Quality Reporting Program (QRP) Final Rule and implementation began October 2016. Confidential feedback reports on measure performance were distributed to HH providers in early 2018. The measure will be publicly reported on the Home Health Compare website (<https://www.medicare.gov/homehealthcompare>) in January 2019 using CY 2016-2017 data. Four claims-based discharge to community measures were developed for IRF, LTCH, skilled nursing facility, and home health agency settings, respectively to meet the mandate of the IMPACT Act. These measures were conceptualized uniformly across the four settings, in terms of the definition of the discharge to community outcome, the approach to risk adjustment, and the measure calculation.

#### TYPE

Outcome

#### DATA SOURCE

Claims, Enrollment Data, Other

#### LEVEL

Facility

#### SETTING

Post-Acute Care

#### NUMERATOR STATEMENT

The measure does not have a simple form for the numerator and denominator—that is, the risk-adjustment method does not make the observed number of community discharges the numerator, and a predicted number the denominator.

The measure numerator is the risk-adjusted predicted estimate of the number of patients who are discharged to the community, do not have an unplanned admission to an acute care hospital or LTCH in the 31-day post-discharge observation window, and who remain alive during the post-discharge observation window.

This estimate starts with the observed number of discharges to community, defined as

- (i) discharges to home or self-care based on Patient Discharge Status Codes 01, 81, the Medicare FFS claim [1]; and
- (ii) no unplanned acute or LTCH hospitalizations in the 31-day post-discharge window; and
- (iii) no death in the 31-day post-discharge window.

Discharges to community are risk-adjusted for patient characteristics and a statistical estimate of the facility effect beyond case-mix (described below).

The numerator uses a model estimated on full national data specific to the PAC setting; it is applied to the HHA's patient stays included in the measure and includes the estimated effect of that HHA. The prediction equation is based on a logistic regression model with a two-level hierarchical structure.

The patient stays in the model have an indicator of the HHA they are discharged from; the effect of the HHA is measured as a positive or negative shift in the intercept term of the equation. The

HHA 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.

The risk adjustment logistic model is re-estimated for every measurement period and model coefficients corresponding to the measurement period are used for measure calculation. Results of the hierarchical logistic regression model presented in this submission are based FY 2016-2017 data.

## NUMERATOR DETAILS

### Discharge Destination of Community

Discharge to community is determined based on the “Patient Discharge Status Code” from the PAC claim. Discharge to community is defined as discharge to home/self-care [1][2]. Table 1 below lists the Patient Discharge Status Codes used to define community.

Discharge Status Codes Indicating Community Discharge:

01 Discharged to home or self-care (routine discharge)

81 Discharged to home or self-care with a planned acute care hospital readmission

### Unplanned Admissions in the 31-Day Post-Discharge Observation Window

A patient who is discharged to the community is not considered to have a successful discharge to community outcome for this measure if they have a subsequent unplanned admission to an acute care hospital or LTCH in the post-discharge observation window, which includes the day of discharge and the 31 days following day of discharge.

We identify unplanned admissions based on the planned readmissions algorithm used in the following post-acute care readmission measures, endorsed by the National Quality Forum (NQF): (i) Skilled Nursing Facility 30-Day All-Cause Readmission Measure (SNFRM) (NQF #2510); (ii) All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Inpatient Rehabilitation Facilities (NQF #2502); (iii) All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Long-Term Care Hospitals (NQF #2512) and (iv) Rehospitalization During the First 30 Days of Home Health (NQF #2380). [3][4][5][6]

These PAC readmission measures are based on the Hospital-Wide All-Cause Readmission Measure (HWR) (NQF #1789), [7] with some additions made for the SNF, IRF, and LTCH setting measures. [8] The planned readmission definition is based on the claim from the readmission having a code for a diagnosis or procedure that is considered planned; however, if a planned procedure is accompanied by a principal diagnosis in a specified list of acute diagnoses, the readmission is reclassified as unplanned. Readmissions to psychiatric hospitals or units are always classified as planned readmissions.

While the measure was initially developed with ICD-9-CM (International Classification of Diseases, Ninth Revision, Clinical Modification) procedure and diagnosis codes, it was transitioned using the ICD-9-CM to ICD-10-CM cross-walk. All analyses presented in this submission are based on both ICD-9-CM and ICD-10-CM codes.

### Death in the 31-Day Post-Discharge Observation Window

A patient who is discharged to the community is not considered to have a successful discharge to community outcome for this measure if they die in the post-discharge window, which includes the day of discharge and the 31 days following day of discharge. Death in the post-discharge window is identified based on date of death from Medicare eligibility files.

### Measure Time Window

The measure is calculated using two consecutive years of data to ensure adequate number of patient stays for risk adjustment modeling. All Medicare FFS HHA discharges during the two-year time window, except those that meet the exclusion criteria (see S.8. and S.9.), are included in the measure. For patients with multiple HH stays during the two-year time window, each stay is eligible for inclusion in the measure.

#### References

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

<http://www.qualityforum.org/QPS/2510>

4- All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Inpatient Rehabilitation Facilities (NQF #2502). <http://www.qualityforum.org/QPS/2502>

5- All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Long Term Care Hospitals (NQF #2512). <http://www.qualityforum.org/QPS/2512>

6- Rehospitalization During the First 30 Days of Home Health (NQF #2380).

<http://www.qualityforum.org/QPS/2380>

7- Hospital-Wide All-Cause Readmission Measure (HWR) (CMS/Yale) (NQF #1789).

[www.qualityforum.org/QPS/1789](http://www.qualityforum.org/QPS/1789)

8 - Table 2-9. AHRQ CCS Single Level Procedure Codes and ICD-9 Procedure Codes Added to Yale's Planned Readmission Algorithm, for the Post-Acute Care Setting. In: Measure Specifications for Measures Adopted in the FY 2017 IRF QRP Final Rule.

<https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/IRF-Quality-Reporting/Downloads/Measure-Specifications-for-FY17-IRF-QRP-Final-Rule.pdf>. Note:

The ICD-9 codes listed in Table 2-9 were updated with ICD-10-CM codes for data starting October 1, 2015.

#### DENOMINATOR STATEMENT

The target population for the measure is the group of Medicare HH FFS beneficiaries who are discharged from an HHA during the measure time window and are not excluded based on the measure exclusion criteria (see S.8. and S.9.).

The measure denominator is the risk-adjusted expected number of discharges to community. This estimate includes risk adjustment for patient characteristics with the facility effect removed. The "expected" number of discharges to community is the predicted number of risk-adjusted discharges to community if the same patients were treated at the average facility. The hierarchical logistic regression model used to calculate the denominator is developed using all non-excluded facility stays in the national data.

#### DENOMINATOR DETAILS

As previously stated, the measure does not have a simple form for the numerator and denominator. The measure denominator is the risk-adjusted expected number of discharges to community. See S.8. for details.

The target population includes all Medicare FFS beneficiaries who are discharged from a HHA during the measure time window and are not excluded based on the measure exclusion criteria. The target population for the analyses in the submission includes HHA discharges from January 1, 2015 through December 31, 2016 (i.e., CY 2015-2016).

## EXCLUSIONS

Measure exclusion criteria are based on administrative data from Medicare claims and eligibility files. Exclusion criteria were selected to maintain clinical validity of the measure by excluding stays for which discharge to community would not be appropriate, to ensure data availability and completeness, to exclude stays with problematic claims data, and to maintain relevance to the HH Quality Reporting Program (e.g., excluding HHAs not included in the HHA QRP based on regional location). Stays ending in transfers to the same level of care (i.e., HHA-to-HHA discharge) are excluded, because the HHA episode of care had not ended. We also excluded certain discharge status codes on the HHA FFS claim that indicated that the patient was not appropriate for community discharge (e.g., discharges against medical advice).

Measure exclusion criteria are as follows:

- Age under 18 years;
- Discharges to a psychiatric hospital;
- Discharges against medical advice;
- Discharges to disaster alternative care site or a federal hospital;
- Discharges to court/law enforcement;
- Discharges to hospice or patient stays with a hospice benefit in the 31-day post-discharge window;
- Stays for patients without continuous Parts A and B FFS Medicare enrollment during the 12 months prior to the HHA admission date and the 31 days after the HHA discharge;
- HHA stays preceded by a short-term acute care or psychiatric stay for non-surgical treatment of cancer;
- Stays ending in transfer to a HHA; and
- Stays with problematic claims data (e.g. anomalous records for stays that overlap wholly or in part, or are otherwise erroneous or contradictory).
- Medicare Part A benefits exhausted

## EXCLUSION DETAILS

Exclusions for the DTC-PAC HHA measure are listed below, along with the rationale for each exclusion. The measure exclusion criteria are determined by processing Medicare claims and eligibility data to determine whether the individual exclusion criteria are met. All measure exclusion criteria are based on administrative data.

Exclusions for the discharge to community measure are listed below, along with the rationale for each exclusion.

### 1. Age under 18 years

Rationale:

- a. There is limited literature on discharge destination outcomes in this age group;
- b. Patients in this age group represent a different cohort, likely living with their parents, and may be expected to have higher discharge to community rates compared with the rest of the Medicare population; and
- c. Patients in this age group represent a small proportion of the post-acute Medicare FFS population.

Data Source: Acumen Analysis of Medicare Claims File for HH, Medicare Enrollment Database, Common Medicare Environment (CME) database, CY 2015-2016.

2. Discharges to psychiatric hospital

Rationale: Patients discharged to psychiatric hospital are excluded from the measure because community living at the time of discharge may be potentially inappropriate or unsafe for them due to their mental health or psychiatric condition. This exclusion is also intended to avoid the potential unintended consequence of decreased HHA access for patients discharged from psychiatric hospitals.

Data Source: Acumen Analysis of Medicare Claims File for HH, Medicare Enrollment Database, Common Medicare Environment (CME) database, CY 2015-2016.

3. Discharges against medical advice

Rationale: Patients who discharge themselves against medical advice are excluded because their care plan may not have been fully implemented, and the discharge destination may not reflect the facility's discharge recommendation. Additionally, patients discharged against medical advice may potentially be at higher risk of post-discharge admissions or death, depending on their medical condition, or due to potential non-adherence or non-compliance with care recommendations.

Data Source: Acumen Analysis of Medicare Claims File for HH, Medicare Enrollment Database, Common Medicare Environment (CME) database, CY 2015-2016.

4. Discharges to disaster alternative care sites or federal hospitals

Rationale: Patients discharged to disaster alternative care sites are excluded because these discharges are likely influenced by external emergency conditions, and may not represent discretionary discharges by the PAC provider. Discharges to federal hospitals are excluded because we will not have necessary inpatient claims for these patients.

Data Source: Acumen Analysis of Medicare Claims File for HH, Medicare Enrollment Database, Common Medicare Environment (CME) database, CY 2015-2016.

5. Discharges to court/law enforcement

Rationale: Patients who are discharged to court or law enforcement are likely ineligible for discharge to the community due to legal restrictions.

Data Source: Acumen Analysis of Medicare Claims File for HH, Medicare Enrollment Database, Common Medicare Environment (CME) database, CY 2015-2016.

6. Patients discharged to hospice and those with a hospice benefit in the post-discharge observation window

Rationale:

a. Patients discharged to hospice care and those with a hospice benefit in the post-discharge observation window are terminally ill and have very different goals of care compared with non-hospice patients. For non-hospice patients, the primary goal of post-acute care is to return to baseline, independent living in the community; death is an undesirable outcome in the non-hospice population. For hospice patients, the goal is to provide them the opportunity to die comfortably, at home or in a facility.

b. A large proportion of hospice patients die in the 31-day window following discharge from the post-acute setting.

c. The hospice agency, not the post-acute care provider, makes the final decision of discharge to hospice-home or hospice-facility.



Data Source: Acumen Analysis of Medicare Claims File for HH, Medicare Enrollment Database, Common Medicare Environment (CME) database, CY 2015-2016.

7. Patients not continuously enrolled in Parts A and B FFS Medicare (or those enrolled in Part C Medicare Advantage) for the 12 months prior to the post-acute admission date, and at least 31 days after post-acute discharge date

Rationale: Patients not continuously enrolled in Parts A and B FFS Medicare for the 12 months prior to the PAC admission date are excluded because risk adjustment for certain comorbidities requires information on acute inpatient bills for one year prior to post-acute admission. Patients not continuously enrolled in Part A FFS Medicare for at least 31 days after post-acute discharge are excluded because admissions and death must be observable in the 31-day post-discharge period. Patients without Part A and B coverage or those who are enrolled in Part C Medicare Advantage plans will not have complete inpatient claims in the system.

Data Source: Acumen Analysis of Medicare Claims File for HH, Medicare Enrollment Database, Common Medicare Environment (CME) database, CY 2015-2016.

8. Patients whose prior short-term acute care or psychiatric stay was for non-surgical treatment of cancer

Rationale: Patients whose prior short-term acute care stay was for non-surgical treatment of cancer are excluded because they have a different trajectory for recovery after discharge, with a high mortality rate. Exclusion of these patients is consistent with the hospital-wide and post-acute readmission measures.

Data Source: Acumen Analysis of Medicare Claims File for HH, Medicare Enrollment Database, Common Medicare Environment (CME) database, CY 2015-2016.

9. Post-acute stays that end in transfer to the same level of care

Rationale: HHA stays that end in transfer to another HHA are excluded from the measure because the HHA episode has not ended. For a HHA episode that involves transfer to another HHA, only the final HHA provider is included in the measure.

Data Source: Acumen Analysis of Medicare Claims File for HH, Medicare Enrollment Database, Common Medicare Environment (CME) database, CY 2015-2016.

10. Post-acute stays with claims data that are problematic (e.g., anomalous records for stays that overlap wholly or in part, or are otherwise erroneous or contradictory)

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

Data Source: Acumen Analysis of Medicare Claims File for HH, Medicare Enrollment Database, Common Medicare Environment (CME) database, CY 2015-2016.

11. Medicare Part A benefits exhausted

Rationale: Patients who have exhausted their Medicare Part A coverage during the PAC stay are excluded because the discharge destination decision may be related to exhaustion of benefits.

Data Source: Acumen Analysis of Medicare Claims File for HH, Medicare Enrollment Database, Common Medicare Environment (CME) database, CY 2015-2016.

## RISK ADJUSTMENT

Statistical risk model



## STRATIFICATION

Not applicable

## TYPE SCORE

Rate/proportion

## ALGORITHM

The DTC-PAC HHA measure is risk adjusted. To develop the risk-adjustment model for this measure, we analyzed Medicare home health, inpatient claims, outpatient, and carrier claims. We applied the measure exclusion criteria to determine the sample included in the risk adjustment model. The measure is based on two consecutive fiscal years of data (CY 2015-2016).

The risk model employs the following sets of covariates:

- (1) Demographics
  - (a) Age and sex
  - (b) Enrollment status
  - (c) Activities of daily living scores
- (2) Care received during the prior proximal hospitalization (if relevant)
  - (a) Length of prior proximal hospitalization
  - (b) Clinical classification software (CCS) diagnosis and procedure categories during prior proximal hospitalization
- (3) Other care received within one year of the HH stay
  - (a) Number of prior acute discharges
  - (b) Number of outpatient emergency department visits
  - (c) Number of skilled nursing facility visits
  - (d) Number of long-term care hospital visits
  - (e) Number of inpatient dialysis sessions
  - (f) Hierarchical condition categories (HCC) comorbidities

We used a hierarchical logistic regression model to predict the probability of discharge to community. Patient characteristics related to discharge and a marker for the specific discharging HHA are included in the equation. The equation is hierarchical in that both individual patient characteristics are accounted for, as well as the clustering of patient characteristics by HHA. The statistical model estimates both the average predictive effect of the patient characteristics across all facilities, and the degree to which each facility has an effect on discharge to community that differs from that of the average facility. The facility effects are assumed to be randomly distributed around the average (according to a normal distribution).

When computing the HHA effect, hierarchical modeling accounts for the known predictors of discharge to community, on average, such as patient characteristics, the observed facility rate, and the number of HHA stays eligible for inclusion in the measure. The estimated HHA effect is determined mostly by the HHA's own data if the number of patient discharges is relatively large (as the estimate would be relatively precise) but is adjusted toward the average if the number of patient discharges is small (as that would yield a less precise estimate).

We used the following model:

Let  $Y_{ij}$ , denote the outcome (equal to 1 if patient  $i$  is discharged to community, 0 otherwise) for a patient  $i$  at facility  $j$ ;  $Z_{ij}$  denotes a set of risk adjustment variables. We assume the outcome is related to the risk adjusters via a logit function with dispersion:

$$\text{logit}(\text{Prob}(Y_{ij}=1)) = a_j + \beta * Z_{ij} + e_{ij} \quad (1)$$

$$a_j = \mu + \tau_j ; \tau_j \sim N(0, \tau^2)$$

where  $Z_{ij} = (Z_{1j}, Z_{2j}, \dots, Z_{kj})$  is a set of  $k$  patient-level risk adjustment variables;  $a_j$  represents the facility-specific intercept;  $\mu$  is the adjusted average outcome across all facilities;  $\tau^2$  is the between-facility variance component; and  $e \sim N(0, s^2)$  is the error term.

The hierarchical logistic regression model is estimated using SAS software (PROC GLIMMIX: SAS/STAT User's Guide, SAS Institute Inc.).

The estimated equation is used twice in the measure. The sum of the probabilities of discharge to community of all patients in the facility measure, including both the effects of patient characteristics and the facility, is the "predicted number" of discharges to community after adjusting for the facility's case mix. The same equation is used without the facility effect to compute the "expected number" of discharges to community for the same patients at the average facility.

The ratio of the predicted-to-expected number of discharges to community is a measure of the degree to which discharges to community are higher or lower than what would otherwise be expected. This standardized risk ratio is then multiplied by the mean discharge to community rate for all HHA stays for the measure, yielding the risk-standardized discharge to community rate for each HHA.

Please note that the estimation procedure is recalculated for each measurement period. Re-estimating the models for each measurement period allows the estimated effects of the patient characteristics to vary over time as patient case-mix and medical treatment patterns change.

Using a two-year reporting period, CMS intends to publicly report the performance of Medicare-certified home health agencies (with at least 20 home health stays) on the DTC-PAC HHA measure under three performance categories: "Better than Expected," "Same as Expected," and "Worse than Expected". Pursuing a categorical reporting method is consistent with the Hospital-Wide All-Cause Readmission Measure.

The following steps describe the calculation algorithm/measure logic for the DTC-PAC HHA measure:

Step 1: Identify patients meeting the criteria for the target population, after applying measure exclusions.

Step 2: Identify patients meeting the discharge to community criteria, i.e., discharge to community, no unplanned admissions on the day of home health discharge or in the 31 days following home health discharge, and no death on the day of home health discharge or in the 31 days following home health discharge.

Step 3: Identify presence or absence of risk adjustment variables for each patient.

Step 4: Calculate the predicted and expected number of discharges to community for each HHA using the hierarchical logistic regression model.

The predicted number of discharges to community for each HHA (i.e., numerator) is calculated as the sum of the predicted probability of discharge to community for each patient discharged from the HHA and included in the measure, including the HH-specific effect.

To calculate the predicted number of discharges to community,  $pred_j$ , for index HH stays at  $HHA_j$ , we used the following equation:

$$pred_j = \text{Slogit-1}(u + w_i + B \cdot Z_{ij}) \quad (2)$$

where the sum is over all stays in  $HHA_j$ , and  $w_i$  is the random intercept.

The expected number of discharges to community (i.e., denominator) is calculated as the sum of the predicted probability of discharges to community, but without the HH-specific effect included in the predictions. This produces the expected number of discharges at the average HHA.

To calculate the expected number  $exp_j$ , we used the following equation:

$$exp_j = \text{Slogit-1}(u + B \cdot Z_{ij}) \quad (3)$$

Step 5: Calculate the standardized risk ratio for each HHA, as the ratio of the predicted to expected number of discharges to community.

To calculate the HHA-wide standardized risk ratio,  $SRR_j$ , we used the following equation:

$$SRR_j = pred_j / exp_j \quad (4)$$

Step 6: Calculate the risk-standardized discharge to community rate for each HHA.

To aid interpretation, the HHA-wide standardized risk ratio,  $SRR_j$ , obtained from equation (4) is then multiplied by the overall national raw discharge to community rate for all HH stays,  $\bar{r}$ , to produce the HHA-wide risk-standardized discharge to community rate ( $RSR_j$ ).

To calculate the risk-standardized discharge to community rate for each HHA, we used the following equation:

$$RSR_j = SRR_j \cdot \bar{r} \quad (5)$$

NOTE: It is important to clarify that the DTC-PAC HHA measure is specific to HHA providers only.

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None

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## 3479 Discharge to Community-Post Acute Care Measure for Inpatient Rehabilitation Facilities

STEWARD

Centers for Medicare & Medicaid Services

DESCRIPTION

The Discharge to Community-Post Acute Care Measure for Inpatient Rehabilitation Facilities (DTC-PAC IRF) was developed to address the resource use and other measures domain of Discharge to the Community mandated by the Improving Medicare Post-Acute Care Transformation Act of 2014 (IMPACT Act). This outcome measure assesses successful discharge to community from an IRF, with successful discharge to community including no unplanned rehospitalizations and no death in the 31 days following IRF discharge. The measure reports an IRF's risk-standardized rate of Medicare fee-for-service (FFS) patients who are discharged to the community following an IRF stay, and do not have an unplanned readmission to an acute care hospital or long-term care hospital (LTCH) in the 31 days following discharge to community, and who remain alive during the 31 days following discharge to community. The measure is calculated using two consecutive years of Medicare FFS claims data and was developed using

calendar year (CY) 2012-2013 data. This submission is based on fiscal year (FY) 2016-2017 data; i.e., IRF discharges from October 1, 2015 through September 30, 2017.

The measure was adopted by the Centers for Medicare & Medicaid Services (CMS) for the IRF Quality Reporting Program (QRP) finalized in the FY 2017 IRF Prospective Payment System (PPS) Final Rule and implementation began October 1, 2016 [1]. Confidential feedback reports on measure performance were distributed to IRF providers in Fall 2017. The measure will be publicly reported on the IRF Compare website (<https://www.medicare.gov/inpatientrehabilitationfacilitycompare/>) in Fall 2018 using FY 2016-2017 data. Four claims-based discharge to community measures were developed for IRF, LTCH, skilled nursing facility, and home health agency settings to meet the mandate of the IMPACT Act. These measures were conceptualized uniformly across the four settings, in terms of the definition of the discharge to community outcome, the approach to risk-adjustment, and the measure calculation.

#### References

[1] Medicare Program; Inpatient Rehabilitation Facility Prospective Payment System for Federal Fiscal Year 2017 Federal Register, Vol. 81, No. 151. <https://www.gpo.gov/fdsys/pkg/FR-2016-08-05/pdf/2016-18196.pdf>

#### TYPE

Outcome

#### DATA SOURCE

Assessment Data, Claims, Management Data

#### LEVEL

Facility

#### SETTING

Post-Acute Care

#### NUMERATOR STATEMENT

The measure numerator is the risk-adjusted predicted estimate of the number of patients who are discharged to the community, and do not have an unplanned readmission to an acute care hospital or LTCH in the 31-day post-discharge observation window, and who remain alive during the post-discharge observation window.

This estimate starts with the observed number of discharges to community, defined as:

- (i) discharges to home or self care with or without home health services, based on Patient Discharge Status Codes 01, 06, 81, or 86 on the Medicare FFS claim [2]; and
- (ii) no unplanned acute or LTCH hospitalizations in the 31-day post-discharge window; and
- (iii) no death in the 31-day post-discharge window.

The discharge to community outcome is risk-adjusted for patient characteristics and a statistical estimate of the facility effect beyond case-mix (described below).

#### References

[2] National Uniform Billing Committee Official UB-04 Data Specifications Manual 2018, Version 12, July 2017, Copyright 2017, American Hospital Association.

## NUMERATOR DETAILS

The numerator uses a model estimated on full national data specific to the IRF setting; it is applied to the IRF's patient stays included in the measure and includes the estimated effect of that IRF. The prediction equation is based on a logistic regression model with a two-level hierarchical structure.

The patient stays in the model have an indicator of the facility they are discharged from; 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.

The risk-adjustment logistic model is re-estimated for every measurement period and model coefficients corresponding to the measurement period are used for measure calculation. Results of the logistic model presented in this submission are based FY 2016-2017 data.

Details about the three components of the measure outcome are described below.

### 1. DISCHARGE DESTINATION OF COMMUNITY

Discharge to a community destination is determined based on the "Patient Discharge Status Code" from the IRF FFS claim.[3] Discharge to a community destination is defined as discharge to home or self care with or without home health services as described below. While codes 81 and 86 are intended for use on acute care claims only, we observed some instances of these codes on post-acute claims; thus, we include codes 81 and 86 in our community definition.

Discharge Status Codes Indicating Community Discharge:

- 01 = Discharged to home or self care (routine discharge)
- 06 = Discharged/transferred to home under care of organized home health service organization
- 81 = Discharged to home or self care with a planned acute care hospital readmission
- 86 = Discharged/transferred to home under care of organized home health service organization with a planned acute care hospital inpatient readmission

### References

[3] National Uniform Billing Committee Official UB-04 Data Specifications Manual 2018, Version 12, July 2017, Copyright 2017, American Hospital Association.

### 2. UNPLANNED READMISSIONS IN THE 31-DAY POST-DISCHARGE OBSERVATION WINDOW

A patient who is discharged to a community setting is not considered to have a successful discharge to community outcome for this measure if they have a subsequent unplanned readmission to an acute care hospital or LTCH in the post-discharge observation window, which includes the day of discharge and 31 days following day of discharge. We only assess the first readmission encountered in the post-discharge window. Our definition of acute care hospital includes hospitals paid under the Inpatient Prospective Payment System (IPPS), critical access hospitals (CAH), and psychiatric hospitals or units. Using acute care and LTCH claims, we identify unplanned readmissions based on the CMS planned readmissions algorithm[4] used in the following post-acute care (PAC) readmission measures, which have been endorsed by the National Quality Forum (NQF) and used in several CMS programs: (i) Skilled Nursing Facility 30-Day All-Cause Readmission Measure (SNFRM) (NQF #2510); (ii) All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Inpatient Rehabilitation Facilities (IRFs) (NQF #2502); (iii) All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Long-Term Care Hospitals (LTCHs) (NQF #2512); and (iv) Rehospitalization During the First 30 Days of Home Health (NQF #2380).[5][6][7][8] The planned readmission algorithm used in these

PAC readmission measures are based on the Hospital-Wide All-Cause Unplanned Readmission Measure (HWR) (NQF #1789)[9], with some additions made for the SNF, IRF, and LTCH setting measures.[10] We used the most current version of the CMS planned readmission algorithm from the 2018 HWR measure specifications for the FY 2016-2017 measure calculation.[4] For future updates, we will use the most current version of the CMS planned readmission algorithm and make necessary updates to the additions made for post-acute care settings to ensure the algorithm corresponds to our measurement period.

The CMS planned readmission definition is based on the claim from the readmission having a code for a diagnosis or procedure that is considered planned; however, if a planned procedure is accompanied by a principal diagnosis in a specified list of acute diagnoses, the readmission is reclassified as unplanned. Readmissions to psychiatric hospitals or units are always classified as planned readmissions.

While the measure was developed with ICD-9-CM procedure and diagnosis codes, it has been transitioned using the ICD-9-CM to ICD-10-CM cross-walk.

#### References

- [4] Appendix E. Planned Readmission Algorithm Version 4.0 2018 (ICD-10). In: 2018 All-Cause Hospital Wide Measure Updates and Specifications Report: Hospital-Level 30-Day Risk-Standardized Readmission Measure – Version 7.0. Available at: [https://www.qualitynet.org/dcs/BlobServer?blobkey=id&blobnocache=true&blobwhere=1228890804653&blobheader=multipart%2Foctet-stream&blobheadername1=Content-Disposition&blobheadervalue1=attachment%3Bfilename%3DHospWide\\_Readmission\\_AUS\\_Report\\_2018\\_3-28.pdf&blobcol=urldata&blobtable=MungoBlobs](https://www.qualitynet.org/dcs/BlobServer?blobkey=id&blobnocache=true&blobwhere=1228890804653&blobheader=multipart%2Foctet-stream&blobheadername1=Content-Disposition&blobheadervalue1=attachment%3Bfilename%3DHospWide_Readmission_AUS_Report_2018_3-28.pdf&blobcol=urldata&blobtable=MungoBlobs) or <https://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1219069855841>.
- [5] Skilled Nursing Facility 30-Day All-Cause Readmission Measure (SNFRM) (NQF #2510). <http://www.qualityforum.org/QPS/2510>
- [6] All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Inpatient Rehabilitation Facilities (IRFs) (NQF #2502). <http://www.qualityforum.org/QPS/2502>
- [7] All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Long-Term Care Hospitals (LTCHs) (NQF #2512). <http://www.qualityforum.org/QPS/2512>
- [8] Rehospitalization During the First 30 Days of Home Health (NQF #2380). <http://www.qualityforum.org/QPS/2380>
- [9] Hospital-Wide All-Cause Unplanned Readmission Measure (HWR) (NQF #1789). [www.qualityforum.org/QPS/1789](http://www.qualityforum.org/QPS/1789)
- [10] Table 2-9. AHRQ CCS Single Level Procedure Codes and ICD-9 Procedure Codes Added to Yale’s Planned Readmission Algorithm, for the Post-Acute Care Setting. In: Measure Specifications for Measures Adopted in the FY 2017 IRF QRP Final Rule. <https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/IRF-Quality-Reporting/Downloads/Measure-Specifications-for-FY17-IRF-QRP-Final-Rule.pdf>. Note: The ICD-9 codes listed in Table 2-9 were updated with ICD-10-CM codes for data starting October 1, 2015.

