Measure Information

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

Brief Measure Information

NQF #: 2512
Corresponding Measures:
De.2. **Measure Title:** All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Long-Term Care Hospitals (LTCHs)
Co.1.1. **Measure Steward:** Centers for Medicare & Medicaid Services
De.3. **Brief Description of Measure:** This measure estimates the risk-standardized rate of unplanned, all-cause readmissions for patients (Medicare fee-for-service [FFS] beneficiaries) discharged from a Long-Term Care Hospital (LTCH) who were readmitted to a short-stay acute-care hospital or a Long-Term Care Hospital (LTCH), within 30 days of an LTCH discharge. The measure is based on data for 24 months of LTCH discharges to non-hospital post-acute levels of care or to the community.

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

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

Step 2: The standardized risk ratio is then multiplied by the mean rate of readmission in the population (i.e., all Medicare FFS patients included in the measure) to generate the facility-level standardized readmission rate.
For this measure, readmissions that are usually for planned procedures are excluded. Please refer to Appendix Tables A1-A5 for a list of planned procedures.

The measure specifications are designed to harmonize with CMS' hospital-wide readmission (HWR) measure to a great extent. The HWR (NQF #1789) estimates the hospital-level, risk-standardized rate of unplanned, all-cause readmissions within 30 days of a hospital discharge, similar to this LTCH readmission measure.
1b.1. **Developer Rationale:** Hospital readmission among the Medicare population is a common and expensive occurrence. Analysis of Medicare claims data from 2003-2004 found that nearly 20 percent of Medicare beneficiaries—over 2 million people—discharged from an acute care hospital were readmitted within 30 days (Jencks, Williams, and Coleman 2009). Given that 43 percent of Medicare beneficiaries discharged from acute care hospitals received post-acute care (Miller, 2013), examining readmission rates following discharge from post-acute care is an important policy issue. A Long-Term Care Hospital (LTCH) is one institutional post-acute care setting where the Centers for Medicare & Medicaid Services (CMS) has proposed monitoring hospital readmissions.

In 2011, roughly 123,000 Medicare fee-for-service beneficiaries received care for nearly 140,000 LTCH stays totaling $5.4 billion in the 424 LTCHs nationwide (MedPAC, 2013). For patients discharged from an LTCH, the unadjusted rate of readmission to a short-stay acute-care hospital or an LTCH in the 30 days after an LTCH discharge was about 26 percent (RTI, 2013). Faced with such a large proportion of patients being readmitted to an acute level of care (i.e., to either a short-stay acute-care hospital or an LTCH), CMS proposes to monitor the post-discharge readmission rates for LTCHs in order to improve patient care and transitions of care. By doing so, CMS hopes to reduce LTCH readmission rates that are inappropriately high and improve patient safety and quality of care. Reducing avoidable readmissions can also reduce costs to the Medicare program.

Readmission rates are affected not only by the characteristics of patients, but by complex and critical aspects of care such as communication between providers and between providers and patients; prevention of and response to complications; patient safety; and coordinated transitions to the outpatient environment (CMS, 2012). Readmissions have been identified as being

sensitive to improvements in coordination of care and discharge planning for patients.

Citations

Centers for Medicare & Medicaid Services (CMS). Medicare Program; Hospital Inpatient Prospective Payment Systems for Acute Care Hospitals and the Long-Term Care Hospital Prospective Payment System and Fiscal Year 2013 Rates; Hospitals' Resident Caps for Graduate Medical Education Payment Purposes; Quality Reporting Requirements for Specific Providers and for Ambulatory Surgical Centers. Docket ID: CMS-2012-0052. Effective October 1, 2012. Available at http://www.regulations.gov/#!docketDetail;D=CMS-2012-0052.

Jencks SF, Williams MV, Coleman EA. Rehospitalizations among patients in the Medicare fee-for-service program. The New England Journal of Medicine. Apr 2 2009;360(14):1418-1428.

Miller, M.E. Statement to the House, Subcommittee on Health Committee on Ways and Means. Medicare post-acute care reforms. June 14, 2013. Available at http://www.medpac.gov/documents/20130614_WandM_Testimony_PAC.pdf.

Medicare Payment Advisory Commission: Report to the Congress: Medicare Payment Policy, March 2013; see Chapter 10, Long-term care hospital services, pp. 215–233. http://www.medpac.gov/chapters/Mar13_Ch10.pdf.

RTI International analysis of Medicare claims data, 2007-2012. (RTI program reference: lc21_admit_rate_ltcv15.xlsx).

S.4. **Numerator Statement:** The numerator is mathematically related to the number of patients in the target population who have the event of an unplanned readmission in the 30- day post-discharge window. The measure does not have a simple form for the numerator and denominator—that is, the risk adjustment method used does not make the observed number of readmissions the numerator and a predicted number the denominator. Instead, the numerator is the risk-adjusted estimate of the number of unplanned readmissions that occurred within 30 days from discharge. This estimate includes risk adjustment for patient characteristics and a statistical estimate of the facility effect beyond patient mix.
S.6. **Denominator Statement:** The denominator is computed with the same model used for the numerator. It is the model developed using all non-excluded LTCH stays in the national data. For a particular facility the model is applied to the patient population, but the facility effect term is 0. In effect, it is the number of readmissions that would be expected for that patient population at the average LTCH. The measure includes all the LTCH stays in the measurement period that are observed in national Medicare FFS data and do not fall into an excluded category.
S.8. **Denominator Exclusions:** The measure excludes some LTCH patient stays; some of these exclusions result from data limitations.

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

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

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

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

4.Patients who were not continuously enrolled in Part A FFS Medicare for the 12 months prior to the LTCH stay admission date, and at least 30 days after LTCH stay discharge date.
Rationale: The adjustment for certain comorbid conditions in the measure requires information on acute inpatient bills for 1 year prior to the LTCH admission, and readmissions must be observable in the observation window following discharge. Patients without Part A coverage or who are enrolled in Medicare Advantage plans will not have complete inpatient claims in the system.

5.Patients who did not have a short-term acute-care stay within 30 days prior to an LTCH stay admission date.
Rationale: This measure requires information from the prior short-term acute-care stay in the elements used for risk adjustment.

6.LTCH patients discharged against medical advice (AMA).
Rationale: Patients discharged AMA are excluded because these patients have not completed their full course of treatment in the opinion of the facility.

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

8.LTCH stays with data that are problematic (e.g., anomalous records for hospital stays that overlap wholly or in part or are otherwise erroneous or contradictory).
Rationale: This measure requires accurate information from the LTCH stay and prior short-term acute-care stays in the elements used for risk adjustment. No-pay LTCH stays involving exhaustion of Part A benefits are also excluded.

De.1. **Measure Type:** Outcome
S.17. **Data Source:** Claims, Other
S.20. **Level of Analysis:** Facility

IF Endorsement Maintenance – Original Endorsement Date: Dec 23, 2014 **Most Recent Endorsement Date:** Dec 09, 2016

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

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

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

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

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

1a. Evidence to Support the Measure Focus – See attached Evidence Submission Form
LTCH_MSF_EVIDENCE_02052014-636733979318439101.docx
1a.1 For Maintenance of Endorsement: Is there new evidence about the measure since the last update/submission?
Do not remove any existing information. If there have been any changes to evidence, the Committee will consider the new evidence. Please use the most current version of the evidence attachment (v7.1). Please use red font to indicate updated evidence.

1b. Performance Gap

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

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

1b.1. **Briefly explain the rationale for this measure** *(e.g., how the measure will improve the quality of care, the benefits or improvements in quality envisioned by use of this measure)*
If a COMPOSITE (e.g., combination of component measure scores, all-or-none, any-or-none), SKIP this question and answer the composite questions.
Hospital readmission among the Medicare population is a common and expensive occurrence. Analysis of Medicare claims data from 2003-2004 found that nearly 20 percent of Medicare beneficiaries—over 2 million people—discharged from an acute care hospital

were readmitted within 30 days (Jencks, Williams, and Coleman 2009). Given that 43 percent of Medicare beneficiaries discharged from acute care hospitals received post-acute care (Miller, 2013), examining readmission rates following discharge from post-acute care is an important policy issue. A Long-Term Care Hospital (LTCH) is one institutional post-acute care setting where the Centers for Medicare & Medicaid Services (CMS) has proposed monitoring hospital readmissions.