### 3. DEATH IN THE 31-DAY POST-DISCHARGE OBSERVATION WINDOW

A patient who is discharged to a community setting is not considered to have a successful discharge to community outcome for this measure if they die in the post-discharge window,

which includes the day of discharge and the 31 days following day of discharge. Death in the post-discharge window is identified based on date of death from Medicare eligibility files.

#### MEASUREMENT PERIOD

The measure is calculated using two consecutive years of data to ensure adequate number of patient stays for risk-adjustment modeling. All IRF Medicare FFS discharges during the two-year measurement period, except those that meet the exclusion criteria (see S.8. and S.9.), are included in the measure. For patients with multiple stays during the two-year measurement period, each stay is eligible for inclusion in the measure.

#### DENOMINATOR STATEMENT

The target population for the measure is the group of Medicare FFS beneficiaries who are discharged from an IRF during the measurement period and are not excluded based on the measure exclusion criteria (see S.8. and S.9.).

The measure denominator is the risk-adjusted expected number of discharges to community. This estimate includes risk-adjustment for patient characteristics with the facility effect removed. The “expected” number of discharges to community is the predicted number of risk-adjusted discharges to community if the same patients were treated at the average facility. The logistic regression model used to calculate the denominator is developed using all non-excluded facility stays in the national data. The denominator is computed in the same way as the numerator, but the facility effect is set at the average.

#### DENOMINATOR DETAILS

The measure denominator is the risk-adjusted expected number of discharges to community. See S.8. for details. The target population includes all Medicare FFS beneficiaries who are discharged from an IRF during the measurement period and are not excluded based on the measure exclusion criteria. The target population for the analyses in this submission includes IRF discharges from October 1, 2015 through September 30, 2017 (i.e., FY 2016-2017). Index IRF stays are identified based on discharge date because the Inpatient Standard Analytic File (SAF) from which we extract IRF claims is based on discharge date.

#### EXCLUSIONS

Measure exclusion criteria are based on administrative data from Medicare claims and eligibility files. Exclusion criteria were selected to maintain clinical validity of the measure by excluding stays for which discharge to community would not be appropriate, to ensure data availability and completeness, to exclude stays with problematic claims data, and to maintain relevance to the IRF QRP (e.g., excluding IRFs not included in the IRF QRP based on regional location). Only IRF stays that are preceded by a short-term acute care stay in the 30 days prior to the IRF admission date are included in the measure; this is because risk-adjustment variables come from the short-term acute care stay in the 30 days prior to IRF admission. Stays ending in transfers to the same level of care (i.e., IRF-to-IRF discharge) are excluded, because the IRF episode of care had not ended. We also excluded certain discharge status codes on the IRF FFS claim that indicated that the patient was not appropriate for community discharge (e.g., discharges against medical advice). See section S.9 for detailed rationale and data sources for each exclusion.

- Measure exclusion criteria are as follows:
- Age under 18 years;



- No short-term acute care hospital discharge within the thirty days preceding an IRF admission;
- Discharges to a psychiatric hospital;
- Discharges against medical advice;
- Discharges to disaster alternative care site or a federal hospital;
- Discharges to court/law enforcement;
- Discharges to hospice or patient stays with a hospice benefit in the 31-day post-discharge window;
- Planned discharges to an acute or LTCH setting;
- Stays for patients without continuous Part A FFS Medicare enrollment during the 12 months prior to the IRF admission date and the 31 days after the IRF discharge;
- IRF stays preceded by a short-term acute care stay for non-surgical treatment of cancer;
- Stays ending in transfer to an IRF;
- Stays with problematic claims data (e.g. anomalous records for stays that overlap wholly or in part or are otherwise erroneous or contradictory; claims not paid);
- Exhaustion of Medicare Part A benefit during the IRF stay; and
- IRF stays in facilities outside of the United States, Puerto Rico, or another U.S. territory.

#### EXCLUSION DETAILS

Exclusions for the DTC-PAC IRF measure are listed below, along with the rationale and data source for each exclusion. The measure exclusion criteria are determined by processing Medicare FFS claims and eligibility data to determine whether the individual exclusion criteria are met. All exclusions are based on administrative data.

##### 1. Age under 18 years

Rationale:

- a. There is limited literature on discharge destination outcomes in this age group;
- b. Patients in this age group represent a different cohort, likely living with their parents, and may be expected to have higher discharge to community rates compared with the rest of the Medicare population; and
- c. Patients in this age group represent a small proportion of the IRF Medicare FFS population.

Data source: Birth date and IRF admission date from Inpatient SAF

##### 2. No short-term acute care discharge within the 30 days preceding IRF admission

Rationale: The most recent acute care claim from the 30 days prior to IRF admission provides the principal diagnosis and other important patient data for risk-adjustment. Stays without a short-term acute care discharge within the 30 days prior to PAC admission are excluded because important risk-adjustment data will be missing.

Data source: Hospital discharge date in Inpatient SAF acute care claims in the 30 days before IRF admission

##### 3. Discharges to psychiatric hospital

Rationale: Patients discharged to psychiatric hospital are excluded from the measure because community living at the time of discharge may be potentially inappropriate or unsafe for them due to their mental health or psychiatric condition. This exclusion is also intended to avoid the



potential unintended consequence of decreased IRF access for patients discharged from psychiatric hospitals.

Data source: Patient discharge status code from Inpatient SAF IRF claim

#### 4. Discharges against medical advice

Rationale: Stays ending in discharge against medical advice are excluded because the IRF care plan may not have been fully implemented, and the discharge destination may not reflect the facility's discharge recommendation. Additionally, patients discharged against medical advice may potentially be at higher risk of post-discharge readmissions or death, depending on their medical condition, or due to potential non-adherence or non-compliance with care recommendations.

Data source: Patient discharge status code from Inpatient SAF IRF claim

#### 5. Discharges to disaster alternative care sites or federal hospitals

Rationale: Stays ending in discharge to disaster alternative care sites are excluded because these discharges are likely influenced by external emergency conditions and may not represent discretionary discharges by the PAC provider. Discharges to federal hospitals are excluded because we will not have inpatient claims to determine whether the hospitalization was planned or unplanned.

Data source: Patient discharge status code from Inpatient SAF IRF claim

#### 6. Discharges to court/law enforcement

Rationale: Patients who are discharged to court or law enforcement are likely ineligible for discharge to the community due to legal restrictions.

Data source: Patient discharge status code from Inpatient SAF IRF claim

#### 7. Planned discharges to an acute or LTCH setting

Rationale: Planned discharges to an acute care hospital or LTCH are excluded as they indicate that community discharge was not appropriate for the patient. Planned discharges are determined based on the planned readmission algorithm described in section S.5.

Data source: The planned readmission algorithm is applied to diagnosis and procedure codes found on the first Inpatient SAF acute or LTCH claim, if any, on the day of or day after index IRF discharge.

#### 8. Stays ending in discharge to hospice and those with a hospice benefit in the post-discharge observation window

Rationale:

a. Patients discharged to hospice care and those with a hospice benefit in the post-discharge observation window are terminally ill and have very different goals of care compared with non-hospice patients. For non-hospice patients, the primary goal of post-acute care is to return to baseline, independent living in the community; death is an undesirable outcome in the non-hospice population. For hospice patients, the goal is to provide them the opportunity to die comfortably, at home or in a facility.

b. A large proportion of hospice patients die in the 31-day window following discharge from the post-acute setting.

c. The hospice agency, not the post-acute care setting, makes the final decision of discharge to hospice-home or hospice-facility.

Data source: Discharge to hospice is determined based on the Inpatient SAF IRF claim. Post-discharge hospice benefit is determined based on hospice enrollment dates (start and termination dates) in the Enrollment Database (EDB).

9. Patients not continuously enrolled in Part A FFS Medicare for the 12 months prior to the IRF admission date, and at least 31 days after IRF discharge date

Rationale: Patients not continuously enrolled in Medicare Part A FFS for the 12 months prior to IRF admission date are excluded because risk-adjustment for certain comorbidities requires information on acute inpatient bills for one year prior to IRF admission. Patients not continuously enrolled in Medicare Part A FFS for at least 31 days after IRF discharge are excluded because readmissions and death must be observable in the 31-day post-discharge period. Patients without Part A coverage or those who are enrolled in Medicare Advantage plans will not have complete inpatient claims in the system.

Data source: EDB and Denominator Files

10. IRF stays for which the prior short-term acute care stay was for non-surgical treatment of cancer

Rationale: Patient stays for which the prior short-term acute care stay was for non-surgical treatment of cancer are excluded because they have a different trajectory for recovery after discharge, with a high mortality rate. Exclusion of these stays is consistent with the hospital-wide and post-acute readmission measures listed in section S.5.

Data source: Diagnosis codes from the Inpatient SAF prior acute claim

11. IRF stays that end in transfer to the same level of care

Rationale: IRF stays that end in transfer to another IRF are excluded from the measure because the IRF episode has not ended. For an IRF episode that involves transfer to another IRF, only the final IRF provider is included in the measure. (Note that this exclusion does not apply to transitions across different levels of post-acute care (e.g., IRF-to-SNF)).

Data source: Patient discharge status code from Inpatient SAF IRF claim

12. IRF stays with claims data that are problematic (e.g., anomalous records for stays that overlap wholly or in part or are otherwise erroneous or contradictory, stays not matched to the denominator or EDB files, claims not paid)

Rationale: This measure requires accurate information from the post-acute stay and prior short-term acute care stay and from the denominator and EDB files for risk-adjustment.

Data source: Inpatient SAF claims, EDB and denominator files

13. Medicare Part A benefits exhausted

Rationale: Patient stays that have exhausted Medicare Part A coverage during the IRF stay are excluded because the discharge destination decision may be related to exhaustion of benefits.

Data source: Inpatient SAF IRF claim

14. Patient stays from facilities located outside of the United States, Puerto Rico or a U.S. territory

Rationale: Patient stays from foreign facilities may not have complete inpatient claims in the system, and these facilities may not be subject to policy decisions related to this quality measure nor included in the IRF Quality Reporting Program.

Data source: CMS Certification Number from the Inpatient SAF IRF claim

## RISK ADJUSTMENT

Statistical risk model

## STRATIFICATION

Not applicable

## TYPE SCORE

Rate/proportion

## ALGORITHM

The DTC-PAC IRF measure is risk-adjusted. To develop the risk-adjustment model for this measure, we analyzed Medicare inpatient SAF claims, Denominator, and EDB files, identifying FY 2016-2017 IRF Medicare FFS discharges preceded by an acute care hospitalization (IPPS, CAH, or psychiatric hospital) within 30 days before IRF admission date. We applied the measure exclusion criteria to determine the sample included in the risk-adjustment model. The measure is based on two consecutive fiscal years of data (FY 2016-2017 IRF Medicare FFS discharges).

### RISK-ADJUSTMENT VARIABLES

Risk-adjustment variables include demographic and eligibility characteristics; principal diagnoses from the prior short-term acute care stay; IRF case-mix groups (CMG); length of stay, types of surgery or procedures, and dialysis from the prior short-term acute care stay; comorbidities; and number of prior hospitalizations in the year preceding the IRF admission. See the attached Excel document for the full list of risk-adjusters.

### RISK-ADJUSTMENT MODELING AND MEASURE CALCULATION ALGORITHM

We used a hierarchical logistic regression model to predict the probability of discharge to community. Baseline patient characteristics related to the discharge to community outcome and a marker for the specific discharging facility are included in the equation. The equation is hierarchical in that both individual patient characteristics are accounted for, as well as the clustering of patient characteristics by facility. The statistical model estimates both the average predictive effect of the patient characteristics across all facilities, and the degree to which each facility has an effect on discharge to community that differs from that of the average facility. The facility effects are assumed to be randomly distributed around the average (according to a normal distribution).

When computing the facility effect, hierarchical modeling accounts for the known predictors of discharge to community, on average, such as baseline/admission patient characteristics, the observed facility rate, and the number of facility stays eligible for inclusion in the measure. The estimated facility effect is determined mostly by the facility's own data if the number of patient stays is relatively large (as the estimate would be relatively precise) but is adjusted toward the average if the number of stays is small (as that would yield a less precise estimate).

We used the following model:

Let  $Y_{ij}$ , denote the outcome (equal to 1 if patient  $i$  is discharged to community, 0 otherwise) for a patient  $i$  at facility  $j$ ;  $Z_{ij}$  denotes a set of risk-adjustment variables. We assume the outcome is related to the risk adjusters via a logit function with dispersion:

$$\text{logit}(\text{Prob}(Y_{ij} = 1)) = \alpha_j + \beta * Z_{ij} + e_{ij} \quad (1)$$

$$\alpha_j = \mu + \tau_j ; \tau_j \sim N(0, \tau^2)$$

where  $Z_{ij} = (Z_{1j}, Z_{2j}, \dots, Z_{kj})$  is a set of  $k$  patient-level risk-adjustment variables;  $\alpha_j$  represents the facility-specific intercept;  $\mu$  is the adjusted average outcome across all facilities;  $\tau^2$  is the between-facility variance component; and  $e \sim N(0, \sigma^2)$  is the error term.

The hierarchical logistic regression model is estimated using SAS software (PROC GLIMMIX: SAS/STAT User's Guide, SAS Institute Inc.).

The estimated equation is used twice in the measure. The sum of the probabilities of discharge to community of all patients in the facility measure, including both the effects of patient characteristics and the facility, is the "predicted number" of discharges to community after adjusting for the facility's case mix. The same equation is used without the facility effect to compute the "expected number" of discharges to community for the same patients at the average facility.

The ratio of the predicted-to-expected number of discharges to community (i.e., standardized risk ratio (SRR)) is a measure of the degree to which discharges to community are higher or lower than what would otherwise be expected. The SRR is then multiplied by the national stay-level observed discharge to community rate for all facility stays in the measure, yielding the risk-standardized discharge to community rate for each facility.

The estimation procedure is recalculated for each measurement period. Re-estimating the models for each measurement period allows the estimated effects of the patient characteristics to vary over time as patient case-mix and medical treatment patterns change.

The following steps describe the calculation algorithm/measure logic for the DTC-PAC IRF measure:

Step 1: Identify stays meeting the criteria for the target population, after applying measure exclusions.

Step 2: Identify stays meeting the discharge to community criteria, i.e., discharge to community, no unplanned readmissions on the day of discharge or in the 31 days following discharge, and no death on the day of discharge or in the 31 days following discharge.

Step 3: Identify presence or value of risk-adjustment variables for each patient stay.

Step 4: Calculate the predicted and expected number of discharges to community for each facility using the hierarchical logistic regression model.

The predicted number of discharges to community for each facility (i.e., numerator) is calculated as the sum of the predicted probability of discharge to community for each patient discharged from the facility and included in the measure, including the facility-specific effect.

To calculate the predicted number of discharges to community,  $\text{pred}_j$ , for index stays at facility  $j$ , we used the following equation:

$$\text{pred}_j = \sum_i \text{Slogit-1}(\alpha_j + \beta_i + \beta_i * Z_{ij}) \quad (2)$$

where the sum is over all stays in facility  $j$ , and  $\alpha_j$  is the facility effect.

The expected number of discharges to community (i.e., denominator) is calculated as the sum of the predicted probability of discharges to community, but without the facility-specific effect included in the predictions. This produces the expected number of discharges at the average facility. To calculate the expected number  $\text{exp}_j$ , we used the following equation:

$$\text{exp}_j = \sum_i \text{Slogit-1}(\beta_i + \beta_i * Z_{ij}) \quad (3)$$

Step 5: Calculate the SRR for each facility, as the ratio of the predicted-to-expected number of discharges to community.

To calculate the facility-level SRR,  $\text{SRR}_j$ , we used the following equation:

$$SRR_j = \text{pred}_j / \text{exp}_j \quad (4)$$

Step 6: Calculate the risk-standardized discharge to community rate for each facility.

To aid interpretation, the facility-level SRR,  $SRR_j$ , obtained from equation (4) is then multiplied by the overall national stay-level observed discharge to community rate for all facility stays,  $\bar{y}$ , to produce the facility-level risk-standardized discharge to community rate ( $RSR_j$ ).

To calculate the risk-standardized discharge to community rate for each facility, we used the following equation:

$$RSR_j = SRR_j * \bar{y} \quad (5)$$

The DTC-PAC IRF measure is specific to IRF providers only.

#### COPYRIGHT / DISCLAIMER

None

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### 3480 Discharge to Community-Post Acute Care Measure for Long-Term Care Hospitals (LTCH)

#### STEWARD

Centers for Medicare & Medicaid Services

#### DESCRIPTION

The Discharge to Community-Post Acute Care Measure for Long-Term Care Hospitals (DTC-PAC LTCH) was developed to address the resource use and other measures domain of Discharge to the Community mandated by the Improving Medicare Post-Acute Care Transformation Act of 2014 (IMPACT Act). This outcome measure assesses successful discharge to community from an LTCH, with successful discharge to community including no unplanned rehospitalizations and no death in the 31 days following LTCH discharge. The measure reports an LTCH's risk-standardized rate of Medicare fee-for-service (FFS) patients who are discharged to the community following an LTCH stay, and do not have an unplanned readmission to an acute care hospital or long-term care hospital (LTCH) in the 31 days following discharge to community, and who remain alive during the 31 days following discharge to community. The measure is calculated using two consecutive years of Medicare FFS claims data and was developed using calendar year (CY) 2012-2013 data. This submission is based on fiscal year (FY) 2016-2017 data; i.e., LTCH discharges from October 1, 2015 through September 30, 2017.

The measure was adopted by the Centers for Medicare & Medicaid Services (CMS) for the LTCH Quality Reporting Program (QRP) finalized in the FY 2017 Inpatient Prospective Payment System (IPPS)/LTCH PPS Final Rule and implementation began October 1, 2016 [1]. Confidential feedback reports on measure performance were distributed to LTCH providers in Fall 2017. The measure will be publicly reported on the LTCH Compare website (<https://www.medicare.gov/longtermcarehospitalcompare/>) in Fall 2018 using FY 2016-2017 data. Four claims-based discharge to community measures were developed for LTCH, inpatient rehabilitation facility, skilled nursing facility, and home health agency settings to meet the mandate of the IMPACT Act. These measures were conceptualized uniformly across the four settings, in terms of the definition of the discharge to community outcome, the approach to risk-adjustment, and the measure calculation.

References

[1] Medicare Program; Hospital Inpatient Prospective Payment Systems for Acute Care Hospitals and the Long-Term Care Hospital Prospective Payment System and Policy Changes and Fiscal Year 2017 Rates; Quality Reporting Requirements for Specific Providers; Graduate Medical Education; Hospital Notification Procedures Applicable to Beneficiaries Receiving Observation Services; Technical Changes Relating to Costs to Organizations and Medicare Cost Reports; Finalization of Interim Final Rules With Comment Period on LTCH PPS Payments for Severe Wounds, Modifications of Limitations on Redesignation by the Medicare Geographic Classification Review Board, and Extensions of Payments to MDHs and Low-Volume Hospitals, Vol. 81, No. 162. <https://www.gpo.gov/fdsys/pkg/FR-2016-08-22/pdf/2016-18476.pdf>

#### TYPE

Outcome

#### DATA SOURCE

Assessment Data, Claims, Management Data

#### LEVEL

Facility

#### SETTING

Post-Acute Care

#### NUMERATOR STATEMENT

The measure numerator is the risk-adjusted predicted estimate of the number of patients who are discharged to the community, and do not have an unplanned readmission to an acute care hospital or LTCH in the 31-day post-discharge observation window, and who remain alive during the post-discharge observation window.

This estimate starts with the observed number of discharges to community, defined as:

- (i) discharges to home or self care with or without home health services, based on Patient Discharge Status Codes 01, 06, 81, or 86 on the Medicare FFS claim [2]; and
- (ii) no unplanned acute or LTCH hospitalizations in the 31-day post-discharge window; and
- (iii) no death in the 31-day post-discharge window.

The discharge to community outcome is risk-adjusted for patient characteristics and a statistical estimate of the facility effect beyond case-mix (described below).

#### References

[2] National Uniform Billing Committee Official UB-04 Data Specifications Manual 2018, Version 12, July 2017, Copyright 2017, American Hospital Association.

#### NUMERATOR DETAILS

The numerator uses a model estimated on full national data specific to the LTCH setting; it is applied to the LTCH's patient stays included in the measure and includes the estimated effect of that LTCH. The prediction equation is based on a logistic regression model with a two-level hierarchical structure.

The patient stays in the model have an indicator of the facility they are discharged from; 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. The risk-adjustment logistic model is re-estimated for every measurement period and model coefficients corresponding to the measurement period are used for measure calculation. Results of the logistic model presented in this submission are based FY 2016-2017 data.

Details about the three components of the measure outcome are described below.

#### 1. DISCHARGE DESTINATION OF COMMUNITY

Discharge to a community destination is determined based on the “Patient Discharge Status Code” from the LTCH FFS claim.[3] Discharge to a community destination is defined as discharge to home or self care with or without home health services as described below. While codes 81 and 86 are intended for use on acute care claims only, we observed some instances of these codes on post-acute claims; thus, we include codes 81 and 86 in our community definition.

Discharge Status Codes Indicating Community Discharge:

- 01 = Discharged to home or self care (routine discharge)
- 06 = Discharged/transferred to home under care of organized home health service organization
- 81 = Discharged to home or self care with a planned acute care hospital readmission
- 86 = Discharged/transferred to home under care of organized home health service organization with a planned acute care hospital inpatient readmission

#### References

[3] National Uniform Billing Committee Official UB-04 Data Specifications Manual 2018, Version 12, July 2017, Copyright 2017, American Hospital Association.

#### 2. UNPLANNED READMISSIONS IN THE 31-DAY POST-DISCHARGE OBSERVATION WINDOW

A patient who is discharged to a community setting is not considered to have a successful discharge to community outcome for this measure if they have a subsequent unplanned readmission to an acute care hospital or LTCH in the post-discharge observation window, which includes the day of discharge and 31 days following day of discharge. We only assess the first readmission encountered in the post-discharge window. Our definition of acute care hospital includes hospitals paid under the Inpatient Prospective Payment System (IPPS), critical access hospitals (CAH), and psychiatric hospitals or units. Using acute care and LTCH claims, we identify unplanned readmissions based on the CMS planned readmissions algorithm [4] used in the following post-acute care (PAC) readmission measures, which have been endorsed by the National Quality Forum (NQF) and used in several CMS programs: (i) Skilled Nursing Facility 30-Day All-Cause Readmission Measure (SNFRM) (NQF #2510); (ii) All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Inpatient Rehabilitation Facilities (IRFs) (NQF #2502); (iii) All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Long-Term Care Hospitals (LTCHs) (NQF #2512); and (iv) Rehospitalization During the First 30 Days of Home Health (NQF #2380).[5][6][7][8] The planned readmission algorithm used in these PAC readmission measures are based on the Hospital-Wide All-Cause Unplanned Readmission Measure (HWR) (NQF #1789)[9], with some additions made for the SNF, IRF, and LTCH setting measures.[10] We used the most current version of the CMS planned readmission algorithm from the 2018 HWR measure specifications for the FY 2016-2017 measure calculation in this submission.[4] For future updates, we will use the most current version of the CMS planned readmission algorithm and make necessary updates to the additions made for post-acute care settings to ensure the algorithm corresponds to our measurement period.



The CMS planned readmission definition is based on the claim from the readmission having a code for a diagnosis or procedure that is considered planned; however, if a planned procedure is accompanied by a principal diagnosis in a specified list of acute diagnoses, the readmission is reclassified as unplanned. Readmissions to psychiatric hospitals or units are always classified as planned readmissions.

While the measure was developed with ICD-9-CM procedure and diagnosis codes, it has been transitioned using the ICD-9-CM to ICD-10-CM cross-walk.

#### References

[4] Appendix E. Planned Readmission Algorithm Version 4.0 2018 (ICD-10). In: 2018 All-Cause Hospital Wide Measure Updates and Specifications Report: Hospital-Level 30-Day Risk-Standardized Readmission Measure – Version 7.0. Available at: [https://www.qualitynet.org/dcs/BlobServer?blobkey=id&blobnocache=true&blobwhere=1228890804653&blobheader=multipart%2Foctet-stream&blobheadername1=Content-Disposition&blobheadervalue1=attachment%3Bfilename%3DHospWide\\_Readmission\\_AUS\\_Report\\_2018\\_3-28.pdf&blobcol=urldata&blobtable=MungoBlobs](https://www.qualitynet.org/dcs/BlobServer?blobkey=id&blobnocache=true&blobwhere=1228890804653&blobheader=multipart%2Foctet-stream&blobheadername1=Content-Disposition&blobheadervalue1=attachment%3Bfilename%3DHospWide_Readmission_AUS_Report_2018_3-28.pdf&blobcol=urldata&blobtable=MungoBlobs) or <https://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1219069855841>.

[5] Skilled Nursing Facility 30-Day All-Cause Readmission Measure (SNFRM) (NQF #2510). <http://www.qualityforum.org/QPS/2510>

[6] All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Inpatient Rehabilitation Facilities (IRFs) (NQF #2502). <http://www.qualityforum.org/QPS/2502>

[7] All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Long-Term Care Hospitals (LTCHs) (NQF #2512). <http://www.qualityforum.org/QPS/2512>

[8] Rehospitalization During the First 30 Days of Home Health (NQF #2380). <http://www.qualityforum.org/QPS/2380>

[9] Hospital-Wide All-Cause Unplanned Readmission Measure (HWR) (NQF #1789). [www.qualityforum.org/QPS/1789](http://www.qualityforum.org/QPS/1789)

[10] Table 2-7. AHRQ CCS Single Level Procedure Codes and ICD-9 Procedure Codes Added to Yale's Planned Readmission Algorithm, for the Post-Acute Care Setting. In: Measure Specifications for Measures Adopted in the FY 2017 LTCH QRP Final Rule. Available at: <https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/LTCH-Quality-Reporting/Downloads/Measure-Specifications-for-FY17-LTCH-QRP-Final-Rule.pdf>. Note: The ICD-9 codes listed in Table 2-7 were updated with ICD-10-CM codes for data starting October 1, 2015.

### 3. DEATH IN THE 31-DAY POST-DISCHARGE OBSERVATION WINDOW

A patient who is discharged to a community setting is not considered to have a successful discharge to community outcome for this measure if they die in the post-discharge window, which includes the day of discharge and the 31 days following day of discharge. Death in the post-discharge window is identified based on date of death from Medicare eligibility files.

#### MEASUREMENT PERIOD

The measure is calculated using two consecutive years of data to ensure adequate number of patient stays for risk-adjustment modeling. All LTCH Medicare FFS discharges during the two-year measurement period, except those that meet the exclusion criteria (see S.8. and S.9.), are included in the measure. For patients with multiple stays during the two-year measurement period, each stay is eligible for inclusion in the measure.



## DENOMINATOR STATEMENT

The target population for the measure is the group of Medicare FFS beneficiaries who are discharged from an LTCH during the measurement period and are not excluded based on the measure exclusion criteria (see S.8. and S.9.).

The measure denominator is the risk-adjusted expected number of discharges to community. This estimate includes risk-adjustment for patient characteristics with the facility effect removed. The “expected” number of discharges to community is the predicted number of risk-adjusted discharges to community if the same patients were treated at the average facility. The logistic regression model used to calculate the denominator is developed using all non-excluded facility stays in the national data. The denominator is computed in the same way as the numerator, but the facility effect is set at the average.

## DENOMINATOR DETAILS

The measure denominator is the risk-adjusted expected number of discharges to community. See S.8. for details. The target population includes all Medicare FFS beneficiaries who are discharged from an LTCH during the measurement period and are not excluded based on the measure exclusion criteria. The target population for the analyses in this submission includes LTCH discharges from October 1, 2015 through September 30, 2017 (i.e., FY 2016-2017). Index LTCH stays are identified based on discharge date because the Inpatient Standard Analytic File (SAF) from which we extract LTCH claims is based on discharge date.

## EXCLUSIONS

Measure exclusion criteria are based on administrative data from Medicare claims and eligibility files. Exclusion criteria were selected to maintain clinical validity of the measure by excluding stays for which discharge to community would not be appropriate, to ensure data availability and completeness, to exclude stays with problematic claims data, and to maintain relevance to the LTCH QRP (e.g., excluding LTCHs not included in the LTCH QRP based on regional location). Only LTCH stays that are preceded by a short-term acute care stay in the 30 days prior to the LTCH admission date are included in the measure; this is because risk-adjustment variables come from the short-term acute care stay in the 30 days prior to LTCH admission. Stays ending in transfers to the same level of care (i.e., LTCH-to-LTCH discharge) are excluded, because the LTCH episode of care had not ended. We also excluded certain discharge status codes on the LTCH FFS claim that indicated that the patient was not appropriate for community discharge (e.g., discharges against medical advice). See section S.9 for detailed rationale and data sources for each exclusion.

Measure exclusion criteria are as follows:

- Age under 18 years;
- No short-term acute care hospital discharge within the thirty days preceding an LTCH admission;
- Discharges to a psychiatric hospital;
- Discharges against medical advice;
- Discharges to disaster alternative care site or a federal hospital;
- Discharges to court/law enforcement;
- Discharges to hospice or patient stays with a hospice benefit in the 31-day post-discharge window;

- Planned discharges to an acute or LTCH setting;
- Stays for patients without continuous Part A FFS Medicare enrollment during the 12 months prior to the LTCH admission date and the 31 days after the LTCH discharge;
- LTCH stays preceded by a short-term acute care stay for non-surgical treatment of cancer;
- Stays ending in transfer to an LTCH;
- Stays with problematic claims data (e.g. anomalous records for stays that overlap wholly or in part or are otherwise erroneous or contradictory, claims not paid);
- Exhaustion of Medicare Part A benefit during the LTCH stay; and
- LTCH stays in facilities outside of the United States, Puerto Rico, or another U.S. territory.

#### EXCLUSION DETAILS

Exclusions for the DTC-PAC LTCH measure are listed below, along with the rationale and data source for each exclusion. The measure exclusion criteria are determined by processing Medicare FFS claims and eligibility data to determine whether the individual exclusion criteria are met. All exclusions are based on administrative data.

##### 1. Age under 18 years

Rationale:

- a. There is limited literature on discharge destination outcomes in this age group;
- b. Patients in this age group represent a different cohort, likely living with their parents, and may be expected to have higher discharge to community rates compared with the rest of the Medicare population; and
- c. Patients in this age group represent a small proportion of the LTCH Medicare FFS population.

Data source: Birth date and LTCH admission date from Inpatient SAF

##### 2. No short-term acute care discharge within the 30 days preceding LTCH admission

Rationale: The most recent acute care claim from the 30 days prior to LTCH admission provides the principal diagnosis and other important patient data for risk-adjustment. Stays without a short-term acute care discharge within the 30 days prior to PAC admission are excluded because important risk-adjustment data will be missing.

Data source: Hospital discharge date in Inpatient SAF acute care claims in the 30 days before LTCH admission

##### 3. Discharges to psychiatric hospital

Rationale: Patients discharged to psychiatric hospital are excluded from the measure because community living at the time of discharge may be potentially inappropriate or unsafe for them due to their mental health or psychiatric condition. This exclusion is also intended to avoid the potential unintended consequence of decreased LTCH access for patients discharged from psychiatric hospitals.

Data source: Patient discharge status code from Inpatient SAF LTCH claim

##### 4. Discharges against medical advice

Rationale: Stays ending in discharge against medical advice are excluded because the LTCH care plan may not have been fully implemented, and the discharge destination may not reflect the facility's discharge recommendation. Additionally, patients discharged against medical advice

may potentially be at higher risk of post-discharge readmissions or death, depending on their medical condition, or due to potential non-adherence or non-compliance with care recommendations.

Data source: Patient discharge status code from Inpatient SAF LTCH claim

#### 5. Discharges to disaster alternative care sites or federal hospitals

Rationale: Stays ending in discharge to disaster alternative care sites are excluded because these discharges are likely influenced by external emergency conditions and may not represent discretionary discharges by the PAC provider. Discharges to federal hospitals are excluded because we will not have inpatient claims to determine whether the hospitalization was planned or unplanned.

Data source: Patient discharge status code from Inpatient SAF LTCH claim

#### 6. Discharges to court/law enforcement

Rationale: Patients who are discharged to court or law enforcement are likely ineligible for discharge to the community due to legal restrictions.

Data source: Patient discharge status code from Inpatient SAF LTCH claim

#### 7. Planned discharges to an acute or LTCH setting

Rationale: Planned discharges to an acute care hospital or LTCH are excluded as they indicate that community discharge was not appropriate for the patient. Planned discharges are determined based on the planned readmission algorithm described in section S.5.

Data source: The planned readmission algorithm is applied to diagnosis and procedure codes found on the first Inpatient SAF acute or new LTCH claim, if any, on the day of or day after index LTCH discharge.

#### 8. Stays ending in discharge to hospice and those with a hospice benefit in the post-discharge observation window

Rationale:

a. Patients discharged to hospice care and those with a hospice benefit in the post-discharge observation window are terminally ill and have very different goals of care compared with non-hospice patients. For non-hospice patients, the primary goal of post-acute care is to return to baseline, independent living in the community; death is an undesirable outcome in the non-hospice population. For hospice patients, the goal is to provide them the opportunity to die comfortably, at home or in a facility.

b. A large proportion of hospice patients die in the 31-day window following discharge from the post-acute setting.

c. The hospice agency, not the post-acute care setting, makes the final decision of discharge to hospice-home or hospice-facility.

Data source: Discharge to hospice is determined based on the Inpatient SAF LTCH claim. Post-discharge hospice benefit is determined based on hospice enrollment dates (start and termination dates) in the Enrollment Database (EDB).

#### 9. Patients not continuously enrolled in Part A FFS Medicare for the 12 months prior to the LTCH admission date, and at least 31 days after LTCH discharge date

Rationale: Patients not continuously enrolled in Medicare Part A FFS for the 12 months prior to LTCH admission date are excluded because risk-adjustment for certain comorbidities requires information on acute inpatient bills for one year prior to LTCH admission. Patients not continuously enrolled in Medicare Part A FFS for at least 31 days after LTCH discharge are

excluded because readmissions and death must be observable in the 31-day post-discharge period. Patients without Part A coverage or those who are enrolled in Medicare Advantage plans will not have complete inpatient claims in the system.

Data source: EDB and Denominator Files

10. LTCH stays for which the prior short-term acute care stay was for non-surgical treatment of cancer

Rationale: Patient stays for which the prior short-term acute care stay was for non-surgical treatment of cancer are excluded because they have a different trajectory for recovery after discharge, with a high mortality rate. Exclusion of these stays is consistent with the hospital-wide and post-acute readmission measures listed in section S.5.

Data source: Diagnosis codes from the Inpatient SAF prior acute claim

11. LTCH stays that end in transfer to the same level of care

Rationale: LTCH stays that end in transfer to another LTCH are excluded from the measure because the LTCH episode has not ended. For an LTCH episode that involves transfer to another LTCH, only the final LTCH provider is included in the measure. (Note that this exclusion does not apply to transitions across different levels of post-acute care (e.g., LTCH-to-SNF)).

Data source: Patient discharge status code from Inpatient SAF LTCH claim

12. LTCH stays with claims data that are problematic (e.g., anomalous records for stays that overlap wholly or in part or are otherwise erroneous or contradictory, stays not matched to the denominator or EDB files, claims not paid)

Rationale: This measure requires accurate information from the post-acute stay and prior short-term acute care stay and from the denominator and EDB files for risk-adjustment.

Data source: Inpatient SAF claims, EDB and denominator files

13. Medicare Part A benefits exhausted

Rationale: Patient stays that have exhausted Medicare Part A coverage during the LTCH stay are excluded because the discharge destination decision may be related to exhaustion of benefits.

Data source: Inpatient SAF LTCH claim

14. Patient stays from facilities located outside of the United States, Puerto Rico or a U.S. territory

Rationale: Patient stays from foreign facilities may not have complete inpatient claims in the system, and these facilities may not be subject to policy decisions related to this quality measure nor included in the LTCH Quality Reporting Program.

Data source: CMS Certification Number from the Inpatient SAF LTCH claim

#### RISK ADJUSTMENT

Statistical risk model

#### STRATIFICATION

Not applicable

#### TYPE SCORE

Rate/proportion

## ALGORITHM

The DTC-PAC LTCH measure is risk-adjusted. To develop the risk-adjustment model for this measure, we analyzed Medicare inpatient SAF claims, Denominator, and EDB files, identifying FY 2016-2017 LTCH Medicare FFS discharges preceded by an acute care hospitalization (IPPS, CAH, or psychiatric hospital) within 30 days before LTCH admission date. We applied the measure exclusion criteria to determine the sample included in the risk-adjustment model. The measure is based on two consecutive fiscal years of data (FY 2016-2017 LTCH Medicare FFS discharges).

### RISK-ADJUSTMENT VARIABLES

Risk-adjustment variables include demographic and eligibility characteristics; principal diagnoses from the prior short-term acute care stay; length of stay, types of surgery or procedures, intensive care utilization, ventilator use, and dialysis from the prior short-term acute care stay; comorbidities; and number of prior hospitalizations in the year preceding the LTCH admission. See the attached Excel document for the full list of risk-adjusters.

### RISK-ADJUSTMENT MODELING AND MEASURE CALCULATION ALGORITHM

We used a hierarchical logistic regression model to predict the probability of discharge to community. Baseline patient characteristics related to the discharge to community outcome and a marker for the specific discharging facility are included in the equation. The equation is hierarchical in that both individual patient characteristics are accounted for, as well as the clustering of patient characteristics by facility. The statistical model estimates both the average predictive effect of the patient characteristics across all facilities, and the degree to which each facility has an effect on discharge to community that differs from that of the average facility. The facility effects are assumed to be randomly distributed around the average (according to a normal distribution).

When computing the facility effect, hierarchical modeling accounts for the known predictors of discharge to community, on average, such as baseline/admission patient characteristics, the observed facility rate, and the number of facility stays eligible for inclusion in the measure. The estimated facility effect is determined mostly by the facility's own data if the number of patient stays is relatively large (as the estimate would be relatively precise) but is adjusted toward the average if the number of stays is small (as that would yield a less precise estimate).

We used the following model:

Let  $Y_{ij}$ , denote the outcome (equal to 1 if patient  $i$  is discharged to community, 0 otherwise) for a patient  $i$  at facility  $j$ ;  $Z_{ij}$  denotes a set of risk-adjustment variables. We assume the outcome is related to the risk adjusters via a logit function with dispersion:

$$\text{logit}(\text{Prob}(Y_{ij}=1)) = a_j + \beta * Z_{ij} + e_{ij} \quad (1)$$

$$a_j = \mu + \tau_j ; \tau_j \sim N(0, \tau^2)$$

where  $Z_{ij} = (Z_{1j}, Z_{2j}, \dots, Z_{kj})$  is a set of  $k$  patient-level risk-adjustment variables;  $a_j$  represents the facility-specific intercept;  $\mu$  is the adjusted average outcome across all facilities;  $\tau^2$  is the between-facility variance component; and  $e \sim N(0, s^2)$  is the error term.

The hierarchical logistic regression model is estimated using SAS software (PROC GLIMMIX: SAS/STAT User's Guide, SAS Institute Inc.).

The estimated equation is used twice in the measure. The sum of the probabilities of discharge to community of all patients in the facility measure, including both the effects of patient characteristics and the facility, is the "predicted number" of discharges to community after adjusting for the facility's case mix. The same equation is used without the facility effect to

compute the “expected number” of discharges to community for the same patients at the average facility.

The ratio of the predicted-to-expected number of discharges to community (i.e., standardized risk ratio (SRR)) is a measure of the degree to which discharges to community are higher or lower than what would otherwise be expected. The SRR is then multiplied by the national stay-level observed discharge to community rate for all facility stays for the measure, yielding the risk-standardized discharge to community rate for each facility.

The estimation procedure is recalculated for each measurement period. Re-estimating the models for each measurement period allows the estimated effects of the patient characteristics to vary over time as patient case-mix and medical treatment patterns change.

The following steps describe the calculation algorithm/measure logic for the DTC-PAC LTCH measure:

Step 1: Identify stays meeting the criteria for the target population, after applying measure exclusions.

Step 2: Identify stays meeting the discharge to community criteria, i.e., discharge to community, no unplanned readmissions on the day of discharge or in the 31 days following discharge, and no death on the day of discharge or in the 31 days following discharge.

Step 3: Identify presence or value of risk-adjustment variables for each patient stay.

Step 4: Calculate the predicted and expected number of discharges to community for each facility using the hierarchical logistic regression model.

The predicted number of discharges to community for each facility (i.e., numerator) is calculated as the sum of the predicted probability of discharge to community for each patient discharged from the facility and included in the measure, including the facility-specific effect.

To calculate the predicted number of discharges to community,  $pred_j$ , for index stays at facility  $j$ , we used the following equation:

$$pred_j = \sum_i \text{Slogit-1}(\beta_0 + \beta_i + \beta_i^*Z_{ij}) \quad (2)$$

where the sum is over all stays in facility  $j$ , and  $\beta_i$  is the facility effect.

The expected number of discharges to community (i.e., denominator) is calculated as the sum of the predicted probability of discharges to community, but without the facility-specific effect included in the predictions. This produces the expected number of discharges at the average facility. To calculate the expected number  $exp_j$ , we used the following equation:

$$exp_j = \sum_i \text{Slogit-1}(\beta_0 + \beta_i^*Z_{ij}) \quad (3)$$

Step 5: Calculate the SRR for each facility, as the ratio of the predicted to expected number of discharges to community.

To calculate the facility-level SRR,  $SRR_j$ , we used the following equation:

$$SRR_j = pred_j/exp_j \quad (4)$$

Step 6: Calculate the risk-standardized discharge to community rate for each facility.

To aid interpretation, the facility-level SRR,  $SRR_j$ , obtained from equation (4) is then multiplied by the overall national stay-level observed discharge to community rate for all facility stays,  $\beta$ , to produce the facility-level risk-standardized discharge to community rate ( $RSR_j$ ).

To calculate the risk-standardized discharge to community rate for each facility, we used the following equation:

$$RSR_j = SRR_j * \beta \quad (5)$$

The DTC-PAC LTCH measure is specific to LTCH providers only.

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None

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**3481 Discharge to Community-Post Acute Care Measure for Skilled Nursing Facilities (SNF)**

STEWARD

Centers for Medicare & Medicaid Services

DESCRIPTION

The Discharge to Community-Post Acute Care Measure for Skilled Nursing Facilities (DTC-PAC SNF) was developed to address the resource use and other measures domain of Discharge to the Community mandated by the Improving Medicare Post-Acute Care Transformation Act of 2014 (IMPACT Act). This outcome measure assesses successful discharge to community from a SNF, with successful discharge to community including no unplanned rehospitalizations and no death in the 31 days following SNF discharge. The measure reports a SNF's risk-standardized rate of Medicare fee-for-service (FFS) residents who are discharged to the community following a SNF stay, and do not have an unplanned readmission to an acute care hospital or long-term care hospital (LTCH) in the 31 days following discharge to community, and who remain alive during the 31 days following discharge to community. The measure is calculated using one year of Medicare FFS claims data and was developed using calendar year (CY) 2013 data. This submission is based on fiscal year (FY) 2017 data; i.e., SNF admissions from October 1, 2016 through September 30, 2017.

The measure was adopted by the Centers for Medicare & Medicaid Services (CMS) for the SNF Quality Reporting Program (QRP) finalized in the FY 2017 SNF Prospective Payment System (PPS) Final Rule and implementation began October 1, 2016 [1]. Confidential feedback reports on measure performance were distributed to SNF providers in Fall 2017. The measure will be publicly reported on the SNF Compare website (<https://www.medicare.gov/nursinghomecompare/search.html?>) in Fall 2018 using FY 2017 data. Four claims-based discharge to community measures were developed for SNF, LTCH, inpatient rehabilitation facility, and home health agency settings to meet the mandate of the IMPACT Act. These measures were conceptualized uniformly across the four settings, in terms of the definition of the discharge to community outcome, the approach to risk adjustment, and the measure calculation.

References

[1] Medicare Program; Prospective Payment System and Consolidated Billing for Skilled Nursing Facilities for FY 2017, SNF Value-Based Purchasing Program, SNF Quality Reporting Program, and SNF Payment Models Research, Vol. 81, No. 151. <https://www.gpo.gov/fdsys/pkg/FR-2016-08-05/pdf/2016-18113.pdf>

TYPE

Outcome

DATA SOURCE

Assessment Data, Claims, Management Data



## LEVEL

Facility

## SETTING

Skilled Nursing Facilities

## NUMERATOR STATEMENT

The measure numerator is the risk-adjusted predicted estimate of the number of residents who are discharged to the community, and do not have an unplanned readmission to an acute care hospital or LTCH in the 31-day post-discharge observation window, and who remain alive during the post-discharge observation window.

This estimate starts with the observed number of discharges to community, defined as:

- (i) discharges to home or self care with or without home health services, based on Patient Discharge Status Codes 01, 06, 81, or 86 on the Medicare FFS claim [2]; and
- (ii) no unplanned acute or LTCH hospitalizations in the 31-day post-discharge window; and
- (iii) no death in the 31-day post-discharge window.

The discharge to community outcome is risk-adjusted for resident characteristics and a statistical estimate of the facility effect beyond case-mix (described below).

### References

[2] National Uniform Billing Committee Official UB-04 Data Specifications Manual 2018, Version 12, July 2017, Copyright 2017, American Hospital Association.

## NUMERATOR DETAILS

None

## DENOMINATOR STATEMENT

The target population for the measure is the group of Medicare FFS beneficiaries who are admitted to a SNF during the measurement period and are not excluded based on the measure exclusion criteria (see S.8. and S.9.).

The measure denominator is the risk-adjusted expected number of discharges to community. This estimate includes risk adjustment for resident characteristics with the facility effect removed. The “expected” number of discharges to community is the predicted number of risk-adjusted discharges to community if the same residents were treated at the average facility. The logistic regression model used to calculate the denominator is developed using all non-excluded facility stays in the national data. The denominator is computed in the same way as the numerator, but the facility effect is set at the average.

## DENOMINATOR DETAILS

None

## EXCLUSIONS

Measure exclusion criteria are based on administrative data from Medicare claims and eligibility files. Exclusion criteria were selected to maintain clinical validity of the measure by excluding stays for which discharge to community would not be appropriate, to ensure data availability and completeness, to exclude stays with problematic claims data, and to maintain relevance to the SNF Quality Reporting Program (e.g., excluding CAH swing bed providers or other SNFs not



included in the SNF QRP based on regional location). Only SNF stays that are preceded by a short-term acute care stay in the 30 days prior to the SNF admission date are included in the measure; this is because risk adjustment variables come from the short-term acute care stay in the 30 days prior to SNF admission. Stays ending in transfers to the same level of care (i.e., SNF-to-SNF discharge) are excluded, because the SNF episode of care had not ended. We also excluded certain discharge status codes on the SNF FFS claim that indicated that the resident was not appropriate for community discharge (e.g., discharges against medical advice). See section S.9 for detailed rationale and data sources for each exclusion.

Measure exclusion criteria are as follows:

Age under 18 years;

No short-term acute care hospital discharge within the thirty days preceding SNF admission;

Discharges to a psychiatric hospital;

Discharges against medical advice;

Discharges to disaster alternative care site or a federal hospital;

Discharges to court/law enforcement;

Discharges to hospice or resident stays with a hospice benefit in the 31-day post-discharge window;

Planned discharges to an acute or LTCH setting;

Stays for residents without continuous Part A FFS Medicare enrollment during the 12 months prior to the SNF admission date and the 31 days after the SNF discharge;

SNF stays preceded by a short-term acute care stay for non-surgical treatment of cancer;

Stays ending in transfer to a SNF;

Stays with problematic claims data (e.g. anomalous records for stays that overlap wholly or in part, or are otherwise erroneous or contradictory; claims not paid);

Exhaustion of Medicare Part A benefit during the SNF stay;

SNF stays in facilities outside of the United States, Puerto Rico, or another U.S. territory; and

Swing bed stays in critical access hospitals.

#### EXCLUSION DETAILS

None

#### RISK ADJUSTMENT

Statistical risk model

#### STRATIFICATION

Not applicable

#### TYPE SCORE

Rate/proportion

#### ALGORITHM

The DTC-PAC SNF measure is risk-adjusted. To develop the risk adjustment model for this measure, we analyzed MedPAR claims, Denominator, and EDB files, identifying FY 2017 SNF Medicare FFS admissions preceded by an acute care hospitalization (IPPS, CAH, or psychiatric

hospital) within 30 days before SNF admission date. We applied the measure exclusion criteria to determine the sample included in the risk adjustment model. The measure is based on one fiscal year of data (FY 2017 SNF Medicare FFS admissions).

#### Risk Adjustment Variables

Risk adjustment variables include demographic and eligibility characteristics; principal diagnoses from the prior short-term acute care stay; length of stay, types of surgery or procedures, ventilator use, and dialysis from the prior short-term acute care stay; comorbidities; and number of prior hospitalizations in the year preceding the SNF admission. See the attached Excel document for the full list of risk-adjusters.

#### Risk Adjustment Modeling and Measure Calculation Algorithm

We used a hierarchical logistic regression model to predict the probability of discharge to community. Baseline resident characteristics related to the discharge to community outcome and a marker for the specific discharging facility are included in the equation. The equation is hierarchical in that both individual resident characteristics are accounted for, as well as the clustering of resident characteristics by facility. The statistical model estimates both the average predictive effect of the resident characteristics across all facilities, and the degree to which each facility has an effect on discharge to community that differs from that of the average facility. The facility effects are assumed to be randomly distributed around the average (according to a normal distribution).

When computing the facility effect, hierarchical modeling accounts for the known predictors of discharge to community, on average, such as baseline/admission resident characteristics, the observed facility rate, and the number of facility stays eligible for inclusion in the measure. The estimated facility effect is determined mostly by the facility's own data if the number of resident stays is relatively large (as the estimate would be relatively precise) but is adjusted toward the average if the number of stays is small (as that would yield a less precise estimate).

We used the following model:

Let  $Y_{ij}$ , denote the outcome (equal to 1 if patient  $i$  is discharged to community, 0 otherwise) for a patient  $i$  at facility  $j$ ;  $Z_{ij}$  denotes a set of risk adjustment variables. We assume the outcome is related to the risk adjusters via a logit function with dispersion:

$$\text{logit}(\text{Prob}(Y_{ij} = 1)) = a_j + \beta * Z_{ij} + e_{ij} \quad (1)$$

$$a_j = \mu + \tau_j ; \tau_j \sim N(0, \tau^2)$$

where  $Z_{ij} = (Z_{1j}, Z_{2j}, \dots, Z_{kj})$  is a set of  $k$  patient-level risk adjustment variables;  $a_j$  represents the facility-specific intercept;  $\mu$  is the adjusted average outcome across all facilities;  $\tau^2$  is the between-facility variance component; and  $e \sim N(0, \sigma^2)$  is the error term.

The hierarchical logistic regression model is estimated using SAS software (PROC GLIMMIX: SAS/STAT User's Guide, SAS Institute Inc.).

The estimated equation is used twice in the measure. The sum of the probabilities of discharge to community of all residents in the facility measure, including both the effects of resident characteristics and the facility, is the "predicted number" of discharges to community after adjusting for the facility's case-mix. The same equation is used without the facility effect to compute the "expected number" of discharges to community for the same residents at the average facility.

The ratio of the predicted-to-expected number of discharges to community (i.e., standardized risk ratio (SRR)) is a measure of the degree to which discharges to community are higher or lower than would otherwise be expected. The SRR is then multiplied by the national stay-level

observed discharge to community rate for all facility stays for the measure, yielding the risk-standardized discharge to community rate for each facility.

The estimation procedure is recalculated for each measurement period. Re-estimating the models for each measurement period allows the estimated effects of the resident characteristics to vary over time as resident case-mix and medical treatment patterns change.

The following steps describe the calculation algorithm/measure logic for the DTC-PAC SNF measure:

Step 1: Identify stays meeting the criteria for the target population, after applying measure exclusions.

Step 2: Identify stays meeting the discharge to community criteria, i.e., discharge to community, no unplanned readmissions on the day of discharge or in the 31 days following discharge, and no death on the day of discharge or in the 31 days following discharge.

Step 3: Identify presence or value of risk adjustment variables for each resident stay.

Step 4: Calculate the predicted and expected number of discharges to community for each facility using the hierarchical logistic regression model.

The predicted number of discharges to community for each facility (i.e., numerator) is calculated as the sum of the predicted probability of discharge to community for each resident discharged from the facility and included in the measure, including the facility-specific effect.

To calculate the predicted number of discharges to community,  $pred_j$ , for index stays at facility  $j$ , we used the following equation:

$$pred_j = \sum_i \text{Slogit-1}(\beta_0 + \beta_i + \beta_j * Z_{ij}) \quad (2)$$

where the sum is over all stays in facility  $j$ , and  $\beta_i$  is the facility effect.

The expected number of discharges to community (i.e., denominator) is calculated as the sum of the predicted probability of discharges to community, but without the facility-specific effect included in the predictions. This produces the expected number of discharges at the average facility. To calculate the expected number  $exp_j$ , we used the following equation:

$$exp_j = \sum_i \text{Slogit-1}(\beta_0 + \beta_j * Z_{ij}) \quad (3)$$

Step 5: Calculate the SRR for each facility, as the ratio of the predicted-to-expected number of discharges to community.

To calculate the facility-level SRR,  $SRR_j$ , we used the following equation:

$$SRR_j = pred_j / exp_j \quad (4)$$

Step 6: Calculate the risk-standardized discharge to community rate for each facility.

To aid interpretation, the facility-level SRR,  $SRR_j$ , obtained from equation (4) is then multiplied by the overall national stay-level observed discharge to community rate for all facility stays,  $\beta$ , to produce the facility-level risk-standardized discharge to community rate ( $RSR_j$ ).

To calculate the risk-standardized discharge to community rate for each facility, we used the following equation:

$$RSR_j = SRR_j * \beta \quad (5)$$

The DTC-PAC SNF measure is specific to SNF providers only.

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None

## Appendix E1: Related and Competing Measures (Tabular Format)

### Comparison of NQF 3455 to NQF 0229, NQF 1789, and NQF 1891

	3455 Timely Follow-Up After Acute Exacerbations of Chronic Conditions	0229 Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate (RSMR) Following Heart Failure (HF) Hospitalization	1789 Hospital-Wide All-Cause Unplanned Readmission Measure (HWR)	1891 Hospital 30-Day, All-Cause, Risk-Standardized Readmission Rate (RSRR) Following Chronic Obstructive Pulmonary Disease (COPD) Hospitalization
Steward	IMPAQ International	Centers for Medicare & Medicaid Services	Centers for Medicare & Medicaid Services	Centers for Medicare & Medicaid Services
Description	The percentage of issuer-product-level acute events requiring either an emergency department (ED) visit or hospitalization for one of the following 6 chronic conditions: hypertension, asthma, heart failure (HF), coronary artery disease (CAD), chronic obstructive pulmonary disease (COPD), or diabetes mellitus (Type I or Type II), where follow-up was received within the timeframe recommended by clinical practice guidelines in a non-emergency outpatient setting.	The measure estimates a hospital-level 30-day risk-standardized mortality rate (RSMR). Mortality is defined as death for any cause within 30 days after the admission date for the index admission, for patients 18 and older discharged from the hospital with a principal diagnosis of heart failure (HF). The Centers for Medicare & Medicaid Services (CMS) annually reports the measure for patients who are 65 years or older and are either Medicare fee-for-service (FFS) beneficiaries and hospitalized in non-federal hospitals or patients hospitalized in Veterans Health Administration (VA) facilities.	For the hospital-wide readmission (HWR) measure that was previously endorsed and is used in the Hospital Inpatient Quality Reporting Program (IQR), the measure estimates a hospital-level risk-standardized readmission rate (RSRR) of unplanned, all-cause readmission after admission for any eligible condition within 30 days of hospital discharge. 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, each of which will be described in greater detail below. The measure also indicates the	The measure estimates a hospital-level 30-day, all-cause, risk-standardized readmission rate (RSRR) for patients discharged from the hospital with either a principal discharge diagnosis of COPD or a principal discharge diagnosis of respiratory failure with a secondary diagnosis of acute exacerbation of COPD. Readmission 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 in the readmission outcome. The Centers for Medicare & Medicaid Services (CMS) annually reports the measure for patients who are 65 years or older, are enrolled in Medicare fee-for-service (FFS), and hospitalized in non-federal hospitals.