In 2011, roughly 123,000 Medicare fee-for-service beneficiaries received care for nearly 140,000 LTCH stays totaling $5.4 billion in the 424 LTCHs nationwide (MedPAC, 2013). For patients discharged from an LTCH, the unadjusted rate of readmission to a short-stay acute-care hospital or an LTCH in the 30 days after an LTCH discharge was about 26 percent (RTI, 2013). Faced with such a large proportion of patients being readmitted to an acute level of care (i.e., to either a short-stay acute-care hospital or an LTCH), CMS proposes to monitor the post-discharge readmission rates for LTCHs in order to improve patient care and transitions of care. By doing so, CMS hopes to reduce LTCH readmission rates that are inappropriately high and improve patient safety and quality of care. Reducing avoidable readmissions can also reduce costs to the Medicare program.

Readmission rates are affected not only by the characteristics of patients, but by complex and critical aspects of care such as communication between providers and between providers and patients; prevention of and response to complications; patient safety; and coordinated transitions to the outpatient environment (CMS, 2012). Readmissions have been identified as being sensitive to improvements in coordination of care and discharge planning for patients.

Citations

Centers for Medicare & Medicaid Services (CMS). Medicare Program; Hospital Inpatient Prospective Payment Systems for Acute Care Hospitals and the Long-Term Care Hospital Prospective Payment System and Fiscal Year 2013 Rates; Hospitals' Resident Caps for Graduate Medical Education Payment Purposes; Quality Reporting Requirements for Specific Providers and for Ambulatory Surgical Centers. Docket ID: CMS-2012-0052. Effective October 1, 2012. Available at http://www.regulations.gov/#!docketDetail;D=CMS-2012-0052.

Jencks SF, Williams MV, Coleman EA. Rehospitalizations among patients in the Medicare fee-for-service program. The New England Journal of Medicine. Apr 2 2009;360(14):1418-1428.

Miller, M.E. Statement to the House, Subcommittee on Health Committee on Ways and Means. Medicare post-acute care reforms. June 14, 2013. Available at http://www.medpac.gov/documents/20130614_WandM_Testimony_PAC.pdf.

Medicare Payment Advisory Commission: Report to the Congress: Medicare Payment Policy, March 2013; see Chapter 10, Long-term care hospital services, pp. 215–233. http://www.medpac.gov/chapters/Mar13_Ch10.pdf.

RTI International analysis of Medicare claims data, 2007-2012. (RTI program reference: lc21_admit_rate_ltcv15.xlsx).

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

We estimated a hierarchical logistic regression model and calculated the respective RSRR for each facility. Table 1 below shows the distribution across facilities of the unadjusted (observed) and risk standardized readmission rates from the model.

As shown in Table 1, the unadjusted readmission rates range from 0.0% to 100.0%, with a median of 23.6% and an interquartile range of 20.7%-26.9%. In contrast, the RSRR has a much narrower range, from 17.9% to 30.8%, with a slightly higher median of 24.2% and a tighter interquartile range of 22.9%-25.8%. The mean RSRR (24.3%) is also slightly higher than the unadjusted rate (23.7%) and the RSRR scores have a much smaller standard deviation (2.2% vs. 6.6%).

[SEE TABLE 1 IN ATTACHMENT]

The distributions of the unadjusted and LTCH-level risk-standardized readmission rates (RSRR) are also illustrated in Figures 4 and 5, respectively, where the vertical axis indicates the percentage of LTCHs and the horizontal axis the readmission rate.

[SEE FIGURE 4 IN ATTACHMENT]

[SEE FIGURE 5 IN ATTACHMENT]

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

Processes that affect readmission after acute hospital discharges, such as discharge planning and transition of care, communications, and care coordination, also occur at other inpatient facilities, such as the LTCHs, and may affect readmission rates. Randomized controlled trials in short-stay acute-care hospitals have shown that improvements in the quality of care during the initial admission; improvement in communication with patients, their caregivers, and their clinicians; patient education; predischarge assessment; and coordination of care after discharge can directly reduce 30-day readmission rates by 20 to 40 percent. A 2011 meta-analysis of such randomized clinical trials found evidence that interventions associated with discharge planning helped to reduce readmission rates (Naylor et al., 2011). Evidence that hospitals have been able to reduce readmission through these quality improvement initiatives illustrates the degree to which hospital best practices in these areas can improve readmission rates. Hospital-wide, all-condition readmission measures can portray a broader sense of the quality of care in hospitals and hence, can promote hospital quality improvement, and better inform consumers about care quality (CMS, 2012).