	3455 Timely Follow-Up After Acute Exacerbations of Chronic Conditions	0229 Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate (RSMR) Following Heart Failure (HF) Hospitalization	1789 Hospital-Wide All-Cause Unplanned Readmission Measure (HWR)	1891 Hospital 30-Day, All-Cause, Risk-Standardized Readmission Rate (RSRR) Following Chronic Obstructive Pulmonary Disease (COPD) Hospitalization
			<p>hospital-level standardized risk 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 for the index admission (the admission included in the measure cohort). A specified set of planned readmissions do not count in the readmission outcome. CMS annually reports the measure for patients who are 65 years or older, are enrolled in fee-for-service (FFS) Medicare, and hospitalized in non-federal hospitals.</p> <p>For the All-Cause Readmission (ACR) measure version used in the Shared Savings Program (SSP), the measure estimates an Accountable Care Organization (ACO) facility-level RSRR of unplanned, all-cause readmission after admission for any eligible condition within 30 days of hospital discharge. The ACR measure is calculated using the same five specialty cohorts and estimates an ACO-level</p>	

	3455 Timely Follow-Up After Acute Exacerbations of Chronic Conditions	0229 Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate (RSMR) Following Heart Failure (HF) Hospitalization	1789 Hospital-Wide All-Cause Unplanned Readmission Measure (HWR)	1891 Hospital 30-Day, All-Cause, Risk-Standardized Readmission Rate (RSRR) Following Chronic Obstructive Pulmonary Disease (COPD) Hospitalization
			standardized risk ratio for each. CMS annually reports the measure for patients who are 65 years or older, are enrolled in FFS Medicare and are ACO assigned beneficiaries.	
Type	Process	Outcome	Outcome	Outcome
Data Source	Claims	Claims, Paper Medical Records, Other	Claims	Claims, Paper Medical Records, Other
Level	Health Plan, Other	Facility	Facility, Integrated Delivery System	Facility
Setting	Inpatient/Hospital, Emergency Department and Services	Inpatient/Hospital, Other	Inpatient/Hospital, Outpatient Services	Inpatient/Hospital
Numerator Statement	The numerator is the sum of the issuer-product-level denominator events (Emergency Room [ED], observation hospital stay or inpatient hospital stay) for acute exacerbation of hypertension, asthma, heart failure (HF), coronary artery disease (CAD), chronic obstructive pulmonary disease (COPD), or diabetes where follow-up was received within the timeframe recommended by clinical practice guidelines, as detailed below:	The outcome for this measure is 30-day all-cause mortality. We define mortality as death from any cause within 30 days of the index admission date for patients 65 and older discharged from the hospital with a principal diagnosis of HF.	The outcome for the HWR 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 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	The outcome for this measure is 30-day all-cause 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 admission, for patients discharged from the hospital with a principal discharge diagnosis of COPD or principal discharge diagnosis of respiratory failure with a secondary discharge diagnosis of acute exacerbation of COPD. If a patient has more than one unplanned admission within 30 days after discharge from the index admission, only the first one is

	3455 Timely Follow-Up After Acute Exacerbations of Chronic Conditions	0229 Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate (RSMR) Following Heart Failure (HF) Hospitalization	1789 Hospital-Wide All-Cause Unplanned Readmission Measure (HWR)	1891 Hospital 30-Day, All-Cause, Risk-Standardized Readmission Rate (RSRR) Following Chronic Obstructive Pulmonary Disease (COPD) Hospitalization
	<ul style="list-style-type: none"> <li>• Hypertension: Within 7 days of the date of discharge</li> <li>• Asthma: Within 14 days of the date of discharge</li> <li>• HF: Within 14 days of the date of discharge</li> <li>• CAD: Within 14 days of the date of discharge</li> <li>• COPD: Within 30 days of the date of discharge</li> <li>• Diabetes: Within 30 days of the date of discharge</li> </ul>		<p>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.</p> <p>The outcome for the ACR measure is also 30-day readmission. The outcome is defined identically to what is described above for the HWR measure.</p>	<p>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.</p>
Numerator Details	<p>This measure is defined at the issuer-by-product level, meaning that results are aggregated for each qualified insurance issuer and for each product. For clarity, a product is a discrete package of health insurance coverage benefits that issuers</p>	<p>The measure counts deaths for any cause within 30 days of the date of admission of the index HF hospitalization.</p> <p>Rationale: From a patient perspective, death is a critical outcome regardless of cause. Outcomes occurring within 30 days of the start of the admission can be influenced by hospital care and early transition to the non-acute care setting. The 30-day time frame is a clinically meaningful period for</p>	<p>The measure counts readmissions to any acute care hospital for any cause within 30 days of the date of discharge of the index admission, excluding planned readmissions as defined below.</p> <p>Planned Readmission Algorithm (Version 4.0)</p> <p>The Planned Readmission Algorithm is a set of criteria for classifying readmissions as</p>	<p>The measure counts readmissions to any acute care hospital for any cause within 30 days of the date of discharge of the eligible index COPD admission, excluding planned readmissions as defined below.</p> <p>Rationale: 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</p>



	3455 Timely Follow-Up After Acute Exacerbations of Chronic Conditions	0229 Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate (RSMR) Following Heart Failure (HF) Hospitalization	1789 Hospital-Wide All-Cause Unplanned Readmission Measure (HWR)	1891 Hospital 30-Day, All-Cause, Risk-Standardized Readmission Rate (RSRR) Following Chronic Obstructive Pulmonary Disease (COPD) Hospitalization
	<p>offer in the context of a particular network type, such as health maintenance organization (HMO), preferred provider organization (PPO), exclusive provider organization (EPO), point of service (POS), or indemnity. Issuers are broadly defined as health insurance providers who participate in the Federally-facilitated Marketplaces and health insurance contracts offered in the Medicare Advantage market.</p> <p>Timely follow-up is defined as a claim for the same patient after the discharge date of the acute event that is a non-emergency outpatient visit and has a CPT or HCPCS code indicating a visit that constitutes appropriate follow-up, as</p>	<p>hospitals to collaborate with their communities to reduce mortality (Simoes et al., 2017; Dharmarajan et al., 2015).</p> <p>Identifying deaths in the FFS measure</p> <p>As currently reported, we identify deaths for FFS Medicare patients 65 years and older in the Medicare Enrollment Database (EDB).</p> <p>Identifying deaths in the all-payer measure</p> <p>For the purposes of development of an all-payer measure, deaths were identified using the California vital statistics data file. Nationally, post-discharge deaths can be identified using an external source of vital status, such as the Social Security Administration’s Death Master File (DMF) or the Centers for Disease Control and Prevention’s National Death Index (NDI).</p>	<p>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/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.</p>	<p>elective or necessary procedures within 30 days of discharge. 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.</p> <p>Planned Readmission Algorithm (Version 4.0)</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. 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 (transplant surgery, maintenance chemotherapy/ immunotherapy, rehabilitation);</li> </ol>



	3455 Timely Follow-Up After Acute Exacerbations of Chronic Conditions	0229 Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate (RSMR) Following Heart Failure (HF) Hospitalization	1789 Hospital-Wide All-Cause Unplanned Readmission Measure (HWR)	1891 Hospital 30-Day, All-Cause, Risk-Standardized Readmission Rate (RSRR) Following Chronic Obstructive Pulmonary Disease (COPD) Hospitalization
	<p>defined by clinical guidelines and clinical coding experts. The follow-up visit may be a general office visit or telehealth and take place in certain chronic care or transitional care management settings. The follow-up visit must occur within the condition-specific timeframe to be considered timely and for the conditions of the numerator/measure to be met. For a list of individual codes, please see the data dictionary attached in S.2b.</p> <p>The follow-up visit timeframes for each of the 6 chronic conditions are based on evidence-based clinical practice guidelines (CPGs) as laid out in the evidence form.</p>		<p>The Planned Readmission Algorithm and associated code tables are attached in data field S.2b (Data Dictionary or Code Table).</p>	<p>2. Otherwise, a planned readmission is defined as a non-acute readmission for a scheduled procedure; and</p> <p>3. Admissions for acute illness or for complications of care are never planned.</p> <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 COPD measure because the algorithm uses a more comprehensive definition. In applying the algorithm to condition-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 COPD readmission measure, CMS used the Planned Readmission Algorithm without making any changes.</p>

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				For more details on the Planned Readmission Algorithm, please see the report titled “2017 Measures Updates and Specifications Report: Hospital-Level 30-Day Risk-Standardized Readmission Measures for Acute Myocardial Infarction, Heart Failure, and Pneumonia (Version 10.0)” posted on the web page provided in data field S.1.
Denominator Statement	The denominator is the sum of the plan-product-level acute exacerbations that require either an ED visit, observation stay, or inpatient stay (i.e., acute events) for any of the six conditions listed above (hypertension, asthma, HF, CAD, COPD, or diabetes).	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 explicitly tested the measure in both age groups.  The cohort for the publicly reported measure includes admissions for patients aged 65 years and older discharged from the hospital with a principal discharge diagnosis of HF and with a complete claims history for the 12 months prior to admission. The measure is currently publicly reported by CMS for those patients 65 years and older who are either Medicare FFS beneficiaries admitted to non-federal hospitals or patients admitted to VA hospitals.	The measure at the hospital level 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. 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.	This claims-based measure can be used in either of two patient cohorts: (1) patients aged 65 years or older or (2) patients aged 40 years or older.  The cohort includes admissions for patients discharged from the hospital with either a principal discharge diagnosis of COPD \ OR a principal discharge diagnosis of respiratory failure with a secondary discharge diagnosis of acute exacerbation of COPD (see codes in the attached data dictionary) and with a complete claims history for the 12 months prior to admission. The measure is currently publicly reported by CMS for those patients 65 years and older who are Medicare FFS beneficiaries admitted to non-federal hospitals.

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				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.
Denominator Details	<p>Acute events are defined as either an ED visit, observation stay, or inpatient stay. If a patient is discharged and another claim begins for the same condition on the same day or the following day, the claims are considered to be part of one continuous acute event. In this case, the discharge date of the last claim is the beginning of the follow-up interval. The final claim of the acute event must be a discharge to community.</p> <p>An acute event is assigned to [condition] if:</p> <ol style="list-style-type: none"> <li>1. The primary diagnosis is a sufficient code for [condition].</li> </ol>	<p>To be included in the HF measure cohort used in public reporting, patients must meet the following additional inclusion criteria:</p> <ol style="list-style-type: none"> <li>1. Have a principal discharge diagnosis of heart failure (HF);</li> <li>2. Enrolled in Medicare Fee-For-Service (FFS) Part A and Part B for the 12 months prior to the date of the index admission and Part A during the index admission, or those who are VA beneficiaries (in the cases of the AMI, HF, and pneumonia measures);</li> <li>3. Aged 65 or over; and,</li> <li>4. Not transferred from another acute care facility.</li> </ol> <p>VA beneficiaries are eligible for inclusion in the AMI, HF, and pneumonia measure cohorts regardless of Medicare FFS enrollment or whether they were hospitalized in a VA or non-VA short-term acute care hospital.</p> <p>This measure can also be used for an all-payer population aged 18</p>	<p>To be included in the hospital level measure, cohort patients must be:</p> <ol style="list-style-type: none"> <li>1. Enrolled in Medicare fee-for-service (FFS) Part A for the 12 months prior to the date of admission and during the index admission;</li> <li>2. Aged 65 or over;</li> <li>3. Discharged alive from a non-federal short-term acute care hospital; and</li> <li>4. Not transferred to another acute care facility.</li> </ol> <p>The ACO version of this measure has the additional criterion 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.</p> <p>The measure aggregates the ICD-9 principal diagnosis and</p>	<p>To be included in the measure cohort used in public reporting, patients must meet the following additional inclusion criteria:</p> <ol style="list-style-type: none"> <li>1. Principal discharge diagnosis of COPD or principal discharge diagnosis of respiratory failure with a secondary diagnosis of COPD with exacerbation;</li> <li>2. Enrolled in Medicare FFS Part A and Part B for the first 12 months prior to the date of admission, and enrolled in Part A during the index admission;</li> <li>3. Aged 65 or over;</li> <li>4. Discharged alive from a non-federal short-term acute care hospital; and</li> <li>5. Not transferred from another acute care facility.</li> </ol> <p>ICD-9 and ICD-10 cohort codes are included in the attached Data Dictionary.</p>

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	<p>OR</p> <p>2. The primary diagnosis is a related code for [condition] AND at least one additional diagnosis is a sufficient code for [condition].</p> <p>a. In cases where the event has two or more conditions with a related code as the primary diagnosis and a sufficient code in additional diagnosis positions, assign the event to the condition with a sufficient code appearing in the “highest” (closest to primary) diagnosis position.</p> <p>If the visits that make up an acute event are assigned different conditions, the event is assigned the condition that occurs last in the sequence. Following this methodology, only one condition is recorded in the denominator per acute event. For a list of</p>	<p>years and older. We have explicitly tested the measure in both patients aged 18+ years and those aged 65+ years.</p> <p>ICD-9 and ICD-10 cohort codes are included in the attached Data Dictionary.</p>	<p>all procedure codes of the index admission into clinically coherent groups of conditions and procedures (condition categories or procedure categories) using the AHRQ CCS. There are a total of 285 mutually exclusive AHRQ condition categories, most of which are single, homogenous diseases such as pneumonia or acute myocardial infarction. Some are aggregates of conditions, such as “other bacterial infections.” There are a total of 231 mutually exclusive procedure categories. Using the AHRQ CCS procedure and condition categories, the measure assigns each index hospitalization to one of five mutually exclusive specialty cohorts: surgery/gynecology, cardiorespiratory, cardiovascular, neurology, and medicine. The rationale behind this organization is that conditions typically cared for by the same team of clinicians are expected to experience similar added (or reduced) levels of readmission risk.</p>	

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	individual codes, please see the data dictionary attached in S.2b.		<p>The measure first assigns admissions with qualifying AHRQ procedure categories to the Surgery/Gynecology Cohort. This cohort includes admissions likely cared for by surgical or gynecological teams.</p> <p>The measure then sorts admissions into one of the four remaining specialty cohorts based on the AHRQ diagnosis category of the principal discharge diagnosis:</p> <p>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.</p> <p>The Cardiovascular Cohort includes condition categories such as acute myocardial infarction that in large hospitals might be cared for by</p>	

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			<p>a separate cardiac or cardiovascular team.</p> <p>The Neurology Cohort includes neurologic condition categories such as stroke that in large hospitals might be cared for by a separate neurology team.</p> <p>The Medicine Cohort includes all non-surgical patients who were not assigned to any of the other cohorts.</p> <p>The full list of the specific diagnosis and procedure AHRQ CCS categories used to define the specialty cohorts are attached in data field S.2b (Data Dictionary or Code Table).</p>	
Exclusions	<p>The measure excludes events with:</p> <ol style="list-style-type: none"> <li>1. Subsequent acute events that occur two days after the prior discharge, but still during the follow-up interval of the prior event for the same reason. To prevent double-counting, only the first acute event will be included in the denominator.</li> </ol>	<p>The HF mortality measure excludes index hospitalizations that meet any of the following exclusion criteria:</p> <ol style="list-style-type: none"> <li>1. With inconsistent or unknown vital status or other unreliable demographic (age and gender) data;</li> <li>2. Enrolled in the Medicare hospice program or used VA hospice services any time in the 12 months prior to the index admission,</li> </ol>	<p>The measure excludes index admissions for patients:</p> <ol style="list-style-type: none"> <li>1. Admitted to Prospective Payment System (PPS)-exempt cancer hospitals;</li> <li>2. Without at least 30 days post-discharge enrollment in FFS Medicare;</li> <li>3. Discharged against medical advice (AMA);</li> <li>4. Admitted for primary psychiatric diagnoses;</li> </ol>	<p>The COPD readmission measure excludes index hospitalizations that meet any of the following exclusion criteria:</p> <ol style="list-style-type: none"> <li>1. Without at least 30 days of post-discharge enrollment in Medicare FFS</li> <li>2. Discharged against medical advice</li> <li>3. COPD admissions within 30 days of discharge from a prior COPD index admission</li> </ol>

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	<p>2. Acute events after which the patient does not have continuous enrollment for 30 days in the same product.</p> <p>3. Acute events where the discharge status of the last claim is not “to community” (“Left against medical advice” is not a discharge to community.)</p> <p>4. Acute events for which the calendar year ends before the follow-up window ends (e.g., acute asthma events ending fewer than 14 days before December 31)</p> <p>5. Acute events where the patient enters a skilled nursing facility (SNF), non-acute care, or hospice care within the follow-up interval</p>	<p>including the first day of the index admission; or,</p> <p>3. Discharged against medical advice.</p> <p>4. Discharged alive on the day of admission or the following day who were not transferred to another acute care facility; or</p> <p>5. With a procedure code for LVAD implantation or heart transplantation either during the index admission or in the 12 months prior to the index admission.</p> <p>For patients with more than one admission for a given condition in a given year, only one index admission for that condition is randomly selected for inclusion in the cohort.</p>	<p>5. Admitted for rehabilitation; or</p> <p>6. Admitted for medical treatment of cancer.</p>	
Exclusion Details	For a list of individual codes, please see the data dictionary attached in S.2b.	<p>1. Inconsistent or unknown vital status or other unreliable demographic data</p> <p>Inconsistent vital status or unreliable data are identified if any of the following conditions are met</p> <p>1) the patient’s age is greater than 115 years: 2) if the discharge date</p>	<p>1. Admitted to a PPS-exempt cancer hospital, identified by the Medicare provider ID.</p> <p>2. Admissions without at least 30 days post-discharge enrollment in FFS Medicare are determined using data</p>	<p>1. Without at least 30 days of post-discharge enrollment in Medicare FFS, which is identified by examining the discharge destination indicator in claims data.</p> <p>Rationale: The 30-day readmission outcome cannot be assessed in this group since claims data are used to</p>

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		<p>for a hospitalization is before the admission date; 3) if the patient has a sex other than 'male'</p> <p>Rationale: We do not include stays for patients where the age is greater than 115, where the gender is neither male nor female, where the admission date is after the date of death in the Medicare Enrollment Database, or where the date of death occurs before the date of discharge but the patient was discharged alive.</p> <p>2. Enrolled in the Medicare hospice program any time in the 12 months prior to the index admission, including the first day of the index admission</p> <p>Rationale: Hospice enrollment in the 12 months prior to or on the index admission is identified using hospice data and the Inpatient standard analytic file (SAF). This exclusion applies when the measure is used in Medicare FFS patients only.</p> <p>Rationale: These patients are likely continuing to seek comfort measures only; thus, mortality is not necessarily an adverse outcome or signal of poor quality care.</p>	<p>captured in the Medicare Enrollment Database (EDB).</p> <p>3. Discharges against medical advice (AMA) are identified using the discharge disposition indicator in claims data.</p> <p>4. Admitted for primary psychiatric disease, identified by a principal diagnosis in one of the specific AHRQ CCS categories listed in the attached data dictionary.</p> <p>5. Admitted for rehabilitation care, identified by the specific ICD-9 diagnosis codes included in CCS 254 (Rehabilitation care; fitting of prostheses; and adjustment of devices).</p> <p>6. Admitted for medical treatment of cancer, identified by the specific AHRQ CCS categories listed in the attached data dictionary.</p>	<p>determine whether a patient was readmitted.</p> <p>2. Discharged against medical advice, which are identified using the discharge disposition indicator in claims data</p> <p>Rationale: Providers did not have the opportunity to deliver full care and prepare the patient for discharge.</p> <p>3. COPD admissions within 30 days of discharge from a prior COPD index admission</p> <p>Rationale: Additional COPD admissions within 30 days are excluded as index admissions because they are part of the outcome. A single admission does not count as both an index admission and a readmission for another index admission.</p>



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		<p>3. Discharged against medical advice</p> <p>Discharges against medical advice are identified using the discharge disposition indicator.</p> <p>Rationale: Providers did not have the opportunity to deliver full care and prepare the patient for discharge.</p> <p>4. Discharged alive on the day of admission or the following day who were not transferred to another acute care facility. The discharge disposition indicator is used to identify patients alive at discharge. Transfers are identified in the claims when a patient with a qualifying admission is discharged from an acute care hospital and admitted to another acute care hospital on the same day or next day.</p> <p>Rationale: It is unlikely that these patients had clinically significant HF.</p> <p>5. With a procedure code for LVAD implantation or heart transplantation either during the index admission or in the 12 months prior to the index admission</p>		

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		<p>Patients with LVAD implantation or heart transplantation during an index admission or in the previous 12 months are identified by the corresponding codes for these procedures included in claims data.</p> <p>Rationale: These patients represent a clinically distinct group (ICD-10-PCS code list).</p> <p>The data sources for these analyses are Medicare administrative claims and enrollment information for patients with hospitalizations between July 1, 2013 and June 30, 2016.</p> <p>After exclusions #1-5 are applied, the measure randomly selects one index admission per patient per year for inclusion in the cohort so that each episode of care is mutually independent with the same probability of the outcome. Additional admissions within that year are excluded. For each patient, the probability of death increases with each subsequent admission and therefore the episodes of care are not mutually independent. For the three-year combined data, when index admissions occur during the transition between measure reporting periods (June and July of each year) and both are</p>		

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		randomly selected for inclusion in the measure, the measure includes only the June admission. The July admissions are excluded to avoid assigning a single death to two admissions.		
Risk Adjustment	No risk adjustment	Statistical risk model	Statistical risk model	Statistical risk model
Stratification	No risk stratification	No risk stratification	No risk stratification	No risk stratification
Type Score	Rate/proportion	Rate/proportion	Rate/proportion	Rate/proportion
Algorithm	<p>1) Denominator events are identified by hospitalization, observation, and ED events with appropriate codes (i.e., codes identifying an acute exacerbation of 1 of the 6 included chronic conditions).</p> <p>2) Exclusions are applied to the population from step 1) to produce the eligible patient population for the measure (i.e., the count of all qualifying events).</p> <p>3) For each qualifying event, it is determined whether or not claims included a subsequent code that satisfies the follow-up requirement for that particular qualifying event</p>	<p>The measure estimates hospital-level 30-day all-cause RSMRs following hospitalization for HF 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 and Shahian, 2007). At the patient level, it models the log-odds of mortality within 30 days of index admission using age, sex, selected clinical covariates, and a hospital-specific intercept. At the hospital level, it models the hospital-specific intercepts as arising from a normal distribution. The hospital intercept represents the underlying risk of a mortality at the hospital, after accounting for patient risk. The</p>	<p>This measure estimates a hospital-level 30-day all-cause RSRR 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 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, after accounting</p>	<p>The measure estimates hospital-level 30-day, all-cause, RSRRs following hospitalization for COPD 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 and Shahian, 2007). At the patient level, it models the log-odds of readmission within 30 days of discharge using age, sex, selected clinical covariates, and a hospital-specific intercept. At the hospital level, it models the hospital-specific intercepts as arising from a normal distribution. The hospital intercept represents the underlying risk of a readmission at the hospital, after accounting for patient risk. The</p>

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	<p>(e.g., a diabetes event received follow-up within the appropriate timeframe for diabetes, from an appropriate provider). Each event for which the follow-up requirement was satisfied is counted as ‘one’ in the numerator. Each event for which the follow-up requirement was not satisfied is counted as a ‘zero’ in the numerator.</p> <p>4) The percentage score is calculated as the numerator divided by the denominator.</p> <p>Measure Scoring Logic</p> <p>Following NQF’s guideline, we employ Opportunity-Based Weighting to calculate the follow-up measure. (1) This means that each condition is weighted by the sum of acute exacerbations that require either an ED visit or an observation or inpatient stay for all the six conditions that occur, as reflected in the logic below.</p>	<p>hospital-specific intercepts are given a distribution to account for the clustering (non-independence) of patients within the same hospital. If there were no differences among hospitals, then after adjusting for patient risk, the hospital intercepts should be identical across all hospitals.</p> <p>The RSMR is calculated as the ratio of the number of “predicted” to the number of “expected” deaths at a given hospital, multiplied by the national observed mortality rate. For each hospital, the numerator of the ratio is the number of deaths within 30 days predicted on the basis of the hospital’s performance with its observed case mix, and the denominator is the number of deaths expected based on the nation’s performance with that hospital’s case mix. This approach is analogous to a ratio of “observed” to “expected” used in other types of statistical analyses. It conceptually allows for a comparison of a particular hospital’s performance given its case mix to an average hospital’s performance with the same case mix. Thus, a lower ratio indicates lower-than-expected mortality</p>	<p>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 standardized readmission ratio (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</p>	<p>hospital-specific intercepts are given a distribution to account for the clustering (non-independence) of patients within the same hospital. If there were no differences among hospitals, then after adjusting for patient risk, the hospital intercepts should be identical across all hospitals.</p> <p>The RSRR is calculated as the ratio of the number of “predicted” to the number of “expected” readmissions, multiplied by the national observed readmission rate. For each hospital, the numerator of the ratio (“predicted”) is the number of readmissions within 30 days predicted on the basis of the hospital’s performance with its observed case mix; and the denominator (“expected”) is the number of readmissions expected based on the nation’s performance with that hospital’s case mix. This approach is analogous to a ratio of “observed” to “expected” used in other types of statistical analyses. It conceptually allows for a comparison of a particular hospital’s performance given its case mix to an average hospital’s performance with the same case mix. Thus, a lower ratio indicates</p>

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	<p><math display="block">\frac{[\text{NUM}(\text{ASM}) + \text{NUM}(\text{CAD}) + \text{NUM}(\text{HF}) + \text{NUM}(\text{COPD}) + \text{NUM}(\text{DIAB}) + \text{NUM}(\text{HTN})]}{[\text{DENOM}(\text{ASM}) + \text{DENOM}(\text{CAD}) + \text{DENOM}(\text{HF}) + \text{DENOM}(\text{COPD}) + \text{DENOM}(\text{DIAB}) + \text{DENOM}(\text{HTN})]}</math></p> <p>***Please note that, while the development team designed the measure to aggregate each condition score in the manner described above into a single overall score, programs may choose to also calculate individual scores for each chronic condition when implementing the measure. Individual measure scores would simply be calculated by dividing the condition-specific numerator by the condition specific denominator, as in the example for heart failure below:</p> <p><math display="block">\text{NUM}(\text{HF}) / \text{DENOM}(\text{HF})</math></p> <p>Both methods capture the same quality information, with different levels of granularity. Below is an</p>	<p>rates or better quality, and a higher ratio indicates higher-than-expected mortality rates or worse quality.</p> <p>The “predicted” number of deaths (the numerator) is calculated by using the coefficients estimated by regressing the risk factors and the hospital-specific intercept on the risk of mortality. The estimated hospital-specific effect is added to the sum of the estimated regression coefficients multiplied by the patient characteristics. The results are log transformed and summed over all patients attributed to a hospital to get a predicted value. The “expected” number of deaths (the denominator) is obtained in the same manner, but a common intercept using all hospitals in our sample is added in place of the hospital-specific intercept. The results are log transformed and summed over all patients in the hospital to get an expected value. To assess hospital performance for each reporting period, we re-estimate the model coefficients using the years of data in that period.</p>	<p>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.</p> <p>For each specialty cohort, the “predicted” number of readmissions (the numerator) is calculated by using the coefficients estimated by regressing the risk factors (found in Table D.9) 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</p>	<p>lower-than-expected readmission rates or better quality, and a higher ratio indicates higher-than-expected readmission rates or worse quality.</p> <p>The “predicted” number of readmissions (the numerator) is calculated by using the coefficients estimated by regressing the risk factors and the hospital-specific intercept on the risk of readmission. The estimated hospital-specific intercept is added to the sum of the estimated regression coefficients multiplied by the patient characteristics. The results are transformed and summed over all patients attributed to a hospital to get a predicted value. The “expected” number of readmissions (the denominator) is obtained in the same manner, but a common intercept using all hospitals in our sample is added in place of the hospital-specific intercept. The results are transformed and summed over all patients in the hospital to get an expected value. To assess hospital performance for each reporting period, we re-estimate the model coefficients using the years of data in that period.</p>

	3455 Timely Follow-Up After Acute Exacerbations of Chronic Conditions	0229 Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate (RSMR) Following Heart Failure (HF) Hospitalization	1789 Hospital-Wide All-Cause Unplanned Readmission Measure (HWR)	1891 Hospital 30-Day, All-Cause, Risk-Standardized Readmission Rate (RSRR) Following Chronic Obstructive Pulmonary Disease (COPD) Hospitalization
	<p>example of each scoring method:</p> <p>Aggregate: 30 patients experience acute events. 25 events are heart failure, 5 events are COPD. Of these 30 patients, 25 receive appropriate follow-up. The measured entity receives a score of 83% (25/30).</p> <p>Individual: The same 30 patients experience acute events. 25 events are for heart failure. 5 events are for COPD. 25 receive appropriate follow-up. This number included 20 of the patients who experienced heart failure, and all 5 patients who experienced COPD. The measured entity receives a heart failure score of 80% (20/25) and a COPD score of 100% (5/5).</p> <p>---</p> <p>The team considered several aggregation methods, including uniform weighting, opportunity-based weighting, and linear combination weighting for this measure. Each option</p>	<p>This calculation transforms the ratio of predicted over expected into a rate that is compared to the national observed mortality rate. The hierarchical logistic regression models are described fully in the original methodology report (Krumholz et al., 2005).</p>	<p>characteristics. The results are log transformed and summed over all patients attributed to a hospital to get 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 in the hospital to get an expected value. To assess hospital performance for each reporting period, we re-estimate the model coefficients using the data in that period.</p> <p>The specialty cohort SRRs are then pooled for each hospital using a volume-weighted geometric mean to create a hospital-wide composite SRR. The composite SRR is multiplied by the national observed readmission rate to produce the RSRR. The statistical modeling approach is described fully in Appendix A and in the original</p>	<p>This calculation transforms the ratio of predicted over expected into a rate that is compared to the national observed readmission rate. The hierarchical logistic regression models are described fully in the original methodology report (Grosso et al., 2011).</p>

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	<p>has associated advantages and disadvantages.</p> <p>The measure development team believes that opportunity-based weighting, described earlier in this section, is the best aggregation method for several reasons. First, sample sizes are relatively small, so rates for particular conditions may have high variance and produce erratic results. Second, with uniform weights (meaning each condition's score contributes an equal amount to the overall score regardless of the number of events per condition), a change in the number of follow-ups for less prevalent conditions affects the aggregate score more than changing the number of follow-ups for more prevalent conditions. This gives an incentive to plans (insurance products) to focus on improving follow-up for the least prevalent conditions in order to improve their score., In</p>		<p>methodology report (Horwitz et al., 2012).</p> <p>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.</p>	

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	<p>contrast, opportunity-based weighting incentivizes plans to improve the number of follow-ups for each type of condition, because any penalty associated with the reduction in follow-ups of any condition is a function of the measure as a whole. (2) Furthermore, because there is no evidence that follow-ups for some of the 6 conditions are more important than others, opportunity-based weighting represents the simplest, fairest, and most easily interpretable and implementable weighting option for managed care organizations. There was no compelling evidence or rationale to use another, more complex weighting method.</p> <p>It is important to note that this measure, while specified at the issuer-product-level and written to be applicable to various CMS payment programs, will still be required to go through a separate process</p>			



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	<p>to be fully operationalized into specific payment programs. These processes include publishing the measure in a Call Letter, soliciting public comment, and other activities to ensure the measure is appropriate for a given program.</p> <p>1) National Quality Forum. Composite Measure Evaluation Framework and National Voluntary Consensus Standards for Mortality and Safety— Composite Measures. 2009. Available from <a href="https://www.qualityforum.org/Publications/2009/08/Composite_Measure_Evaluation_Framework_and_National_Voluntary_Consensus_Standards_for_Mortality_and_Safety%E2%80%94Composite_Measures.aspx">https://www.qualityforum.org/Publications/2009/08/Composite_Measure_Evaluation_Framework_and_National_Voluntary_Consensus_Standards_for_Mortality_and_Safety%E2%80%94Composite_Measures.aspx</a>.</p> <p>2) Shwartz, M., Restuccia, J. D., &amp; Rosen, A. K. (2015). Composite Measures of Health Care Provider Performance: A Description of Approaches. <i>The Milbank Quarterly</i>, 93(4), 788–825.</p>			

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	<p><a href="http://doi.org/10.1111/1468-0009.12165">http://doi.org/10.1111/1468-0009.12165</a></p> <p><b>**Please note that the specifications of this measure have been slightly altered from what was submitted in the Intent to Submit form. These minor changes are intended to increase clarity.**</b></p> <p>Citations:</p> <p>1) National Quality Forum. Composite Measure Evaluation Framework and National Voluntary Consensus Standards for Mortality and Safety— Composite Measures. 2009. Available from <a href="https://www.qualityforum.org/Publications/2009/08/Composite_Measure_Evaluation_Framework_and_National_Voluntary_Consensus_Standards_for_Mortality_and_Safety%E2%80%94Composite_Measures.aspx">https://www.qualityforum.org/Publications/2009/08/Composite_Measure_Evaluation_Framework_and_National_Voluntary_Consensus_Standards_for_Mortality_and_Safety%E2%80%94Composite_Measures.aspx</a>.</p> <p>2) Shwartz, M., Restuccia, J. D., &amp; Rosen, A. K. (2015). Composite Measures of Health Care Provider Performance: A Description</p>			

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	of Approaches. The Milbank Quarterly, 93(4), 788–825. <a href="http://doi.org/10.1111/1468-0009.12165">http://doi.org/10.1111/1468-0009.12165</a>			

## Comparison of NQF 3481 and NQF 2858

	3481 Discharge to Community – Post Acute Care Measure for Skilled Nursing Facilities	2858 Discharge to Community
Steward	Centers for Medicare & Medicaid Services	American Health Care Association
Description	<p>The Discharge to Community-Post Acute Care Measure for Long-Term Care Hospitals (DTC-PAC LTCH) was developed to address the resource use and other measures domain of Discharge to the Community mandated by the Improving Medicare Post-Acute Care Transformation Act of 2014 (IMPACT Act). This outcome measure assesses successful discharge to community from an LTCH, with successful discharge to community including no unplanned rehospitalizations and no death in the 31 days following LTCH discharge. The measure reports an LTCH’s risk-standardized rate of Medicare fee-for-service (FFS) patients who are discharged to the community following an LTCH stay, and do not have an unplanned readmission to an acute care hospital or long-term care hospital (LTCH) in the 31 days following discharge to community, and who remain alive during the 31 days following discharge to community. The measure is calculated using two consecutive years of Medicare FFS claims data and was developed using calendar year (CY) 2012-2013 data. This submission is based on fiscal year (FY) 2016-2017 data; i.e., LTCH discharges from October 1, 2015 through September 30, 2017.</p> <p>The measure was adopted by the Centers for Medicare &amp; Medicaid Services (CMS) for the LTCH Quality Reporting Program (QRP) finalized in the FY 2017 Inpatient Prospective Payment System (IPPS)/LTCH PPS Final Rule and implementation began October 1, 2016 [1]. Confidential feedback reports on measure performance were distributed to LTCH providers in Fall 2017. The measure will be publicly reported on the LTCH Compare website (<a href="https://www.medicare.gov/longtermcarehospitalcompare/">https://www.medicare.gov/longtermcarehospitalcompare/</a>) in Fall 2018 using FY 2016-2017 data. Four claims-based discharge to community measures were developed for LTCH, inpatient rehabilitation facility, skilled nursing facility, and home health agency settings to meet the mandate of the IMPACT Act. These measures were conceptualized uniformly across the four settings, in terms of</p>	<p>The Discharge to Community measure determines the percentage of all new admissions from a hospital who are discharged back to the community alive and remain out of any skilled nursing center for the next 30 days. The measure, referring to a rolling year of MDS entries, is calculated each quarter. The measure includes all new admissions to a SNF regardless of payor source.</p>

	3481 Discharge to Community – Post Acute Care Measure for Skilled Nursing Facilities	2858 Discharge to Community
	<p>the definition of the discharge to community outcome, the approach to risk-adjustment, and the measure calculation.</p> <p>References</p> <p>[1] Medicare Program; Hospital Inpatient Prospective Payment Systems for Acute Care Hospitals and the Long-Term Care Hospital Prospective Payment System and Policy Changes and Fiscal Year 2017 Rates; Quality Reporting Requirements for Specific Providers; Graduate Medical Education; Hospital Notification Procedures Applicable to Beneficiaries Receiving Observation Services; Technical Changes Relating to Costs to Organizations and Medicare Cost Reports; Finalization of Interim Final Rules With Comment Period on LTCH PPS Payments for Severe Wounds, Modifications of Limitations on Redesignation by the Medicare Geographic Classification Review Board, and Extensions of Payments to MDHs and Low-Volume Hospitals, Vol. 81, No. 162. <a href="https://www.gpo.gov/fdsys/pkg/FR-2016-08-22/pdf/2016-18476.pdf">https://www.gpo.gov/fdsys/pkg/FR-2016-08-22/pdf/2016-18476.pdf</a></p>	
Type	Outcome	Outcome
Data Source	Assessment Data, Claims, Management Data	Electronic Health Records
Level	Facility	Facility
Setting	Post-Acute Care	Post-Acute Care
Numerator Statement	<p>The measure numerator is the risk-adjusted predicted estimate of the number of patients who are discharged to the community, and do not have an unplanned readmission to an acute care hospital or LTCH in the 31-day post-discharge observation window, and who remain alive during the post-discharge observation window.</p> <p>This estimate starts with the observed number of discharges to community, defined as:</p> <ul style="list-style-type: none"> <li>(i) discharges to home or self care with or without home health services, based on Patient Discharge Status Codes 01, 06, 81, or 86 on the Medicare FFS claim [2]; and</li> <li>(ii) no unplanned acute or LTCH hospitalizations in the 31-day post-discharge window; and</li> <li>(iii) no death in the 31-day post-discharge window.</li> </ul>	<p>The outcome measured is the number of new admissions from an acute care hospital discharge to community from a skilled nursing center. More specifically, the numerator is the number of stays discharged back to the community (i.e. private home, apartment, board/care, assisted living, or group home as indicated on the MDS discharge assessment form) from a skilled nursing center within 100 days of admission and remain out of any skilled nursing center for at least 30 days.</p>

	3481 Discharge to Community – Post Acute Care Measure for Skilled Nursing Facilities	2858 Discharge to Community
	<p>The discharge to community outcome is risk-adjusted for patient characteristics and a statistical estimate of the facility effect beyond case-mix (described below).</p> <p>References</p> <p>[2] National Uniform Billing Committee Official UB-04 Data Specifications Manual 2018, Version 12, July 2017, Copyright 2017, American Hospital Association.</p>	
<p>Numerator Details</p>	<p>The numerator uses a model estimated on full national data specific to the LTCH setting; it is applied to the LTCH’s patient stays included in the measure and includes the estimated effect of that LTCH. The prediction equation is based on a logistic regression model with a two-level hierarchical structure. The patient stays in the model have an indicator of the facility they are discharged from; 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 risk-adjustment logistic model is re-estimated for every measurement period and model coefficients corresponding to the measurement period are used for measure calculation. Results of the logistic model presented in this submission are based FY 2016-2017 data.</p> <p>Details about the three components of the measure outcome are described below.</p> <p>1. DISCHARGE DESTINATION OF COMMUNITY</p> <p>Discharge to a community destination is determined based on the “Patient Discharge Status Code” from the LTCH FFS claim.[3] Discharge to a community destination is defined as discharge to home or self care with or without home health services as described below. While codes 81 and 86 are intended for use on acute care claims only, we observed some instances of these codes on post-acute claims; thus, we include codes 81 and 86 in our community definition.</p> <p>Discharge Status Codes Indicating Community Discharge:</p>	<p>Data for the numerator comes from MDS 3.0 discharge assessments.</p> <p>The numerator is the number of new admissions from an acute care hospital discharged back to the community (as indicated by MDS item A2100=01 ‘discharge into the community’) alive from a skilled nursing center within 100 days of admission and remain out of any skilled nursing center for at least 30 days. All new admissions (regardless of payor status at time of admission to the facility or time of discharge back to the community) are counted as long as they are discharged back to the community within 100 days and do not have a subsequent stay in any nursing center within 30 days.</p> <p>The “within 100 days from admission” time frame is measured by subtracting date of admission (MDS item A1900 “admission date”) from date of discharge (MDS item A2000 “discharge date”). Subsequent stays in any nursing center within 30 days of discharge are determined by subtracting admission date (MDS item A1900 “admission date”) from target date (MDS item TRGT_DT) and ensuring that this isn’t greater than 130 days (i.e. 100 days (of admission for this entry) + 30 days (after discharge) &lt;=130).</p> <p>Stays that discharge to death are not counted as a discharge in the numerator.</p>

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	<ul style="list-style-type: none"> <li>• 01 = Discharged to home or self care (routine discharge)</li> <li>• 06 = Discharged/transferred to home under care of organized home health service organization</li> <li>• 81 = Discharged to home or self care with a planned acute care hospital readmission</li> <li>• 86 = Discharged/transferred to home under care of organized home health service organization with a planned acute care hospital inpatient readmission</li> </ul> <p>References</p> <p>[3] National Uniform Billing Committee Official UB-04 Data Specifications Manual 2018, Version 12, July 2017, Copyright 2017, American Hospital Association.</p> <p>2. UNPLANNED READMISSIONS IN THE 31-DAY POST-DISCHARGE OBSERVATION WINDOW</p> <p>A patient who is discharged to a community setting is not considered to have a successful discharge to community outcome for this measure if they have a subsequent unplanned readmission to an acute care hospital or LTCH in the post-discharge observation window, which includes the day of discharge and 31 days following day of discharge. We only assess the first readmission encountered in the post-discharge window. Our definition of acute care hospital includes hospitals paid under the Inpatient Prospective Payment System (IPPS), critical access hospitals (CAH), and psychiatric hospitals or units. Using acute care and LTCH claims, we identify unplanned readmissions based on the CMS planned readmissions algorithm [4] used in the following post-acute care (PAC) readmission measures, which have been endorsed by the National Quality Forum (NQF) and used in several CMS programs: (i) Skilled Nursing Facility 30-Day All-Cause Readmission Measure (SNFRM) (NQF #2510); (ii) All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Inpatient Rehabilitation Facilities (IRFs) (NQF #2502); (iii) All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Long-Term Care Hospitals (LTCHs) (NQF #2512); and (iv)</p>	

	3481 Discharge to Community – Post Acute Care Measure for Skilled Nursing Facilities	2858 Discharge to Community
	<p>Rehospitalization During the First 30 Days of Home Health (NQF #2380).[5][6][7][8] The planned readmission algorithm used in these PAC readmission measures are based on the Hospital-Wide All-Cause Unplanned Readmission Measure (HWR) (NQF #1789)[9], with some additions made for the SNF, IRF, and LTCH setting measures.[10] We used the most current version of the CMS planned readmission algorithm from the 2018 HWR measure specifications for the FY 2016-2017 measure calculation in this submission.[4] For future updates, we will use the most current version of the CMS planned readmission algorithm and make necessary updates to the additions made for post-acute care settings to ensure the algorithm corresponds to our measurement period.</p> <p>The CMS planned readmission definition is based on the claim from the readmission having a code for a diagnosis or procedure that is considered planned; however, if a planned procedure is accompanied by a principal diagnosis in a specified list of acute diagnoses, the readmission is reclassified as unplanned. Readmissions to psychiatric hospitals or units are always classified as planned readmissions.</p> <p>While the measure was developed with ICD-9-CM procedure and diagnosis codes, it has been transitioned using the ICD-9-CM to ICD-10-CM cross-walk.</p> <p>References</p> <p>[4] Appendix E. Planned Readmission Algorithm Version 4.0 2018 (ICD-10). In: 2018 All-Cause Hospital Wide Measure Updates and Specifications Report: Hospital-Level 30-Day Risk-Standardized Readmission Measure – Version 7.0. Available at: <a href="https://www.qualitynet.org/dcs/BlobServer?blobkey=id&amp;blobnocache=true&amp;blobwhere=1228890804653&amp;blobheader=multipart%2Foctet-stream&amp;blobheadervalue1=Content-Disposition&amp;blobheadervalue1=attachment%3Bfilename%3DHospWide_Readmission_AUS_Report_2018_3-28.pdf&amp;blobcol=urldata&amp;blobtable=MungoBlobs">https://www.qualitynet.org/dcs/BlobServer?blobkey=id&amp;blobnocache=true&amp;blobwhere=1228890804653&amp;blobheader=multipart%2Foctet-stream&amp;blobheadervalue1=Content-Disposition&amp;blobheadervalue1=attachment%3Bfilename%3DHospWide_Readmission_AUS_Report_2018_3-28.pdf&amp;blobcol=urldata&amp;blobtable=MungoBlobs</a> or <a href="https://www.qualitynet.org/dcs/ContentServ">https://www.qualitynet.org/dcs/ContentServ</a></p>	



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	<p>er?c=Page&amp;pagename=QnetPublic%2FPage%2FQnetTier4&amp;cid=1219069855841.</p> <p>[5] Skilled Nursing Facility 30-Day All-Cause Readmission Measure (SNFRM) (NQF #2510). <a href="http://www.qualityforum.org/QPS/2510">http://www.qualityforum.org/QPS/2510</a></p> <p>[6] All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Inpatient Rehabilitation Facilities (IRFs) (NQF #2502). <a href="http://www.qualityforum.org/QPS/2502">http://www.qualityforum.org/QPS/2502</a></p> <p>[7] All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Long-Term Care Hospitals (LTCHs) (NQF #2512). <a href="http://www.qualityforum.org/QPS/2512">http://www.qualityforum.org/QPS/2512</a></p> <p>[8] Rehospitalization During the First 30 Days of Home Health (NQF #2380). <a href="http://www.qualityforum.org/QPS/2380">http://www.qualityforum.org/QPS/2380</a></p> <p>[9] Hospital-Wide All-Cause Unplanned Readmission Measure (HWR) (NQF #1789). <a href="http://www.qualityforum.org/QPS/1789">www.qualityforum.org/QPS/1789</a></p> <p>[10] Table 2-7. AHRQ CCS Single Level Procedure Codes and ICD-9 Procedure Codes Added to Yale’s Planned Readmission Algorithm, for the Post-Acute Care Setting. In: Measure Specifications for Measures Adopted in the FY 2017 LTCH QRP Final Rule. Available at: <a href="https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/LTCH-Quality-Reporting/Downloads/Measure-Specifications-for-FY17-LTCH-QRP-Final-Rule.pdf">https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/LTCH-Quality-Reporting/Downloads/Measure-Specifications-for-FY17-LTCH-QRP-Final-Rule.pdf</a>. Note: The ICD-9 codes listed in Table 2-7 were updated with ICD-10-CM codes for data starting October 1, 2015.</p> <p><b>3. DEATH IN THE 31-DAY POST-DISCHARGE OBSERVATION WINDOW</b></p> <p>A patient who is discharged to a community setting is not considered to have a successful discharge to community outcome for this measure if they die in the post-discharge window, which includes the day of discharge and the 31 days following day of discharge. Death in the post-discharge window is identified based on date of death from Medicare eligibility files.</p> <p>MEASUREMENT PERIOD</p>	

	3481 Discharge to Community – Post Acute Care Measure for Skilled Nursing Facilities	2858 Discharge to Community
	<p>The measure is calculated using two consecutive years of data to ensure adequate number of patient stays for risk-adjustment modeling. All LTCH Medicare FFS discharges during the two-year measurement period, except those that meet the exclusion criteria (see S.8. and S.9.), are included in the measure. For patients with multiple stays during the two-year measurement period, each stay is eligible for inclusion in the measure.</p>	
Denominator Statement	<p>The target population for the measure is the group of Medicare FFS beneficiaries who are discharged from an LTCH during the measurement period and are not excluded based on the measure exclusion criteria (see S.8. and S.9.).</p> <p>The measure denominator is the risk-adjusted expected number of discharges to community. This estimate includes risk-adjustment for patient characteristics with the facility effect removed. The “expected” number of discharges to community is the predicted number of risk-adjusted discharges to community if the same patients were treated at the average facility. The logistic regression model used to calculate the denominator is developed using all non-excluded facility stays in the national data. The denominator is computed in the same way as the numerator, but the facility effect is set at the average.</p>	<p>The denominator is the total number of all admissions from an acute hospital (MDS item A1800 “entered from”=03 (indicating an “acute care hospital”) to a center over the previous 12 months, who did not have a prior stay in a nursing center for the prior 100 days (calculated by subtracting 100 from the admission date (MDS item A1900 “admission date”).</p> <p>Please note, the denominator only includes admissions from acute hospitals (MDS item A1800 “entered from”=03 (indicating an “acute care hospital”) regardless of payor status.</p>
Denominator Details	<p>The measure denominator is the risk-adjusted expected number of discharges to community. See S.8. for details. The target population includes all Medicare FFS beneficiaries who are discharged from an LTCH during the measurement period and are not excluded based on the measure exclusion criteria. The target population for the analyses in this submission includes LTCH discharges from October 1, 2015 through September 30, 2017 (i.e., FY 2016-2017). Index LTCH stays are identified based on discharge date because the Inpatient Standard Analytic File (SAF) from which we extract LTCH claims is based on discharge date.</p>	<p>The denominator is the number of all stays (regardless of payor status) admitted from an acute care hospital (as indicated by MDS item A1800 “entered from”= 03 “acute care hospital”) to a center over the prior 12 months, who did not have a prior stay in a nursing center for the prior 100 days (as indicated by MDS item A1600 “most recent admission/entry or reentry to this facility: entry date,” and item A1800 “entered from”).</p> <p>For example, if the “entry date” (MDS item A1600) is within 100 days from the current admission and the “entered from” (MDS item A1800) is 02 “another nursing home” then these patients are excluded from denominator.</p> <p>Note that our stay grouping algorithm allows interruptions in the stay, so long as the patient returns to the same facility within 100 days of the original admission. Once a new stay has started, if the</p>

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		<p>patient discharges from the SNF and then returns to the same facility within 100 days of the original admission date, then that subsequent time in the SNF is considered to be part of that original stay. Then, when the patient discharges and does not return to the facility (within 100 days of the original admission date), the discharge status code (community discharge, acute hospital, etc.) is the final outcome. For example, if Bill first entered the SNF on February 14th and then was hospitalized on March 10th, returned to the same SNF on March 15th, and then discharged to the community on April 1st, and never came back to the SNF, then Bill would count once in the denominator and once in the numerator. The original and subsequent stay start dates are identified using the entry date, MDS item A1600.</p>
<p>Exclusions</p>	<p>Measure exclusion criteria are based on administrative data from Medicare claims and eligibility files. Exclusion criteria were selected to maintain clinical validity of the measure by excluding stays for which discharge to community would not be appropriate, to ensure data availability and completeness, to exclude stays with problematic claims data, and to maintain relevance to the LTCH QRP (e.g., excluding LTCHs not included in the LTCH QRP based on regional location). Only LTCH stays that are preceded by a short-term acute care stay in the 30 days prior to the LTCH admission date are included in the measure; this is because risk-adjustment variables come from the short-term acute care stay in the 30 days prior to LTCH admission. Stays ending in transfers to the same level of care (i.e., LTCH-to-LTCH discharge) are excluded, because the LTCH episode of care had not ended. We also excluded certain discharge status codes on the LTCH FFS claim that indicated that the patient was not appropriate for community discharge (e.g., discharges against medical advice). See section S.9 for detailed rationale and data sources for each exclusion.</p> <p>Measure exclusion criteria are as follows:</p> <ul style="list-style-type: none"> <li>• Age under 18 years;</li> <li>• No short-term acute care hospital discharge within the thirty days preceding an LTCH admission;</li> <li>• Discharges to a psychiatric hospital;</li> <li>• Discharges against medical advice;</li> </ul>	<p>The denominator has three exclusions (see below). First, stays for patients less than 55 years of age are excluded from the measure. Second, stays for which we do not where the patient entered from, or for which we do not observe the patient’s discharge, are excluded from being counted in the denominator. Third, stays with no available risk adjustment data (clinical and demographic characteristics listed in Section S.14) on any MDS assessment within 18 days of SNF admission are excluded from the measure. Note, while not denominator exclusions, we also suppress the data for facilities that have fewer than 30 stays in the denominator, or for whom the percent of stays with a known outcome is less than 90%. The suppression of risk adjusted to community rates for facilities with fewer than 30 stays in the denominator is to improve the reliability of the measure, as detailed in the testing section (2b3). The suppression of rates for facilities for whom fewer than 90% of stays had a known outcome is done to improve the reliability of the measure and avoid perverse incentives about submitting MDS assessments for patients not discharged to the community.</p>

	3481 Discharge to Community – Post Acute Care Measure for Skilled Nursing Facilities	2858 Discharge to Community
	<ul style="list-style-type: none"> <li>• Discharges to disaster alternative care site or a federal hospital;</li> <li>• Discharges to court/law enforcement;</li> <li>• Discharges to hospice or patient stays with a hospice benefit in the 31-day post-discharge window;</li> <li>• Planned discharges to an acute or LTCH setting;</li> <li>• Stays for patients without continuous Part A FFS Medicare enrollment during the 12 months prior to the LTCH admission date and the 31 days after the LTCH discharge;</li> <li>• LTCH stays preceded by a short-term acute care stay for non-surgical treatment of cancer;</li> <li>• Stays ending in transfer to an LTCH;</li> <li>• Stays with problematic claims data (e.g. anomalous records for stays that overlap wholly or in part or are otherwise erroneous or contradictory, claims not paid);</li> <li>• Exhaustion of Medicare Part A benefit during the LTCH stay; and</li> <li>• LTCH stays in facilities outside of the United States, Puerto Rico, or another U.S. territory.</li> </ul>	
Exclusion Details	<p>Exclusions for the DTC-PAC LTCH measure are listed below, along with the rationale and data source for each exclusion. The measure exclusion criteria are determined by processing Medicare FFS claims and eligibility data to determine whether the individual exclusion criteria are met. All exclusions are based on administrative data.</p> <p>1. Age under 18 years</p> <p>Rationale:</p> <ol style="list-style-type: none"> <li>a. There is limited literature on discharge destination outcomes in this age group;</li> <li>b. Patients in this age group represent a different cohort, likely living with their parents, and may be expected to have higher discharge to community rates compared with the rest of the Medicare population; and</li> <li>c. Patients in this age group represent a small proportion of the LTCH Medicare FFS population.</li> </ol>	<p>First, individuals less than 55 years of age (as indicated by subtracting birth date, MDS item A0900, from admission date, MDS item A1900) are excluded from the measure.</p> <p>Second, exclusions are made for admissions for which there is missing data over the previous 12 months for MDS item A1800 “Entered From” or MDS item A2100 “Discharge Status”.</p> <p>Third, if individuals have no available risk adjustment data on any MDS assessment within 18 days of SNF admission, they are excluded from the measure.</p> <p>As noted above, in addition to the denominator exclusions, we also suppress data for facilities that have fewer than 30 stays in the denominator or for whom the percent of stays with a known outcome is less than 90%. Facilities with fewer than 30 stays in the denominator, are identified by counting the stays remaining after applying the exclusions in this section to the denominator. Facilities for whom fewer than 90% of stays have known outcomes, are measured by looking at all entries for the facility and seeing how</p>

	3481 Discharge to Community – Post Acute Care Measure for Skilled Nursing Facilities	2858 Discharge to Community
	<p>Data source: Birth date and LTCH admission date from Inpatient SAF</p> <p>2. No short-term acute care discharge within the 30 days preceding LTCH admission  Rationale: The most recent acute care claim from the 30 days prior to LTCH admission provides the principal diagnosis and other important patient data for risk-adjustment. Stays without a short-term acute care discharge within the 30 days prior to PAC admission are excluded because important risk-adjustment data will be missing.</p> <p>Data source: Hospital discharge date in Inpatient SAF acute care claims in the 30 days before LTCH admission</p> <p>3. Discharges to psychiatric hospital  Rationale: Patients discharged to psychiatric hospital are excluded from the measure because community living at the time of discharge may be potentially inappropriate or unsafe for them due to their mental health or psychiatric condition. This exclusion is also intended to avoid the potential unintended consequence of decreased LTCH access for patients discharged from psychiatric hospitals.</p> <p>Data source: Patient discharge status code from Inpatient SAF LTCH claim</p> <p>4. Discharges against medical advice  Rationale: Stays ending in discharge against medical advice are excluded because the LTCH care plan may not have been fully implemented, and the discharge destination may not reflect the facility’s discharge recommendation. Additionally, patients discharged against medical advice may potentially be at higher risk of post-discharge readmissions or death, depending on their medical condition, or due to potential non-adherence or non-compliance with care recommendations.</p> <p>Data source: Patient discharge status code from Inpatient SAF LTCH claim</p> <p>5. Discharges to disaster alternative care sites or federal hospitals  Rationale: Stays ending in discharge to disaster alternative care sites are excluded because these discharges are likely influenced by external emergency conditions</p>	<p>many of those entries also have a discharge assessment.</p>

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	<p>and may not represent discretionary discharges by the PAC provider. Discharges to federal hospitals are excluded because we will not have inpatient claims to determine whether the hospitalization was planned or unplanned.</p> <p>Data source: Patient discharge status code from Inpatient SAF LTCH claim</p> <p>6. Discharges to court/law enforcement Rationale: Patients who are discharged to court or law enforcement are likely ineligible for discharge to the community due to legal restrictions.</p> <p>Data source: Patient discharge status code from Inpatient SAF LTCH claim</p> <p>7. Planned discharges to an acute or LTCH setting Rationale: Planned discharges to an acute care hospital or LTCH are excluded as they indicate that community discharge was not appropriate for the patient. Planned discharges are determined based on the planned readmission algorithm described in section S.5.</p> <p>Data source: The planned readmission algorithm is applied to diagnosis and procedure codes found on the first Inpatient SAF acute or new LTCH claim, if any, on the day of or day after index LTCH discharge.</p> <p>8. Stays ending in discharge to hospice and those with a hospice benefit in the post-discharge observation window Rationale:</p> <p>a. Patients discharged to hospice care and those with a hospice benefit in the post-discharge observation window are terminally ill and have very different goals of care compared with non-hospice patients. For non-hospice patients, the primary goal of post-acute care is to return to baseline, independent living in the community; death is an undesirable outcome in the non-hospice population. For hospice patients, the goal is to provide them the opportunity to die comfortably, at home or in a facility.</p> <p>b. A large proportion of hospice patients die in the 31-day window following discharge from the post-acute setting.</p>	

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	<p>c. The hospice agency, not the post-acute care setting, makes the final decision of discharge to hospice-home or hospice-facility.</p> <p>Data source: Discharge to hospice is determined based on the Inpatient SAF LTCH claim. Post-discharge hospice benefit is determined based on hospice enrollment dates (start and termination dates) in the Enrollment Database (EDB).</p> <p>9. Patients not continuously enrolled in Part A FFS Medicare for the 12 months prior to the LTCH admission date, and at least 31 days after LTCH discharge date</p> <p>Rationale: Patients not continuously enrolled in Medicare Part A FFS for the 12 months prior to LTCH admission date are excluded because risk-adjustment for certain comorbidities requires information on acute inpatient bills for one year prior to LTCH admission. Patients not continuously enrolled in Medicare Part A FFS for at least 31 days after LTCH discharge are excluded because readmissions and death must be observable in the 31-day post-discharge period. Patients without Part A coverage or those who are enrolled in Medicare Advantage plans will not have complete inpatient claims in the system.</p> <p>Data source: EDB and Denominator Files</p> <p>10. LTCH stays for which the prior short-term acute care stay was for non-surgical treatment of cancer</p> <p>Rationale: Patient stays for which the prior short-term acute care stay was for non-surgical treatment of cancer are excluded because they have a different trajectory for recovery after discharge, with a high mortality rate. Exclusion of these stays is consistent with the hospital-wide and post-acute readmission measures listed in section S.5.</p> <p>Data source: Diagnosis codes from the Inpatient SAF prior acute claim</p> <p>11. LTCH stays that end in transfer to the same level of care</p> <p>Rationale: LTCH stays that end in transfer to another LTCH are excluded from the measure because the LTCH episode has not ended. For an LTCH episode that involves transfer to</p>	

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	<p>another LTCH, only the final LTCH provider is included in the measure. (Note that this exclusion does not apply to transitions across different levels of post-acute care (e.g., LTCH-to-SNF)).</p> <p>Data source: Patient discharge status code from Inpatient SAF LTCH claim</p> <p>12. LTCH stays with claims data that are problematic (e.g., anomalous records for stays that overlap wholly or in part or are otherwise erroneous or contradictory, stays not matched to the denominator or EDB files, claims not paid)</p> <p>Rationale: This measure requires accurate information from the post-acute stay and prior short-term acute care stay and from the denominator and EDB files for risk-adjustment.</p> <p>Data source: Inpatient SAF claims, EDB and denominator files</p> <p>13. Medicare Part A benefits exhausted</p> <p>Rationale: Patient stays that have exhausted Medicare Part A coverage during the LTCH stay are excluded because the discharge destination decision may be related to exhaustion of benefits.</p> <p>Data source: Inpatient SAF LTCH claim</p> <p>14. Patient stays from facilities located outside of the United States, Puerto Rico or a U.S. territory</p> <p>Rationale: Patient stays from foreign facilities may not have complete inpatient claims in the system, and these facilities may not be subject to policy decisions related to this quality measure nor included in the LTCH Quality Reporting Program.</p> <p>Data source: CMS Certification Number from the Inpatient SAF LTCH claim</p>	
Risk Adjustment	Statistical risk model	Statistical risk model
Stratification	Not applicable	Not applicable
Type Score	Rate/proportion	Rate/proportion
Algorithm	The DTC-PAC LTCH measure is risk-adjusted. To develop the risk-adjustment model for this measure, we analyzed Medicare inpatient SAF claims, Denominator, and EDB files, identifying FY 2016-2017 LTCH Medicare FFS discharges preceded by an acute care	The formula for the risk-adjusted discharge to community rate is: $\frac{\text{((Observed discharge to community alive within 100 days of admission and remaining out of any SNF for at least 30 days rate))}}{\text{(Expected discharge to community alive within 100 days of admission and$



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	<p>hospitalization (IPPS, CAH, or psychiatric hospital) within 30 days before LTCH admission date. We applied the measure exclusion criteria to determine the sample included in the risk-adjustment model. The measure is based on two consecutive fiscal years of data (FY 2016-2017 LTCH Medicare FFS discharges).</p> <p><b>RISK-ADJUSTMENT VARIABLES</b></p> <p>Risk-adjustment variables include demographic and eligibility characteristics; principal diagnoses from the prior short-term acute care stay; length of stay, types of surgery or procedures, intensive care utilization, ventilator use, and dialysis from the prior short-term acute care stay; comorbidities; and number of prior hospitalizations in the year preceding the LTCH admission. See the attached Excel document for the full list of risk-adjusters.</p> <p><b>RISK-ADJUSTMENT MODELING AND MEASURE CALCULATION ALGORITHM</b></p> <p>We used a hierarchical logistic regression model to predict the probability of discharge to community. Baseline patient characteristics related to the discharge to community outcome and a marker for the specific discharging facility are included in the equation. The equation is hierarchical in that both individual patient characteristics are accounted for, as well as the clustering of patient characteristics by facility. The statistical model estimates both the average predictive effect of the patient characteristics across all facilities, and the degree to which each facility has an effect on discharge to community that differs from that of the average facility. The facility effects are assumed to be randomly distributed around the average (according to a normal distribution).</p> <p>When computing the facility effect, hierarchical modeling accounts for the known predictors of discharge to community, on average, such as baseline/admission patient characteristics, the observed facility rate, and the number of facility stays eligible for inclusion in the measure. The estimated facility effect is determined mostly by the facility’s own data if the number of patient</p>	<p>remaining out of any SNF for at least 30 days rate)) * (National discharge to community alive within 100 days of admission and remaining out of any SNF for at least 30 days rate).</p> <p>Note: The national rate and the expected rate need to be calculated for the same time period so that their ratio across the nation will center around 1.0, i.e., the risk adjustment does not systematically bias up or down the rates. We recommend the national rate and expected rates be recalibrated at least annually.</p> <p>1. Build the denominator population, applying exclusions:</p> <ul style="list-style-type: none"> <li>-Establish the 12 month rolling time period and collect all the assessments for an admissions from an acute care hospital (for patients who did not have a prior stay in a nursing center for the prior 100 days) that fall within the time period.</li> <li>-Identify all MDS assessments through the stay, up to discharge. If no discharge is observed, the stay does not have a known outcome and is excluded from the denominator population. Note that if the patient is discharged (e.g., a hospitalization after which the patient returns to the SNF), but then returns to the same SNF within 100 days of the original admission, then the stay is continued to be ongoing, and we continue to search for the final discharge.</li> <li>-If the stay had missing data on the “admitted from” MDS item (to identify admissions from the acute hospital) or on the “discharged to” item (to identify discharges to the community).</li> <li>-Identify whether the patient was seen in a SNF in the 30 days after discharge from the current stay, which indicates the patient’s outcome was not a successful community discharge for the purpose of this measure. This is accomplished by looking for any MDS for that individual in any SNF during the 30 day widow following SNF discharge to the community.</li> <li>-Identify any MDS assessments for the patient in the 100 days prior to the stay’s admission. If any are found, exclude the stay from the denominator.</li> <li>-If the patient was under 55 years of age on admission to the stay, exclude the stay from the denominator population.</li> </ul> <p>2. Observed Rate Calculation:</p> <ul style="list-style-type: none"> <li>-The formula for a facility’s observed discharge to community rate is:</li> </ul> <p>(The number of stays discharged back to the community (i.e. private home, apartment,</p>

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	<p>stays is relatively large (as the estimate would be relatively precise) but is adjusted toward the average if the number of stays is small (as that would yield a less precise estimate).</p> <p>We used the following model:  Let <math>Y_{ij}</math>, denote the outcome (equal to 1 if patient <math>i</math> is discharged to community, 0 otherwise) for a patient <math>i</math> at facility <math>j</math>; <math>Z_{ij}</math> denotes a set of risk-adjustment variables. We assume the outcome is related to the risk adjusters via a logit function with dispersion:  <math>\text{logit}(\text{Prob}(Y_{ij}=1)) = \alpha_j + \beta * Z_{ij} + e_{ij}</math> (1)  <math>\alpha_j = \mu + \tau_j</math> ; <math>\tau_j \sim N(0, \tau^2)</math>  where <math>Z_{ij} = (Z_{1j}, Z_{2j}, \dots, Z_{kj})</math> is a set of <math>k</math> patient-level risk-adjustment variables; <math>\alpha_j</math> represents the facility-specific intercept; <math>\mu</math> is the adjusted average outcome across all facilities; <math>\tau^2</math> is the between-facility variance component; and <math>e_{ij} \sim N(0, s^2)</math> is the error term.</p> <p>The hierarchical logistic regression model is estimated using SAS software (PROC GLIMMIX: SAS/STAT User’s Guide, SAS Institute Inc.).</p> <p>The estimated equation is used twice in the measure. The sum of the probabilities of discharge to community of all patients in the facility measure, including both the effects of patient characteristics and the facility, is the “predicted number” of discharges to community after adjusting for the facility’s case mix. The same equation is used without the facility effect to compute the “expected number” of discharges to community for the same patients at the average facility.</p> <p>The ratio of the predicted-to-expected number of discharges to community (i.e., standardized risk ratio (SRR)) is a measure of the degree to which discharges to community are higher or lower than what would otherwise be expected. The SRR is then multiplied by the national stay-level observed discharge to community rate for all facility stays for the measure, yielding the risk-standardized discharge to community rate for each facility.</p> <p>The estimation procedure is recalculated for each measurement period. Re-estimating the models for each measurement period allows the estimated effects of the patient</p>	<p>board/care, assisted living, or group home as indicated on the MDS 3.0 discharge assessment form) from a skilled nursing center within 100 days of admission and remain out of any skilled nursing center for at least 30 days)/ (all admissions from an acute hospital to a center over the prior 12 months that do not meet the exclusions)</p> <p>-The numerator is the number of stays in the denominator that are discharged back to the community from a SNF within 100 days of admission and remain out of any skilled nursing center for at least 30 days upon discharge, during a rolling 12 month period.</p> <p>-For example, if a center discharged 130 stays (that were admitted from an acute care hospital and that did not have a prior stay in a nursing center for the prior 100 days), but 30 of them were readmitted to a skilled nursing center within 30 days following discharge, the numerator would be 100 (i.e. <math>130 - 30 = 100</math>).</p> <p>-Divide the numerator by the denominator to obtain the observed rate for the skilled nursing center.</p> <p>3. Expected Rate Calculation</p> <p>-See S.15</p> <p>-For each SNF, calculate the facility-level mean of the stay-level expected rates of discharging back to the community, from the calculation in S.15; this is the overall expected rate of discharging back to the community for the SNF based on its denominator population.</p> <p>4. National Average</p> <p>-The national average is calculated as the sum of all residents in the nation who were discharged to the community (and remained out of a SNF for at least 30 days) divided by the sum of all admissions to SNF (regardless of payor status) from acute care hospitals during a calendar year and did not have a prior stay in the nursing home.</p> <p>5. Divide the observed rate by the expected rate and multiply by the national rate to obtain the adjusted discharge to community rate for the center.</p> <p>6. Suppress the risk adjusted discharge to community rates for SNFs with fewer than 30 stays in the denominator, or with a “known outcome rate” of less than 90%. The known outcome rate for the facility is the proportion of stays in the denominator (excepting the known outcome exclusion) for which the outcome is unknown.</p>

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	<p>characteristics to vary over time as patient case-mix and medical treatment patterns change.</p> <p>The following steps describe the calculation algorithm/measure logic for the DTC-PAC LTCH measure:</p> <p>Step 1: Identify stays meeting the criteria for the target population, after applying measure exclusions.</p> <p>Step 2: Identify stays meeting the discharge to community criteria, i.e., discharge to community, no unplanned readmissions on the day of discharge or in the 31 days following discharge, and no death on the day of discharge or in the 31 days following discharge.</p> <p>Step 3: Identify presence or value of risk-adjustment variables for each patient stay.</p> <p>Step 4: Calculate the predicted and expected number of discharges to community for each facility using the hierarchical logistic regression model.</p> <p>The predicted number of discharges to community for each facility (i.e., numerator) is calculated as the sum of the predicted probability of discharge to community for each patient discharged from the facility and included in the measure, including the facility-specific effect.</p> <p>To calculate the predicted number of discharges to community, <math>pred_j</math>, for index stays at facility <math>j</math>, we used the following equation:</p> $pred_j = \text{Slogit-1}(\sum_i + \beta_i + \beta_i * Z_{ij}) \quad (2)$ <p>where the sum is over all stays in facility <math>j</math>, and <math>\beta_i</math> is the facility effect.</p> <p>The expected number of discharges to community (i.e., denominator) is calculated as the sum of the predicted probability of discharges to community, but without the facility-specific effect included in the predictions. This produces the expected number of discharges at the average facility. To calculate the expected number <math>exp_j</math>, we used the following equation:</p> $exp_j = \text{Slogit-1}(\sum_i + \beta_i * Z_{ij}) \quad (3)$	

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	<p>Step 5: Calculate the SRR for each facility, as the ratio of the predicted to expected number of discharges to community.</p> <p>To calculate the facility-level SRR, SRR<sub>j</sub>, we used the following equation:</p> $SRR_j = \text{pred}_j / \text{exp}_j \quad (4)$ <p>Step 6: Calculate the risk-standardized discharge to community rate for each facility.</p> <p>To aid interpretation, the facility-level SRR, SRR<sub>j</sub>, obtained from equation (4) is then multiplied by the overall national stay-level observed discharge to community rate for all facility stays, <math>\bar{d}</math>, to produce the facility-level risk-standardized discharge to community rate (RSR<sub>j</sub>).</p> <p>To calculate the risk-standardized discharge to community rate for each facility, we used the following equation:</p> $RSR_j = SRR_j * \bar{d} \quad (5)$ <p>The DTC-PAC LTCH measure is specific to LTCH providers only.</p>	

## Appendix E2: Related and Competing Measures (Narrative Format)

### Comparison of NQF 3455 to NQF 0229, NQF 1789, and NQF 1891

3455 Timely Follow-Up After Acute Exacerbations of Chronic Conditions

0229 Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate (RSMR) Following Heart Failure (HF) Hospitalization

1789 Hospital-Wide All-Cause Unplanned Readmission Measure (HWR)

1891 Hospital 30-Day, All-Cause, Risk-Standardized Readmission Rate (RSRR) Following Chronic Obstructive Pulmonary Disease (COPD) Hospitalization

#### *Steward*

##### **3455 Timely Follow-Up After Acute Exacerbations of Chronic Conditions**

IMPAQ International

##### **0229 Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate (RSMR) Following Heart Failure (HF) Hospitalization**

Centers for Medicare & Medicaid Services

##### **1789 Hospital-Wide All-Cause Unplanned Readmission Measure (HWR)**

Centers for Medicare & Medicaid Services

##### **1891 Hospital 30-Day, All-Cause, Risk-Standardized Readmission Rate (RSRR) Following Chronic Obstructive Pulmonary Disease (COPD) Hospitalization**

Centers for Medicare & Medicaid Services

#### *Description*

##### **3455 Timely Follow-Up After Acute Exacerbations of Chronic Conditions**

The percentage of issuer-product-level acute events requiring either an emergency department (ED) visit or hospitalization for one of the following 6 chronic conditions: hypertension, asthma, heart failure (HF), coronary artery disease (CAD), chronic obstructive pulmonary disease (COPD), or diabetes mellitus (Type I or Type II), where follow-up was received within the timeframe recommended by clinical practice guidelines in a non-emergency outpatient setting.

##### **0229 Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate (RSMR) Following Heart Failure (HF) Hospitalization**

The measure estimates a hospital-level 30-day risk-standardized mortality rate (RSMR). Mortality is defined as death for any cause within 30 days after the admission date for the index admission, for patients 18 and older discharged from the hospital with a principal diagnosis of heart failure (HF). The Centers for Medicare & Medicaid Services (CMS) annually reports the measure for patients who are 65 years or older and are either Medicare fee-for-service (FFS) beneficiaries and hospitalized in non-federal hospitals or patients hospitalized in Veterans Health Administration (VA) facilities.

##### **1789 Hospital-Wide All-Cause Unplanned Readmission Measure (HWR)**

For the hospital-wide readmission (HWR) measure that was previously endorsed and is used in the Hospital Inpatient Quality Reporting Program (IQR), the measure estimates a hospital-level risk-standardized readmission rate (RSRR) of unplanned, all-cause

readmission after admission for any eligible condition within 30 days of hospital discharge. 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, each of which will be described in greater detail below. The measure also indicates the hospital-level standardized risk 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 for the index admission (the admission included in the measure cohort). A specified set of planned readmissions do not count in the readmission outcome. CMS annually reports the measure for patients who are 65 years or older, are enrolled in fee-for-service (FFS) Medicare, and hospitalized in non-federal hospitals.

For the All-Cause Readmission (ACR) measure version used in the Shared Savings Program (SSP), the measure estimates an Accountable Care Organization (ACO) facility-level RSRR of unplanned, all-cause readmission after admission for any eligible condition 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 FFS Medicare and are ACO assigned beneficiaries.

#### **1891 Hospital 30-Day, All-Cause, Risk-Standardized Readmission Rate (RSRR) Following Chronic Obstructive Pulmonary Disease (COPD) Hospitalization**

The measure estimates a hospital-level 30-day, all-cause, risk-standardized readmission rate (RSRR) for patients discharged from the hospital with either a principal discharge diagnosis of COPD or a principal discharge diagnosis of respiratory failure with a secondary diagnosis of acute exacerbation of COPD. Readmission 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 in the readmission outcome. The Centers for Medicare & Medicaid Services (CMS) annually reports the measure for patients who are 65 years or older, are enrolled in Medicare fee-for-service (FFS), and hospitalized in non-federal hospitals.

#### *Type*

#### **3455 Timely Follow-Up After Acute Exacerbations of Chronic Conditions**

Process

#### **0229 Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate (RSMR) Following Heart Failure (HF) Hospitalization**

Outcome

#### **1789 Hospital-Wide All-Cause Unplanned Readmission Measure (HWR)**

Outcome

#### **1891 Hospital 30-Day, All-Cause, Risk-Standardized Readmission Rate (RSRR) Following Chronic Obstructive Pulmonary Disease (COPD) Hospitalization**

Outcome

### *Data Source*

#### **3455 Timely Follow-Up After Acute Exacerbations of Chronic Conditions**

Claims

#### **0229 Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate (RSMR) Following Heart Failure (HF) Hospitalization**

Claims, Paper Medical Records, Other

#### **1789 Hospital-Wide All-Cause Unplanned Readmission Measure (HWR)**

Claims

#### **1891 Hospital 30-Day, All-Cause, Risk-Standardized Readmission Rate (RSRR) Following Chronic Obstructive Pulmonary Disease (COPD) Hospitalization**

Claims, Paper Medical Records, Other

### *Level*

#### **3455 Timely Follow-Up After Acute Exacerbations of Chronic Conditions**

Health Plan, Other

#### **0229 Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate (RSMR) Following Heart Failure (HF) Hospitalization**

Facility

#### **1789 Hospital-Wide All-Cause Unplanned Readmission Measure (HWR)**

Facility, Integrated Delivery System

#### **1891 Hospital 30-Day, All-Cause, Risk-Standardized Readmission Rate (RSRR) Following Chronic Obstructive Pulmonary Disease (COPD) Hospitalization**

Facility

### *Setting*

#### **3455 Timely Follow-Up After Acute Exacerbations of Chronic Conditions**

Inpatient/Hospital, Emergency Department and Services

#### **0229 Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate (RSMR) Following Heart Failure (HF) Hospitalization**

Inpatient/Hospital, Other

#### **1789 Hospital-Wide All-Cause Unplanned Readmission Measure (HWR)**

Inpatient/Hospital, Outpatient Services

#### **1891 Hospital 30-Day, All-Cause, Risk-Standardized Readmission Rate (RSRR) Following Chronic Obstructive Pulmonary Disease (COPD) Hospitalization**

Inpatient/Hospital

### *Numerator Statement*

#### **3455 Timely Follow-Up After Acute Exacerbations of Chronic Conditions**

The numerator is the sum of the issuer-product-level denominator events (Emergency Room [ED], observation hospital stay or inpatient hospital stay) for acute exacerbation of



hypertension, asthma, heart failure (HF), coronary artery disease (CAD), chronic obstructive pulmonary disease (COPD), or diabetes where follow-up was received within the timeframe recommended by clinical practice guidelines, as detailed below:

- Hypertension: Within 7 days of the date of discharge
- Asthma: Within 14 days of the date of discharge
- HF: Within 14 days of the date of discharge
- CAD: Within 14 days of the date of discharge
- COPD: Within 30 days of the date of discharge
- Diabetes: Within 30 days of the date of discharge

#### **0229 Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate (RSMR) Following Heart Failure (HF) Hospitalization**

The outcome for this measure is 30-day all-cause mortality. We define mortality as death from any cause within 30 days of the index admission date for patients 65 and older discharged from the hospital with a principal diagnosis of HF.

#### **1789 Hospital-Wide All-Cause Unplanned Readmission Measure (HWR)**

The outcome for the HWR 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 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.

The outcome for the ACR measure is also 30-day readmission. The outcome is defined identically to what is described above for the HWR measure.

#### **1891 Hospital 30-Day, All-Cause, Risk-Standardized Readmission Rate (RSRR) Following Chronic Obstructive Pulmonary Disease (COPD) Hospitalization**

The outcome for this measure is 30-day all-cause 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 admission, for patients discharged from the hospital with a principal discharge diagnosis of COPD or principal discharge diagnosis of respiratory failure with a secondary discharge diagnosis of acute exacerbation of COPD. If a patient has more than one unplanned admission within 30 days after 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

### **3455 Timely Follow-Up After Acute Exacerbations of Chronic Conditions**

This measure is defined at the issuer-by-product level, meaning that results are aggregated for each qualified insurance issuer and for each product. For clarity, a product is a discrete package of health insurance coverage benefits that issuers offer in the context of a particular network type, such as health maintenance organization (HMO), preferred provider organization (PPO), exclusive provider organization (EPO), point of service (POS), or indemnity. Issuers are broadly defined as health insurance providers who participate in the Federally-facilitated Marketplaces and health insurance contracts offered in the Medicare Advantage market.

Timely follow-up is defined as a claim for the same patient after the discharge date of the acute event that is a non-emergency outpatient visit and has a CPT or HCPCS code indicating a visit that constitutes appropriate follow-up, as defined by clinical guidelines and clinical coding experts. The follow-up visit may be a general office visit or telehealth and take place in certain chronic care or transitional care management settings. The follow-up visit must occur within the condition-specific timeframe to be considered timely and for the conditions of the numerator/measure to be met. For a list of individual codes, please see the data dictionary attached in S.2b.

The follow-up visit timeframes for each of the 6 chronic conditions are based on evidence-based clinical practice guidelines (CPGs) as laid out in the evidence form.

### **0229 Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate (RSMR) Following Heart Failure (HF) Hospitalization**

The measure counts deaths for any cause within 30 days of the date of admission of the index HF hospitalization.

Rationale: From a patient perspective, death is a critical outcome regardless of cause. Outcomes occurring within 30 days of the start of the admission can be influenced by hospital care and 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 mortality (Simoes et al., 2017; Dharmarajan et al., 2015).

Identifying deaths in the FFS measure

As currently reported, we identify deaths for FFS Medicare patients 65 years and older in the Medicare Enrollment Database (EDB).

Identifying deaths in the all-payer measure

For the purposes of development of an all-payer measure, deaths were identified using the California vital statistics data file. Nationally, post-discharge deaths can be identified using an external source of vital status, such as the Social Security Administration's Death Master File (DMF) or the Centers for Disease Control and Prevention's National Death Index (NDI).

### **1789 Hospital-Wide All-Cause Unplanned Readmission Measure (HWR)**

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

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/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 Hospital-Wide Readmission measure. In 2013, CMS applied the algorithm to its other readmission measures.

The Planned Readmission Algorithm and associated code tables are attached in data field S.2b (Data Dictionary or Code Table).

### **1891 Hospital 30-Day, All-Cause, Risk-Standardized Readmission Rate (RSRR) Following Chronic Obstructive Pulmonary Disease (COPD) Hospitalization**

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

Rationale: 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. 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.

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 (transplant surgery, maintenance chemotherapy/ 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 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 COPD measure because the algorithm uses a more comprehensive definition. In applying the algorithm to condition-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 COPD readmission measure, CMS used the Planned Readmission Algorithm without making any changes.

For more details on the Planned Readmission Algorithm, please see the report titled "2017 Measures Updates and Specifications Report: Hospital-Level 30-Day Risk-Standardized Readmission Measures for Acute Myocardial Infarction, Heart Failure, and Pneumonia (Version 10.0)" posted on the web page provided in data field S.1.

### *Denominator Statement*

#### **3455 Timely Follow-Up After Acute Exacerbations of Chronic Conditions**

The denominator is the sum of the plan-product-level acute exacerbations that require either an ED visit, observation stay, or inpatient stay (i.e., acute events) for any of the six conditions listed above (hypertension, asthma, HF, CAD, COPD, or diabetes).

#### **0229 Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate (RSMR) Following Heart Failure (HF) Hospitalization**

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 explicitly tested the measure in both age groups.

The cohort for the publically reported measure includes admissions for patients aged 65 years and older discharged from the hospital with a principal discharge diagnosis of HF and with a complete claims history for the 12 months prior to admission. The measure is currently publicly reported by CMS for those patients 65 years and older who are either Medicare FFS beneficiaries admitted to non-federal hospitals or patients admitted to VA hospitals.

#### **1789 Hospital-Wide All-Cause Unplanned Readmission Measure (HWR)**

The measure at the hospital level 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.

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.

#### **1891 Hospital 30-Day, All-Cause, Risk-Standardized Readmission Rate (RSRR) Following Chronic Obstructive Pulmonary Disease (COPD) Hospitalization**

This claims-based measure can be used in either of two patient cohorts: (1) patients aged 65 years or older or (2) patients aged 40 years or older.

The cohort includes admissions for patients discharged from the hospital with either a principal discharge diagnosis of COPD \ OR a principal discharge diagnosis of respiratory failure with a secondary discharge diagnosis of acute exacerbation of COPD (see codes in the attached data dictionary) and with a complete claims history for the 12 months prior to admission.

The measure is currently publicly reported by CMS for those patients 65 years and older who are Medicare FFS beneficiaries admitted to non-federal hospitals. 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.

## Denominator Details

### 3455 Timely Follow-Up After Acute Exacerbations of Chronic Conditions

Acute events are defined as either an ED visit, observation stay, or inpatient stay. If a patient is discharged and another claim begins for the same condition on the same day or the following day, the claims are considered to be part of one continuous acute event. In this case, the discharge date of the last claim is the beginning of the follow-up interval. The final claim of the acute event must be a discharge to community.

An acute event is assigned to [condition] if:

1. The primary diagnosis is a sufficient code for [condition].

OR

2. The primary diagnosis is a related code for [condition] AND at least one additional diagnosis is a sufficient code for [condition].

a. In cases where the event has two or more conditions with a related code as the primary diagnosis and a sufficient code in additional diagnosis positions, assign the event to the condition with a sufficient code appearing in the “highest” (closest to primary) diagnosis position.

If the visits that make up an acute event are assigned different conditions, the event is assigned the condition that occurs last in the sequence. Following this methodology, only one condition is recorded in the denominator per acute event. For a list of individual codes, please see the data dictionary attached in S.2b.

### 0229 Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate (RSMR) Following Heart Failure (HF) Hospitalization

To be included in the HF measure cohort used in public reporting, patients must meet the following additional inclusion criteria:

1. Have a principal discharge diagnosis of heart failure (HF);

2. Enrolled in Medicare Fee-For-Service (FFS) Part A and Part B for the 12 months prior to the date of the index admission and Part A during the index admission, or those who are VA beneficiaries (in the cases of the AMI, HF, and pneumonia measures);

3. Aged 65 or over; and,

4. Not transferred from another acute care facility.

VA beneficiaries are eligible for inclusion in the AMI, HF, and pneumonia measure cohorts regardless of Medicare FFS enrollment or whether they were hospitalized in a VA or non-VA short-term acute care hospital.

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.

ICD-9 and ICD-10 cohort codes are included in the attached Data Dictionary.

### 1789 Hospital-Wide All-Cause Unplanned Readmission Measure (HWR)

To be included in the hospital level measure, cohort patients must be:

1. Enrolled in Medicare fee-for-service (FFS) Part A for the 12 months prior to the date of admission and during the index admission;

2. Aged 65 or over;

3. Discharged alive from a non-federal short-term acute care hospital; and
4. Not transferred to another acute care facility.

The ACO version of this measure has the additional criterion 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 aggregates the ICD-9 principal diagnosis and all procedure codes of the index admission into clinically coherent groups of conditions and procedures (condition categories or procedure categories) using the AHRQ CCS. There are a total of 285 mutually exclusive AHRQ condition categories, most of which are single, homogenous diseases such as pneumonia or acute myocardial infarction. Some are aggregates of conditions, such as “other bacterial infections.” There are a total of 231 mutually exclusive procedure categories. Using the AHRQ CCS procedure and condition categories, the measure assigns each index hospitalization to one of five mutually exclusive specialty cohorts: surgery/gynecology, cardiorespiratory, cardiovascular, neurology, and medicine. The rationale behind this organization is that conditions typically cared for by the same team of clinicians are expected to experience similar added (or reduced) levels of readmission risk.

The measure first assigns admissions with qualifying AHRQ 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 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 are attached in data field S.2b (Data Dictionary or Code Table).

### **1891 Hospital 30-Day, All-Cause, Risk-Standardized Readmission Rate (RSRR) Following Chronic Obstructive Pulmonary Disease (COPD) Hospitalization**

To be included in the measure cohort used in public reporting, patients must meet the following additional inclusion criteria:

1. Principal discharge diagnosis of COPD or principal discharge diagnosis of respiratory failure with a secondary diagnosis of COPD with exacerbation;
2. Enrolled in Medicare FFS Part A and Part B for the first 12 months prior to the date of admission, and enrolled in Part A during the index admission;
3. Aged 65 or over;

4. Discharged alive from a non-federal short-term acute care hospital; and
  5. Not transferred from another acute care facility.
- ICD-9 and ICD-10 cohort codes are included in the attached Data Dictionary.

### *Exclusions*

#### **3455 Timely Follow-Up After Acute Exacerbations of Chronic Conditions**

The measure excludes events with:

1. Subsequent acute events that occur two days after the prior discharge, but still during the follow-up interval of the prior event for the same reason. To prevent double-counting, only the first acute event will be included in the denominator.
2. Acute events after which the patient does not have continuous enrollment for 30 days in the same product.
3. Acute events where the discharge status of the last claim is not “to community” (“Left against medical advice” is not a discharge to community.)
4. Acute events for which the calendar year ends before the follow-up window ends (e.g., acute asthma events ending fewer than 14 days before December 31)
5. Acute events where the patient enters a skilled nursing facility (SNF), non-acute care, or hospice care within the follow-up interval

#### **0229 Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate (RSMR) Following Heart Failure (HF) Hospitalization**

The HF mortality measure excludes index hospitalizations that meet any of the following exclusion criteria:

1. With inconsistent or unknown vital status or other unreliable demographic (age and gender) data;
2. Enrolled in the Medicare hospice program or used VA hospice services any time in the 12 months prior to the index admission, including the first day of the index admission; or,
3. Discharged against medical advice.
4. Discharged alive on the day of admission or the following day who were not transferred to another acute care facility; or
5. With a procedure code for LVAD implantation or heart transplantation either during the index admission or in the 12 months prior to the index admission.

For patients with more than one admission for a given condition in a given year, only one index admission for that condition is randomly selected for inclusion in the cohort.

#### **1789 Hospital-Wide All-Cause Unplanned Readmission Measure (HWR)**

The measure excludes index admissions for patients:

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

### **1891 Hospital 30-Day, All-Cause, Risk-Standardized Readmission Rate (RSRR) Following Chronic Obstructive Pulmonary Disease (COPD) Hospitalization**

The COPD readmission measure excludes index hospitalizations that meet any of the following exclusion criteria:

1. Without at least 30 days of post-discharge enrollment in Medicare FFS
2. Discharged against medical advice
3. COPD admissions within 30 days of discharge from a prior COPD index admission

#### *Exclusion Details*

### **3455 Timely Follow-Up After Acute Exacerbations of Chronic Conditions**

For a list of individual codes, please see the data dictionary attached in S.2b.

### **0229 Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate (RSMR) Following Heart Failure (HF) Hospitalization**

1. Inconsistent or unknown vital status or other unreliable demographic data

Inconsistent vital status or unreliable data are identified if any of the following conditions are met 1) the patient's age is greater than 115 years; 2) if the discharge date for a hospitalization is before the admission date; 3) if the patient has a sex other than 'male'

Rationale: We do not include stays for patients where the age is greater than 115, where the gender is neither male nor female, where the admission date is after the date of death in the Medicare Enrollment Database, or where the date of death occurs before the date of discharge but the patient was discharged alive.

2. Enrolled in the Medicare hospice program any time in the 12 months prior to the index admission, including the first day of the index admission

Rationale: Hospice enrollment in the 12 months prior to or on the index admission is identified using hospice data and the Inpatient standard analytic file (SAF). This exclusion applies when the measure is used in Medicare FFS patients only.

Rationale: These patients are likely continuing to seek comfort measures only; thus, mortality is not necessarily an adverse outcome or signal of poor quality care.

3. Discharged against medical advice

Discharges against medical advice are identified using the discharge disposition indicator.

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

4. Discharged alive on the day of admission or the following day who were not transferred to another acute care facility. The discharge disposition indicator is used to identify patients alive at discharge. Transfers are identified in the claims when a patient with a qualifying admission is discharged from an acute care hospital and admitted to another acute care hospital on the same day or next day.

Rationale: It is unlikely that these patients had clinically significant HF.

5. With a procedure code for LVAD implantation or heart transplantation either during the index admission or in the 12 months prior to the index admission

Patients with LVAD implantation or heart transplantation during an index admission or in the previous 12 months are identified by the corresponding codes for these procedures included in claims data.



Rationale: These patients represent a clinically distinct group (ICD-10-PCS code list). The data sources for these analyses are Medicare administrative claims and enrollment information for patients with hospitalizations between July 1, 2013 and June 30, 2016. After exclusions #1-5 are applied, the measure randomly selects one index admission per patient per year for inclusion in the cohort so that each episode of care is mutually independent with the same probability of the outcome. Additional admissions within that year are excluded. For each patient, the probability of death increases with each subsequent admission and therefore the episodes of care are not mutually independent. For the three-year combined data, when index admissions occur during the transition between measure reporting periods (June and July of each year) and both are randomly selected for inclusion in the measure, the measure includes only the June admission. The July admissions are excluded to avoid assigning a single death to two admissions.

### **1789 Hospital-Wide All-Cause Unplanned Readmission Measure (HWR)**

1. Admitted to a PPS-exempt cancer hospital, identified by the Medicare provider ID.
2. Admissions without at least 30 days post-discharge enrollment in FFS Medicare are determined using data captured in the Medicare Enrollment Database (EDB).
3. Discharges against medical advice (AMA) are identified using the discharge disposition indicator in claims data.
4. Admitted for primary psychiatric disease, identified by a principal diagnosis in one of the specific AHRQ CCS categories listed in the attached data dictionary.
5. Admitted for rehabilitation care, identified by the specific ICD-9 diagnosis codes included in CCS 254 (Rehabilitation care; fitting of prostheses; and adjustment of devices).
6. Admitted for medical treatment of cancer, identified by the specific AHRQ CCS categories listed in the attached data dictionary.

### **1891 Hospital 30-Day, All-Cause, Risk-Standardized Readmission Rate (RSRR) Following Chronic Obstructive Pulmonary Disease (COPD) Hospitalization**

1. Without at least 30 days of post-discharge enrollment in Medicare FFS, which is identified is by examining the discharge destination indicator in claims data.

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

2. Discharged against medical advice, which are 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.

3. COPD admissions within 30 days of discharge from a prior COPD index admission

Rationale: Additional COPD admissions within 30 days are excluded as index admissions because they are part of the outcome. A single admission does not count as both an index admission and a readmission for another index admission.

## *Risk Adjustment*

### **3455 Timely Follow-Up After Acute Exacerbations of Chronic Conditions**

No risk adjustment



**0229 Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate (RSMR) Following Heart Failure (HF) Hospitalization**

Statistical risk model

**1789 Hospital-Wide All-Cause Unplanned Readmission Measure (HWR)**

Statistical risk model

**1891 Hospital 30-Day, All-Cause, Risk-Standardized Readmission Rate (RSRR) Following Chronic Obstructive Pulmonary Disease (COPD) Hospitalization**

Statistical risk model

*Stratification*

**3455 Timely Follow-Up After Acute Exacerbations of Chronic Conditions**

No risk stratification

**0229 Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate (RSMR) Following Heart Failure (HF) Hospitalization**

No risk stratification

**1789 Hospital-Wide All-Cause Unplanned Readmission Measure (HWR)**

No risk stratification

**1891 Hospital 30-Day, All-Cause, Risk-Standardized Readmission Rate (RSRR) Following Chronic Obstructive Pulmonary Disease (COPD) Hospitalization**

No risk stratification

*Type Score*

**3455 Timely Follow-Up After Acute Exacerbations of Chronic Conditions**

Rate/proportion

**0229 Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate (RSMR) Following Heart Failure (HF) Hospitalization**

Rate/proportion

**1789 Hospital-Wide All-Cause Unplanned Readmission Measure (HWR)**

Rate/proportion

**1891 Hospital 30-Day, All-Cause, Risk-Standardized Readmission Rate (RSRR) Following Chronic Obstructive Pulmonary Disease (COPD) Hospitalization**

Rate/proportion

*Algorithm*

**3455 Timely Follow-Up After Acute Exacerbations of Chronic Conditions**

1) Denominator events are identified by hospitalization, observation, and ED events with appropriate codes (i.e., codes identifying an acute exacerbation of 1 of the 6 included chronic conditions).

2) Exclusions are applied to the population from step 1) to produce the eligible patient population for the measure (i.e., the count of all qualifying events).

3) For each qualifying event, it is determined whether or not claims included a subsequent code that satisfies the follow-up requirement for that particular qualifying event (e.g., a diabetes event received follow-up within the appropriate timeframe for diabetes, from an appropriate provider). Each event for which the follow-up requirement was satisfied is counted as 'one' in the numerator. Each event for which the follow-up requirement was not satisfied is counted as a 'zero' in the numerator.

4) The percentage score is calculated as the numerator divided by the denominator.

#### Measure Scoring Logic

Following NQF's guideline, we employ Opportunity-Based Weighting to calculate the follow-up measure. (1) This means that each condition is weighted by the sum of acute exacerbations that require either an ED visit or an observation or inpatient stay for all the six conditions that occur, as reflected in the logic below.

$$\frac{[\text{NUM}(\text{ASM}) + \text{NUM}(\text{CAD}) + \text{NUM}(\text{HF}) + \text{NUM}(\text{COPD}) + \text{NUM}(\text{DIAB}) + \text{NUM}(\text{HTN})]}{[\text{DENOM}(\text{ASM}) + \text{DENOM}(\text{CAD}) + \text{DENOM}(\text{HF}) + \text{DENOM}(\text{COPD}) + \text{DENOM}(\text{DIAB}) + \text{DENOM}(\text{HTN})]}$$

\*\*\*Please note that, while the development team designed the measure to aggregate each condition score in the manner described above into a single overall score, programs may choose to also calculate individual scores for each chronic condition when implementing the measure. Individual measure scores would simply be calculated by dividing the condition-specific numerator by the condition specific denominator, as in the example for heart failure below:

$$\text{NUM}(\text{HF}) / \text{DENOM}(\text{HF})$$

Both methods capture the same quality information, with different levels of granularity. Below is an example of each scoring method:

Aggregate: 30 patients experience acute events. 25 events are heart failure, 5 events are COPD. Of these 30 patients, 25 receive appropriate follow-up. The measured entity receives a score of 83% (25/30).

Individual: The same 30 patients experience acute events. 25 events are for heart failure. 5 events are for COPD. 25 receive appropriate follow-up. This number included 20 of the patients who experienced heart failure, and all 5 patients who experienced COPD. The measured entity receives a heart failure score of 80% (20/25) and a COPD score of 100% (5/5).

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The team considered several aggregation methods, including uniform weighting, opportunity-based weighting, and linear combination weighting for this measure. Each option has associated advantages and disadvantages.

The measure development team believes that opportunity-based weighting, described earlier in this section, is the best aggregation method for several reasons. First, sample sizes are relatively small, so rates for particular conditions may have high variance and produce erratic results. Second, with uniform weights (meaning each condition's score contributes an equal amount to the overall score regardless of the number of events per condition), a change in the number of follow-ups for less prevalent conditions affects the aggregate score more than changing the number of follow-ups for more prevalent conditions. This gives an incentive to plans (insurance products) to focus on improving follow-up for the least prevalent conditions in order to improve their score. In contrast,

opportunity-based weighting incentivizes plans to improve the number of follow-ups for each type of condition, because any penalty associated with the reduction in follow-ups of any condition is a function of the measure as a whole. (2) Furthermore, because there is no evidence that follow-ups for some of the 6 conditions are more important than others, opportunity-based weighting represents the simplest, fairest, and most easily interpretable and implementable weighting option for managed care organizations. There was no compelling evidence or rationale to use another, more complex weighting method.

It is important to note that this measure, while specified at the issuer-product-level and written to be applicable to various CMS payment programs, will still be required to go through a separate process to be fully operationalized into specific payment programs. These processes include publishing the measure in a Call Letter, soliciting public comment, and other activities to ensure the measure is appropriate for a given program.

1) National Quality Forum. Composite Measure Evaluation Framework and National Voluntary Consensus Standards for Mortality and Safety—Composite Measures. 2009. Available from

[https://www.qualityforum.org/Publications/2009/08/Composite\\_Measure\\_Evaluation\\_Framework\\_and\\_National\\_Voluntary\\_Consensus\\_Standards\\_for\\_Mortality\\_and\\_Safety%E2%80%9494Composite\\_Measures.aspx](https://www.qualityforum.org/Publications/2009/08/Composite_Measure_Evaluation_Framework_and_National_Voluntary_Consensus_Standards_for_Mortality_and_Safety%E2%80%9494Composite_Measures.aspx).

2) Shwartz, M., Restuccia, J. D., & Rosen, A. K. (2015). Composite Measures of Health Care Provider Performance: A Description of Approaches. *The Milbank Quarterly*, 93(4), 788–825. <http://doi.org/10.1111/1468-0009.12165>

\*\*Please note that the specifications of this measure have been slightly altered from what was submitted in the Intent to Submit form. These minor changes are intended to increase clarity.\*\*

Citations:

1) National Quality Forum. Composite Measure Evaluation Framework and National Voluntary Consensus Standards for Mortality and Safety—Composite Measures. 2009. Available from

[https://www.qualityforum.org/Publications/2009/08/Composite\\_Measure\\_Evaluation\\_Framework\\_and\\_National\\_Voluntary\\_Consensus\\_Standards\\_for\\_Mortality\\_and\\_Safety%E2%80%9494Composite\\_Measures.aspx](https://www.qualityforum.org/Publications/2009/08/Composite_Measure_Evaluation_Framework_and_National_Voluntary_Consensus_Standards_for_Mortality_and_Safety%E2%80%9494Composite_Measures.aspx).

2) Shwartz, M., Restuccia, J. D., & Rosen, A. K. (2015). Composite Measures of Health Care Provider Performance: A Description of Approaches. *The Milbank Quarterly*, 93(4), 788–825. <http://doi.org/10.1111/1468-0009.12165>

#### **0229 Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate (RSMR) Following Heart Failure (HF) Hospitalization**

The measure estimates hospital-level 30-day all-cause RSMRs following hospitalization for HF 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 and Shahian, 2007). At the patient level, it models the log-odds of mortality within 30 days of index admission using age, sex, selected clinical covariates, and a hospital-specific intercept. At the hospital level, it models the hospital-specific intercepts as arising from a normal distribution. The hospital intercept represents the underlying risk of a mortality at the hospital, after accounting for patient risk. The hospital-specific intercepts are given a distribution to account for the clustering (non-independence) of patients within the same hospital. If there were no differences among

hospitals, then after adjusting for patient risk, the hospital intercepts should be identical across all hospitals.

The RSMR is calculated as the ratio of the number of “predicted” to the number of “expected” deaths at a given hospital, multiplied by the national observed mortality rate. For each hospital, the numerator of the ratio is the number of deaths within 30 days predicted on the basis of the hospital’s performance with its observed case mix, and the denominator is the number of deaths expected based on the nation’s performance with that hospital’s case mix. This approach is analogous to a ratio of “observed” to “expected” used in other types of statistical analyses. It conceptually allows for a comparison of a particular hospital’s performance given its case mix to an average hospital’s performance with the same case mix. Thus, a lower ratio indicates lower-than-expected mortality rates or better quality, and a higher ratio indicates higher-than-expected mortality rates or worse quality.

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

This calculation transforms the ratio of predicted over expected into a rate that is compared to the national observed mortality rate. The hierarchical logistic regression models are described fully in the original methodology report (Krumholz et al., 2005).

#### **1789 Hospital-Wide All-Cause Unplanned Readmission Measure (HWR)**

This measure estimates a hospital-level 30-day all-cause RSRR 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 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, 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 standardized readmission ratio (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 (found in Table D.9) 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 get 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 in the hospital to get 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 composite SRR. The composite SRR is multiplied by the national observed readmission rate to produce the RSRR. The statistical modeling approach is described fully in Appendix A and in the original methodology report (Horwitz et al., 2012).

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.

#### **1891 Hospital 30-Day, All-Cause, Risk-Standardized Readmission Rate (RSRR) Following Chronic Obstructive Pulmonary Disease (COPD) Hospitalization**

The measure estimates hospital-level 30-day, all-cause, RSRRs following hospitalization for COPD 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 and Shahian, 2007). At the patient level, it models the log-odds of readmission within 30 days of discharge using age, sex, selected clinical covariates, and a hospital-specific intercept. At the hospital level, it models the hospital-specific intercepts as arising from a normal distribution. The hospital intercept represents the underlying risk of a readmission at the hospital, after accounting for patient risk. The hospital-specific intercepts are given a distribution to account for the clustering (non-independence) of patients within the same hospital. If there were no differences among hospitals, then after adjusting for patient risk, the hospital intercepts should be identical across all hospitals.

The RSRR is calculated as the ratio of the number of “predicted” to the number of “expected” readmissions, multiplied by the national observed readmission rate. For each hospital, the numerator of the ratio (“predicted”) is the number of readmissions within 30

days predicted on the basis of the hospital's performance with its observed case mix; and the denominator ("expected") is the number of readmissions expected based on the nation's performance with that hospital's case mix. This approach is analogous to a ratio of "observed" to "expected" used in other types of statistical analyses. It conceptually allows for a comparison of a particular hospital's performance given its case mix to an average hospital's performance with the same case mix. Thus, a lower ratio indicates lower-than-expected readmission rates or better quality, and a higher ratio indicates higher-than-expected readmission rates or worse quality.

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

This calculation transforms the ratio of predicted over expected into a rate that is compared to the national observed readmission rate. The hierarchical logistic regression models are described fully in the original methodology report (Grosso et al., 2011).

## Comparison of NQF 3481 and NQF 2858

3481 Discharge to Community – Post Acute Care Measure for Skilled Nursing Facilities

2858 Discharge to Community

### *Steward*

#### **3481 Discharge to Community – Post Acute Care Measure for Skilled Nursing Facilities**

Centers for Medicare & Medicaid Services

#### **2858 Discharge to Community**

American Health Care Association

### *Description*

#### **3481 Discharge to Community – Post Acute Care Measure for Skilled Nursing Facilities**

The Discharge to Community-Post Acute Care Measure for Long-Term Care Hospitals (DTC-PAC LTCH) was developed to address the resource use and other measures domain of Discharge to the Community mandated by the Improving Medicare Post-Acute Care Transformation Act of 2014 (IMPACT Act). This outcome measure assesses successful discharge to community from an LTCH, with successful discharge to community including no unplanned rehospitalizations and no death in the 31 days following LTCH discharge. The measure reports an LTCH's risk-standardized rate of Medicare fee-for-service (FFS) patients who are discharged to the community following an LTCH stay, and do not have an unplanned readmission to an acute care hospital or long-term care hospital (LTCH) in the 31 days following discharge to community, and who remain alive during the 31 days following discharge to community. The measure is calculated using two consecutive years of Medicare FFS claims data and was developed using calendar year (CY) 2012-2013 data. This submission is based on fiscal year (FY) 2016-2017 data; i.e., LTCH discharges from October 1, 2015 through September 30, 2017.

The measure was adopted by the Centers for Medicare & Medicaid Services (CMS) for the LTCH Quality Reporting Program (QRP) finalized in the FY 2017 Inpatient Prospective Payment System (IPPS)/LTCH PPS Final Rule and implementation began October 1, 2016 [1]. Confidential feedback reports on measure performance were distributed to LTCH providers in Fall 2017. The measure will be publicly reported on the LTCH Compare website (<https://www.medicare.gov/longtermcarehospitalcompare/>) in Fall 2018 using FY 2016-2017 data. Four claims-based discharge to community measures were developed for LTCH, inpatient rehabilitation facility, skilled nursing facility, and home health agency settings to meet the mandate of the IMPACT Act. These measures were conceptualized uniformly across the four settings, in terms of the definition of the discharge to community outcome, the approach to risk-adjustment, and the measure calculation.

#### References

[1] Medicare Program; Hospital Inpatient Prospective Payment Systems for Acute Care Hospitals and the Long-Term Care Hospital Prospective Payment System and Policy Changes and Fiscal Year 2017 Rates; Quality Reporting Requirements for Specific Providers; Graduate Medical Education; Hospital Notification Procedures Applicable to Beneficiaries Receiving Observation Services; Technical Changes Relating to Costs to Organizations and Medicare Cost Reports; Finalization of Interim Final Rules With Comment Period on LTCH PPS Payments for Severe Wounds, Modifications of Limitations on Redesignation by the



Medicare Geographic Classification Review Board, and Extensions of Payments to MDHs and Low-Volume Hospitals, Vol. 81, No. 162. <https://www.gpo.gov/fdsys/pkg/FR-2016-08-22/pdf/2016-18476.pdf>

**2858 Discharge to Community**

The Discharge to Community measure determines the percentage of all new admissions from a hospital who are discharged back to the community alive and remain out of any skilled nursing center for the next 30 days. The measure, referring to a rolling year of MDS entries, is calculated each quarter. The measure includes all new admissions to a SNF regardless of payor source.

*Type*

**3481 Discharge to Community – Post Acute Care Measure for Skilled Nursing Facilities**

Outcome

**2858 Discharge to Community**

Outcome

*Data Source*

**3481 Discharge to Community – Post Acute Care Measure for Skilled Nursing Facilities**

Assessment Data, Claims, Management Data

**2858 Discharge to Community**

Electronic Health Records

*Level*

**3481 Discharge to Community – Post Acute Care Measure for Skilled Nursing Facilities**

Facility

**2858 Discharge to Community**

Facility

*Setting*

**3481 Discharge to Community – Post Acute Care Measure for Skilled Nursing Facilities**

Post-Acute Care

**2858 Discharge to Community**

Post-Acute Care

*Numerator Statement*

**3481 Discharge to Community – Post Acute Care Measure for Skilled Nursing Facilities**

The measure numerator is the risk-adjusted predicted estimate of the number of patients who are discharged to the community, and do not have an unplanned readmission to an acute care hospital or LTCH in the 31-day post-discharge observation window, and who remain alive during the post-discharge observation window.

This estimate starts with the observed number of discharges to community, defined as:

(i) discharges to home or self care with or without home health services, based on Patient Discharge Status Codes 01, 06, 81, or 86 on the Medicare FFS claim [2]; and



- (ii) no unplanned acute or LTCH hospitalizations in the 31-day post-discharge window; and
- (iii) no death in the 31-day post-discharge window.

The discharge to community outcome is risk-adjusted for patient characteristics and a statistical estimate of the facility effect beyond case-mix (described below).

#### References

[2] National Uniform Billing Committee Official UB-04 Data Specifications Manual 2018, Version 12, July 2017, Copyright 2017, American Hospital Association.

### **2858 Discharge to Community**

The outcome measured is the number of new admissions from an acute care hospital discharge to community from a skilled nursing center. More specifically, the numerator is the number of stays discharged back to the community (i.e. private home, apartment, board/care, assisted living, or group home as indicated on the MDS discharge assessment form) from a skilled nursing center within 100 days of admission and remain out of any skilled nursing center for at least 30 days.

#### *Numerator Details*

### **3481 Discharge to Community – Post Acute Care Measure for Skilled Nursing Facilities**

The numerator uses a model estimated on full national data specific to the LTCH setting; it is applied to the LTCH's patient stays included in the measure and includes the estimated effect of that LTCH. The prediction equation is based on a logistic regression model with a two-level hierarchical structure.

The patient stays in the model have an indicator of the facility they are discharged from; 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.

The risk-adjustment logistic model is re-estimated for every measurement period and model coefficients corresponding to the measurement period are used for measure calculation. Results of the logistic model presented in this submission are based FY 2016-2017 data.

Details about the three components of the measure outcome are described below.

#### **1. DISCHARGE DESTINATION OF COMMUNITY**

Discharge to a community destination is determined based on the "Patient Discharge Status Code" from the LTCH FFS claim.[3] Discharge to a community destination is defined as discharge to home or self care with or without home health services as described below. While codes 81 and 86 are intended for use on acute care claims only, we observed some instances of these codes on post-acute claims; thus, we include codes 81 and 86 in our community definition.

Discharge Status Codes Indicating Community Discharge:

- 01 = Discharged to home or self care (routine discharge)
- 06 = Discharged/transferred to home under care of organized home health service organization
- 81 = Discharged to home or self care with a planned acute care hospital readmission

- 86 = Discharged/transferred to home under care of organized home health service organization with a planned acute care hospital inpatient readmission

#### References

[3] National Uniform Billing Committee Official UB-04 Data Specifications Manual 2018, Version 12, July 2017, Copyright 2017, American Hospital Association.

#### 2. UNPLANNED READMISSIONS IN THE 31-DAY POST-DISCHARGE OBSERVATION WINDOW

A patient who is discharged to a community setting is not considered to have a successful discharge to community outcome for this measure if they have a subsequent unplanned readmission to an acute care hospital or LTCH in the post-discharge observation window, which includes the day of discharge and 31 days following day of discharge. We only assess the first readmission encountered in the post-discharge window. Our definition of acute care hospital includes hospitals paid under the Inpatient Prospective Payment System (IPPS), critical access hospitals (CAH), and psychiatric hospitals or units. Using acute care and LTCH claims, we identify unplanned readmissions based on the CMS planned readmissions algorithm [4] used in the following post-acute care (PAC) readmission measures, which have been endorsed by the National Quality Forum (NQF) and used in several CMS programs: (i) Skilled Nursing Facility 30-Day All-Cause Readmission Measure (SNFRM) (NQF #2510); (ii) All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Inpatient Rehabilitation Facilities (IRFs) (NQF #2502); (iii) All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Long-Term Care Hospitals (LTCHs) (NQF #2512); and (iv) Rehospitalization During the First 30 Days of Home Health (NQF #2380). [5][6][7][8] The planned readmission algorithm used in these PAC readmission measures are based on the Hospital-Wide All-Cause Unplanned Readmission Measure (HWR) (NQF #1789)[9], with some additions made for the SNF, IRF, and LTCH setting measures. [10] We used the most current version of the CMS planned readmission algorithm from the 2018 HWR measure specifications for the FY 2016-2017 measure calculation in this submission. [4] For future updates, we will use the most current version of the CMS planned readmission algorithm and make necessary updates to the additions made for post-acute care settings to ensure the algorithm corresponds to our measurement period.

The CMS planned readmission definition is based on the claim from the readmission having a code for a diagnosis or procedure that is considered planned; however, if a planned procedure is accompanied by a principal diagnosis in a specified list of acute diagnoses, the readmission is reclassified as unplanned. Readmissions to psychiatric hospitals or units are always classified as planned readmissions.

While the measure was developed with ICD-9-CM procedure and diagnosis codes, it has been transitioned using the ICD-9-CM to ICD-10-CM cross-walk.

#### References

[4] Appendix E. Planned Readmission Algorithm Version 4.0 2018 (ICD-10). In: 2018 All-Cause Hospital Wide Measure Updates and Specifications Report: Hospital-Level 30-Day Risk-Standardized Readmission Measure – Version 7.0. Available at: [https://www.qualitynet.org/dcs/BlobServer?blobkey=id&blobnocache=true&blobwhere=1228890804653&blobheader=multipart%2Foctet-stream&blobheadername1=Content-Disposition&blobheadervalue1=attachment%3Bfilename%3DHospWide\\_Readmission\\_AUS\\_Report\\_2018\\_3-28.pdf&blobcol=urldata&blobtable=MungoBlobs](https://www.qualitynet.org/dcs/BlobServer?blobkey=id&blobnocache=true&blobwhere=1228890804653&blobheader=multipart%2Foctet-stream&blobheadername1=Content-Disposition&blobheadervalue1=attachment%3Bfilename%3DHospWide_Readmission_AUS_Report_2018_3-28.pdf&blobcol=urldata&blobtable=MungoBlobs) or

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

[5] Skilled Nursing Facility 30-Day All-Cause Readmission Measure (SNFRM) (NQF #2510). <http://www.qualityforum.org/QPS/2510>

[6] All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Inpatient Rehabilitation Facilities (IRFs) (NQF #2502). <http://www.qualityforum.org/QPS/2502>

[7] All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Long-Term Care Hospitals (LTCHs) (NQF #2512). <http://www.qualityforum.org/QPS/2512>

[8] Rehospitalization During the First 30 Days of Home Health (NQF #2380). <http://www.qualityforum.org/QPS/2380>

[9] Hospital-Wide All-Cause Unplanned Readmission Measure (HWR) (NQF #1789). [www.qualityforum.org/QPS/1789](http://www.qualityforum.org/QPS/1789)

[10] Table 2-7. AHRQ CCS Single Level Procedure Codes and ICD-9 Procedure Codes Added to Yale's Planned Readmission Algorithm, for the Post-Acute Care Setting. In: Measure Specifications for Measures Adopted in the FY 2017 LTCH QRP Final Rule. Available at: <https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/LTCH-Quality-Reporting/Downloads/Measure-Specifications-for-FY17-LTCH-QRP-Final-Rule.pdf>.

Note: The ICD-9 codes listed in Table 2-7 were updated with ICD-10-CM codes for data starting October 1, 2015.

### 3. DEATH IN THE 31-DAY POST-DISCHARGE OBSERVATION WINDOW

A patient who is discharged to a community setting is not considered to have a successful discharge to community outcome for this measure if they die in the post-discharge window, which includes the day of discharge and the 31 days following day of discharge. Death in the post-discharge window is identified based on date of death from Medicare eligibility files.

#### MEASUREMENT PERIOD

The measure is calculated using two consecutive years of data to ensure adequate number of patient stays for risk-adjustment modeling. All LTCH Medicare FFS discharges during the two-year measurement period, except those that meet the exclusion criteria (see S.8. and S.9.), are included in the measure. For patients with multiple stays during the two-year measurement period, each stay is eligible for inclusion in the measure.

#### **2858 Discharge to Community**

Data for the numerator comes from MDS 3.0 discharge assessments.

The numerator is the number of new admissions from an acute care hospital discharged back to the community (as indicated by MDS item A2100=01 'discharge into the community') alive from a skilled nursing center within 100 days of admission and remain out of any skilled nursing center for at least 30 days. All new admissions (regardless of payor status at time of admission to the facility or time of discharge back to the community) are counted as long as they are discharged back to the community within 100 days and do not have a subsequent stay in any nursing center within 30 days.

The "within 100 days from admission" time frame is measured by subtracting date of admission (MDS item A1900 "admission date") from date of discharge (MDS item A2000 "discharge date"). Subsequent stays in any nursing center within 30 days of discharge are determined by subtracting admission date (MDS item A1900 "admission date") from target

date (MDS item TRGT\_DT) and ensuring that this isn't greater than 130 days (i.e. 100 days (of admission for this entry) + 30 days (after discharge) <=130).

Stays that discharge to death are not counted as a discharge in the numerator.

### *Denominator Statement*

#### **3481 Discharge to Community – Post Acute Care Measure for Skilled Nursing Facilities**

The target population for the measure is the group of Medicare FFS beneficiaries who are discharged from an LTCH during the measurement period and are not excluded based on the measure exclusion criteria (see S.8. and S.9.).

The measure denominator is the risk-adjusted expected number of discharges to community. This estimate includes risk-adjustment for patient characteristics with the facility effect removed. The “expected” number of discharges to community is the predicted number of risk-adjusted discharges to community if the same patients were treated at the average facility. The logistic regression model used to calculate the denominator is developed using all non-excluded facility stays in the national data. The denominator is computed in the same way as the numerator, but the facility effect is set at the average.

#### **2858 Discharge to Community**

The denominator is the total number of all admissions from an acute hospital (MDS item A1800 “entered from”=03 (indicating an “acute care hospital”) to a center over the previous 12 months, who did not have a prior stay in a nursing center for the prior 100 days (calculated by subtracting 100 from the admission date (MDS item A1900 “admission date”).

Please note, the denominator only includes admissions from acute hospitals (MDS item A1800 “entered from”=03 (indicating an “acute care hospital”) regardless of payor status.

### *Denominator Details*

#### **3481 Discharge to Community – Post Acute Care Measure for Skilled Nursing Facilities**

The measure denominator is the risk-adjusted expected number of discharges to community. See S.8. for details. The target population includes all Medicare FFS beneficiaries who are discharged from an LTCH during the measurement period and are not excluded based on the measure exclusion criteria. The target population for the analyses in this submission includes LTCH discharges from October 1, 2015 through September 30, 2017 (i.e., FY 2016-2017). Index LTCH stays are identified based on discharge date because the Inpatient Standard Analytic File (SAF) from which we extract LTCH claims is based on discharge date.

#### **2858 Discharge to Community**

The denominator is the number of all stays (regardless of payor status) admitted from an acute care hospital (as indicated by MDS item A1800 “entered from”= 03 “acute care hospital”) to a center over the prior 12 months, who did not have a prior stay in a nursing center for the prior 100 days (as indicated by MDS item A1600 “most recent admission/entry or reentry to this facility: entry date,” and item A1800 “entered from”). For example, if the “entry date” (MDS item A1600) is within 100 days from the current admission and the “entered from” (MDS item A1800) is 02 “another nursing home” then these patients are excluded from denominator.

Note that our stay grouping algorithm allows interruptions in the stay, so long as the patient returns to the same facility within 100 days of the original admission. Once a new stay has started, if the patient discharges from the SNF and then returns to the same facility within 100 days of the original admission date, then that subsequent time in the SNF is considered to be part of that original stay. Then, when the patient discharges and does not return to the facility (within 100 days of the original admission date), the discharge status code (community discharge, acute hospital, etc.) is the final outcome. For example, if Bill first entered the SNF on February 14th and then was hospitalized on March 10th, returned to the same SNF on March 15th, and then discharged to the community on April 1st, and never came back to the SNF, then Bill would count once in the denominator and once in the numerator. The original and subsequent stay start dates are identified using the entry date, MDS item A1600.

## *Exclusions*

### **3481 Discharge to Community – Post Acute Care Measure for Skilled Nursing Facilities**

Measure exclusion criteria are based on administrative data from Medicare claims and eligibility files. Exclusion criteria were selected to maintain clinical validity of the measure by excluding stays for which discharge to community would not be appropriate, to ensure data availability and completeness, to exclude stays with problematic claims data, and to maintain relevance to the LTCH QRP (e.g., excluding LTCHs not included in the LTCH QRP based on regional location). Only LTCH stays that are preceded by a short-term acute care stay in the 30 days prior to the LTCH admission date are included in the measure; this is because risk-adjustment variables come from the short-term acute care stay in the 30 days prior to LTCH admission. Stays ending in transfers to the same level of care (i.e., LTCH-to-LTCH discharge) are excluded, because the LTCH episode of care had not ended. We also excluded certain discharge status codes on the LTCH FFS claim that indicated that the patient was not appropriate for community discharge (e.g., discharges against medical advice). See section S.9 for detailed rationale and data sources for each exclusion.

Measure exclusion criteria are as follows:

- Age under 18 years;
- No short-term acute care hospital discharge within the thirty days preceding an LTCH admission;
- Discharges to a psychiatric hospital;
- Discharges against medical advice;
- Discharges to disaster alternative care site or a federal hospital;
- Discharges to court/law enforcement;
- Discharges to hospice or patient stays with a hospice benefit in the 31-day post-discharge window;
- Planned discharges to an acute or LTCH setting;
- Stays for patients without continuous Part A FFS Medicare enrollment during the 12 months prior to the LTCH admission date and the 31 days after the LTCH discharge;
- LTCH stays preceded by a short-term acute care stay for non-surgical treatment of cancer;
- Stays ending in transfer to an LTCH;

- Stays with problematic claims data (e.g. anomalous records for stays that overlap wholly or in part or are otherwise erroneous or contradictory, claims not paid);
- Exhaustion of Medicare Part A benefit during the LTCH stay; and
- LTCH stays in facilities outside of the United States, Puerto Rico, or another U.S. territory.

### **2858 Discharge to Community**

The denominator has three exclusions (see below).

First, stays for patients less than 55 years of age are excluded from the measure.

Second, stays for which we do not know where the patient entered from, or for which we do not observe the patient's discharge, are excluded from being counted in the denominator.

Third, stays with no available risk adjustment data (clinical and demographic characteristics listed in Section S.14) on any MDS assessment within 18 days of SNF admission are excluded from the measure.

Note, while not denominator exclusions, we also suppress the data for facilities that have fewer than 30 stays in the denominator, or for whom the percent of stays with a known outcome is less than 90%. The suppression of risk adjusted to community rates for facilities with fewer than 30 stays in the denominator is to improve the reliability of the measure, as detailed in the testing section (2b3). The suppression of rates for facilities for whom fewer than 90% of stays had a known outcome is done to improve the reliability of the measure and avoid perverse incentives about submitting MDS assessments for patients not discharged to the community.

### *Exclusion Details*

#### **3481 Discharge to Community – Post Acute Care Measure for Skilled Nursing Facilities**

Exclusions for the DTC-PAC LTCH measure are listed below, along with the rationale and data source for each exclusion. The measure exclusion criteria are determined by processing Medicare FFS claims and eligibility data to determine whether the individual exclusion criteria are met. All exclusions are based on administrative data.

##### **1. Age under 18 years**

Rationale:

- a. There is limited literature on discharge destination outcomes in this age group;
- b. Patients in this age group represent a different cohort, likely living with their parents, and may be expected to have higher discharge to community rates compared with the rest of the Medicare population; and
- c. Patients in this age group represent a small proportion of the LTCH Medicare FFS population.

Data source: Birth date and LTCH admission date from Inpatient SAF

##### **2. No short-term acute care discharge within the 30 days preceding LTCH admission**

Rationale: The most recent acute care claim from the 30 days prior to LTCH admission provides the principal diagnosis and other important patient data for risk-adjustment.

Stays without a short-term acute care discharge within the 30 days prior to PAC admission are excluded because important risk-adjustment data will be missing.

Data source: Hospital discharge date in Inpatient SAF acute care claims in the 30 days before LTCH admission

### 3. Discharges to psychiatric hospital

Rationale: Patients discharged to psychiatric hospital are excluded from the measure because community living at the time of discharge may be potentially inappropriate or unsafe for them due to their mental health or psychiatric condition. This exclusion is also intended to avoid the potential unintended consequence of decreased LTCH access for patients discharged from psychiatric hospitals.

Data source: Patient discharge status code from Inpatient SAF LTCH claim

### 4. Discharges against medical advice

Rationale: Stays ending in discharge against medical advice are excluded because the LTCH care plan may not have been fully implemented, and the discharge destination may not reflect the facility's discharge recommendation. Additionally, patients discharged against medical advice may potentially be at higher risk of post-discharge readmissions or death, depending on their medical condition, or due to potential non-adherence or non-compliance with care recommendations.

Data source: Patient discharge status code from Inpatient SAF LTCH claim

### 5. Discharges to disaster alternative care sites or federal hospitals

Rationale: Stays ending in discharge to disaster alternative care sites are excluded because these discharges are likely influenced by external emergency conditions and may not represent discretionary discharges by the PAC provider. Discharges to federal hospitals are excluded because we will not have inpatient claims to determine whether the hospitalization was planned or unplanned.

Data source: Patient discharge status code from Inpatient SAF LTCH claim

### 6. Discharges to court/law enforcement

Rationale: Patients who are discharged to court or law enforcement are likely ineligible for discharge to the community due to legal restrictions.

Data source: Patient discharge status code from Inpatient SAF LTCH claim

### 7. Planned discharges to an acute or LTCH setting

Rationale: Planned discharges to an acute care hospital or LTCH are excluded as they indicate that community discharge was not appropriate for the patient. Planned discharges are determined based on the planned readmission algorithm described in section S.5.

Data source: The planned readmission algorithm is applied to diagnosis and procedure codes found on the first Inpatient SAF acute or new LTCH claim, if any, on the day of or day after index LTCH discharge.

### 8. Stays ending in discharge to hospice and those with a hospice benefit in the post-discharge observation window

Rationale:

a. Patients discharged to hospice care and those with a hospice benefit in the post-discharge observation window are terminally ill and have very different goals of care compared with non-hospice patients. For non-hospice patients, the primary goal of post-acute care is to return to baseline, independent living in the community; death is an undesirable outcome in the non-hospice population. For hospice patients, the goal is to provide them the opportunity to die comfortably, at home or in a facility.



b. A large proportion of hospice patients die in the 31-day window following discharge from the post-acute setting.

c. The hospice agency, not the post-acute care setting, makes the final decision of discharge to hospice-home or hospice-facility.

Data source: Discharge to hospice is determined based on the Inpatient SAF LTCH claim. Post-discharge hospice benefit is determined based on hospice enrollment dates (start and termination dates) in the Enrollment Database (EDB).

9. Patients not continuously enrolled in Part A FFS Medicare for the 12 months prior to the LTCH admission date, and at least 31 days after LTCH discharge date

Rationale: Patients not continuously enrolled in Medicare Part A FFS for the 12 months prior to LTCH admission date are excluded because risk-adjustment for certain comorbidities requires information on acute inpatient bills for one year prior to LTCH admission. Patients not continuously enrolled in Medicare Part A FFS for at least 31 days after LTCH discharge are excluded because readmissions and death must be observable in the 31-day post-discharge period. Patients without Part A coverage or those who are enrolled in Medicare Advantage plans will not have complete inpatient claims in the system.

Data source: EDB and Denominator Files

10. LTCH stays for which the prior short-term acute care stay was for non-surgical treatment of cancer

Rationale: Patient stays for which the prior short-term acute care stay was for non-surgical treatment of cancer are excluded because they have a different trajectory for recovery after discharge, with a high mortality rate. Exclusion of these stays is consistent with the hospital-wide and post-acute readmission measures listed in section S.5.

Data source: Diagnosis codes from the Inpatient SAF prior acute claim

11. LTCH stays that end in transfer to the same level of care

Rationale: LTCH stays that end in transfer to another LTCH are excluded from the measure because the LTCH episode has not ended. For an LTCH episode that involves transfer to another LTCH, only the final LTCH provider is included in the measure. (Note that this exclusion does not apply to transitions across different levels of post-acute care (e.g., LTCH-to-SNF)).

Data source: Patient discharge status code from Inpatient SAF LTCH claim

12. LTCH stays with claims data that are problematic (e.g., anomalous records for stays that overlap wholly or in part or are otherwise erroneous or contradictory, stays not matched to the denominator or EDB files, claims not paid)

Rationale: This measure requires accurate information from the post-acute stay and prior short-term acute care stay and from the denominator and EDB files for risk-adjustment.

Data source: Inpatient SAF claims, EDB and denominator files

13. Medicare Part A benefits exhausted

Rationale: Patient stays that have exhausted Medicare Part A coverage during the LTCH stay are excluded because the discharge destination decision may be related to exhaustion of benefits.

Data source: Inpatient SAF LTCH claim



14. Patient stays from facilities located outside of the United States, Puerto Rico or a U.S. territory

Rationale: Patient stays from foreign facilities may not have complete inpatient claims in the system, and these facilities may not be subject to policy decisions related to this quality measure nor included in the LTCH Quality Reporting Program.

Data source: CMS Certification Number from the Inpatient SAF LTCH claim

#### **2858 Discharge to Community**

First, individuals less than 55 years of age (as indicated by subtracting birth date, MDS item A0900, from admission date, MDS item A1900) are excluded from the measure.

Second, exclusions are made for admissions for which there is missing data over the previous 12 months for MDS item A1800 "Entered From" or MDS item A2100 "Discharge Status".

Third, if individuals have no available risk adjustment data on any MDS assessment within 18 days of SNF admission, they are excluded from the measure.

As noted above, in addition to the denominator exclusions, we also suppress data for facilities that have fewer than 30 stays in the denominator or for whom the percent of stays with a known outcome is less than 90%. Facilities with fewer than 30 stays in the denominator, are identified by counting the stays remaining after applying the exclusions in this section to the denominator. Facilities for whom fewer than 90% of stays have known outcomes, are measured by looking at all entries for the facility and seeing how many of those entries also have a discharge assessment.

#### *Risk Adjustment*

##### **3481 Discharge to Community – Post Acute Care Measure for Skilled Nursing Facilities**

Statistical risk model

##### **2858 Discharge to Community**

Statistical risk model

#### *Stratification*

##### **3481 Discharge to Community – Post Acute Care Measure for Skilled Nursing Facilities**

Not applicable

##### **2858 Discharge to Community**

Not applicable

#### *Type Score*

##### **3481 Discharge to Community – Post Acute Care Measure for Skilled Nursing Facilities**

Rate/proportion

##### **2858 Discharge to Community**

Rate/proportion

## Algorithm

### 3481 Discharge to Community – Post Acute Care Measure for Skilled Nursing Facilities

The DTC-PAC LTCH measure is risk-adjusted. To develop the risk-adjustment model for this measure, we analyzed Medicare inpatient SAF claims, Denominator, and EDB files, identifying FY 2016-2017 LTCH Medicare FFS discharges preceded by an acute care hospitalization (IPPS, CAH, or psychiatric hospital) within 30 days before LTCH admission date. We applied the measure exclusion criteria to determine the sample included in the risk-adjustment model. The measure is based on two consecutive fiscal years of data (FY 2016-2017 LTCH Medicare FFS discharges).

#### RISK-ADJUSTMENT VARIABLES

Risk-adjustment variables include demographic and eligibility characteristics; principal diagnoses from the prior short-term acute care stay; length of stay, types of surgery or procedures, intensive care utilization, ventilator use, and dialysis from the prior short-term acute care stay; comorbidities; and number of prior hospitalizations in the year preceding the LTCH admission. See the attached Excel document for the full list of risk-adjusters.

#### RISK-ADJUSTMENT MODELING AND MEASURE CALCULATION ALGORITHM

We used a hierarchical logistic regression model to predict the probability of discharge to community. Baseline patient characteristics related to the discharge to community outcome and a marker for the specific discharging facility are included in the equation. The equation is hierarchical in that both individual patient characteristics are accounted for, as well as the clustering of patient characteristics by facility. The statistical model estimates both the average predictive effect of the patient characteristics across all facilities, and the degree to which each facility has an effect on discharge to community that differs from that of the average facility. The facility effects are assumed to be randomly distributed around the average (according to a normal distribution).

When computing the facility effect, hierarchical modeling accounts for the known predictors of discharge to community, on average, such as baseline/admission patient characteristics, the observed facility rate, and the number of facility stays eligible for inclusion in the measure. The estimated facility effect is determined mostly by the facility's own data if the number of patient stays is relatively large (as the estimate would be relatively precise) but is adjusted toward the average if the number of stays is small (as that would yield a less precise estimate).

We used the following model:

Let  $Y_{ij}$ , denote the outcome (equal to 1 if patient  $i$  is discharged to community, 0 otherwise) for a patient  $i$  at facility  $j$ ;  $Z_{ij}$  denotes a set of risk-adjustment variables. We assume the outcome is related to the risk adjusters via a logit function with dispersion:

$$\text{logit}(\text{Prob}(Y_{ij} = 1)) = \alpha_j + \beta * Z_{ij} + e_{ij} \quad (1)$$

$$\alpha_j = \mu + \tau_j ; \tau_j \sim N(0, \tau^2)$$

where  $Z_{ij} = (Z_{1j}, Z_{2j}, \dots, Z_{kj})$  is a set of  $k$  patient-level risk-adjustment variables;  $\alpha_j$  represents the facility-specific intercept;  $\mu$  is the adjusted average outcome across all facilities;  $\tau^2$  is the between-facility variance component; and  $e_{ij} \sim N(0, s^2)$  is the error term.

The hierarchical logistic regression model is estimated using SAS software (PROC GLIMMIX: SAS/STAT User's Guide, SAS Institute Inc.).

The estimated equation is used twice in the measure. The sum of the probabilities of discharge to community of all patients in the facility measure, including both the effects of patient characteristics and the facility, is the “predicted number” of discharges to community after adjusting for the facility’s case mix. The same equation is used without the facility effect to compute the “expected number” of discharges to community for the same patients at the average facility.

The ratio of the predicted-to-expected number of discharges to community (i.e., standardized risk ratio (SRR)) is a measure of the degree to which discharges to community are higher or lower than what would otherwise be expected. The SRR is then multiplied by the national stay-level observed discharge to community rate for all facility stays for the measure, yielding the risk-standardized discharge to community rate for each facility.

The estimation procedure is recalculated for each measurement period. Re-estimating the models for each measurement period allows the estimated effects of the patient characteristics to vary over time as patient case-mix and medical treatment patterns change.

The following steps describe the calculation algorithm/measure logic for the DTC-PAC LTCH measure:

Step 1: Identify stays meeting the criteria for the target population, after applying measure exclusions.

Step 2: Identify stays meeting the discharge to community criteria, i.e., discharge to community, no unplanned readmissions on the day of discharge or in the 31 days following discharge, and no death on the day of discharge or in the 31 days following discharge.

Step 3: Identify presence or value of risk-adjustment variables for each patient stay.

Step 4: Calculate the predicted and expected number of discharges to community for each facility using the hierarchical logistic regression model.

The predicted number of discharges to community for each facility (i.e., numerator) is calculated as the sum of the predicted probability of discharge to community for each patient discharged from the facility and included in the measure, including the facility-specific effect.

To calculate the predicted number of discharges to community,  $pred_j$ , for index stays at facility  $j$ , we used the following equation:

$$pred_j = \sum_i \text{Slogit-1}(\beta_0 + \beta_i + \beta^*Z_{ij}) \quad (2)$$

where the sum is over all stays in facility  $j$ , and  $\beta_i$  is the facility effect.

The expected number of discharges to community (i.e., denominator) is calculated as the sum of the predicted probability of discharges to community, but without the facility-specific effect included in the predictions. This produces the expected number of discharges at the average facility. To calculate the expected number  $exp_j$ , we used the following equation:

$$exp_j = \sum_i \text{Slogit-1}(\beta_0 + \beta^*Z_{ij}) \quad (3)$$

Step 5: Calculate the SRR for each facility, as the ratio of the predicted to expected number of discharges to community.

To calculate the facility-level SRR,  $SRR_j$ , we used the following equation:

$$SRR_j = pred_j/exp_j \quad (4)$$

Step 6: Calculate the risk-standardized discharge to community rate for each facility.

To aid interpretation, the facility-level SRR,  $SRR_j$ , obtained from equation (4) is then multiplied by the overall national stay-level observed discharge to community rate for all facility stays,  $\bar{r}$ , to produce the facility-level risk-standardized discharge to community rate ( $RSR_j$ ).

To calculate the risk-standardized discharge to community rate for each facility, we used the following equation:

$$RSR_j = SRR_j * \bar{r} \quad (5)$$

The DTC-PAC LTCH measure is specific to LTCH providers only.

## 2858 Discharge to Community

The formula for the risk-adjusted discharge to community rate is:

$$\frac{((\text{Observed discharge to community alive within 100 days of admission and remaining out of any SNF for at least 30 days rate}) / (\text{Expected discharge to community alive within 100 days of admission and remaining out of any SNF for at least 30 days rate})) * (\text{National discharge to community alive within 100 days of admission and remaining out of any SNF for at least 30 days rate})}{1}$$

Note: The national rate and the expected rate need to be calculated for the same time period so that their ratio across the nation will center around 1.0, i.e., the risk adjustment does not systematically bias up or down the rates. We recommend the national rate and expected rates be recalibrated at least annually.

1. Build the denominator population, applying exclusions:

- Establish the 12 month rolling time period and collect all the assessments for an admissions from an acute care hospital (for patients who did not have a prior stay in a nursing center for the prior 100 days) that fall within the time period.
- Identify all MDS assessments through the stay, up to discharge. If no discharge is observed, the stay does not have a known outcome and is excluded from the denominator population. Note that if the patient is discharged (e.g., a hospitalization after which the patient returns to the SNF), but then returns to the same SNF within 100 days of the original admission, then the stay is continued to be ongoing, and we continue to search for the final discharge.
- If the stay had missing data on the “admitted from” MDS item (to identify admissions from the acute hospital) or on the “discharged to” item (to identify discharges to the community).
- Identify whether the patient was seen in a SNF in the 30 days after discharge from the current stay, which indicates the patient’s outcome was not a successful community discharge for the purpose of this measure. This is accomplished by looking for any MDS for that individual in any SNF during the 30 day widow following SNF discharge to the community.
- Identify any MDS assessments for the patient in the 100 days prior to the stay’s admission. If any are found, exclude the stay from the denominator.
- If the patient was under 55 years of age on admission to the stay, exclude the stay from the denominator population.

2. Observed Rate Calculation:

- The formula for a facility’s observed discharge to community rate is:

(The number of stays discharged back to the community (i.e. private home, apartment, board/care, assisted living, or group home as indicated on the MDS 3.0 discharge assessment form) from a skilled nursing center within 100 days of admission and remain out of any skilled nursing center for at least 30 days)/ (all admissions from an acute hospital to a center over the prior 12 months that do not meet the exclusions)

-The numerator is the number of stays in the denominator that are discharged back to the community from a SNF within 100 days of admission and remain out of any skilled nursing center for at least 30 days upon discharge, during a rolling 12 month period.

-For example, if a center discharged 130 stays (that were admitted from an acute care hospital and that did not have a prior stay in a nursing center for the prior 100 days), but 30 of them were readmitted to a skilled nursing center within 30 days following discharge, the numerator would be 100 (i.e.  $130-30=100$ ).

-Divide the numerator by the denominator to obtain the observed rate for the skilled nursing center.

### 3. Expected Rate Calculation

-See S.15

-For each SNF, calculate the facility-level mean of the stay-level expected rates of discharging back to the community, from the calculation in S.15; this is the overall expected rate of discharging back to the community for the SNF based on its denominator population.

### 4. National Average

-The national average is calculated as the sum of all residents in the nation who were discharged to the community (and remained out of a SNF for at least 30 days) divided by the sum of all admissions to SNF (regardless of payor status) from acute care hospitals during a calendar year and did not have a prior stay in the nursing home.

5. Divide the observed rate by the expected rate and multiply by the national rate to obtain the adjusted discharge to community rate for the center.

6. Suppress the risk adjusted discharge to community rates for SNFs with fewer than 30 stays in the denominator, or with a "known outcome rate" of less than 90%. The known outcome rate for the facility is the proportion of stays in the denominator (excepting the known outcome exclusion) for which the outcome is unknown.

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