Summary of Data Demonstrating Performance Gap

There are no published studies comparing readmission rates between LTCHs post-discharge. One study evaluated the contribution of LTCH to short-term acute care hospital Medicare patient readmissions for 75 for-profit LTCHs, and found that 8 percent of heart failure and 8 percent of pneumonia LTCH patients were readmitted to acute care within 30 days of LTCH admission, representing less than 1 percent of all Medicare heart failure and pneumonia patients readmitted (Grigonis, Snyder, and Dawson, 2013). Kahn et al. (2013) found reduced post-discharge hospitalizations and lower 180-day hospitalization costs (but higher Medicare payments) for patients admitted to LTCHs as compared to patients in intensive care units. However, LTCH facilities generally serve patient populations with clinical issues that increase the risk of rehospitalization for patients, including increased risk of infection from catheters and ventilation (de Lissovoy, Pronovost, & Faden, 2013). Moreover, the high concentration of high-risk patients supports the development of drug-resistant pathogens (de Lissovoy, Pronovost, & Faden, 2013). Chitnis et al. (2012) found higher methicillin and higher multi-drug resistance in LTCH patients relative to ICU patients.

Analysis of the LTCH 30-Day All-Cause Readmission Measure conducted by RTI suggests variation in readmission rates by LTCH facilities. For example, the risk-standardized readmission rate (RSRR) ranged from 17.9 to 30.8 percent across all LTCHs based on data from 2010 and 2011 (RTI, 2013).

Evidence on readmission rates for Medicare beneficiaries overall also provides some insight into potential performance gaps. For example, there is substantial variation in the 30-day readmission rates among the Medicare population by state (Jencks, Williams, and Coleman 2009), and wide variation in readmission rates by acute care provider (Jencks, Williams, and Coleman 2009; MedPAC, 2007; 2013).

Taken together, the evidence on variation in readmission rates suggests that there is an opportunity to close the performance gap between LTCHs as well — an opportunity underscored by the MedPAC estimate that approximately 13 percent of all 2009 admissions were followed by a readmission that could possibly have been prevented (MedPAC, 2013).

Citations

Chitnis AS, Edwards JR, Ricks PM, Sievert DM, Fridkin SK, Gould CV. Device-associated infection rates, device utilization, and antimicrobial resistance in long-term acute care hospitals reporting to the National Health Care Safety Network, 2010. Infection Control and Hospital Epidemiology 33(10): 993-1000, 2012.

Centers for Medicare & Medicaid Services (CMS). Medicare Program; Hospital Inpatient Prospective Payment Systems for Acute Care Hospitals and the Long-Term Care Hospital Prospective Payment System and Fiscal Year 2013 Rates; Hospitals' Resident Caps for Graduate Medical Education Payment Purposes; Quality Reporting Requirements for Specific Providers and for Ambulatory Surgical Centers. Docket ID: CMS-2012-0052. Effective October 1, 2012. Available at http://www.regulations.gov/#!docketDetail;D=CMS-

2012-0052.

de Lissovoy G, Pronovost PJ, Faden R. Long-term acute hospitals: A clinical, economic, and ethical dilemma. Medical Care 51(1): 1-3, 2013.

Grigonis, A. M., L. K. Snyder, et al. (2013). "Long-term acute care hospitals have low impact on medicare readmissions to short-term acute care hospitals." Am J Med Qual 28(6): 502-509.

Kahn JM, Werner RW, David G, Ten Have TR, Benson NM, Asch DA (2013). Effectiveness of long-term acute hospitalization in elderly patients with chronic critical illness. Medical Care 51(1): 4-10, 2013.

Medicare Payment Advisory Commission (U.S.). Report to the Congress promoting greater efficiency in Medicare. Washington, DC: Medicare Payment Advisory Commission, 2007. Available at http://www.medpac.gov/documents/jun07_entirereport.pdf

Medicare Payment Advisory Commission. Report to the Congress: Medicare and the Health Care Delivery System. Chapter 4: Refining the hospital readmissions reduction program. Washington, DC: Medicare Payment Advisory Commission, 2013. Available at http://www.medpac.gov/chapters/Jun13_Ch04.pdf

Naylor, M.D., Aiken, L.H., Kurtzman, E.T., et al. The importance of transitional care in achieving health reform. Health Affairs 30(4):746–754. 2011.

RTI analysis of Medicare claims data, 2007-2012 (RTI program reference: lc32_RSRR_LTC1011.xls).

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

We did not include race and socioeconomic status (SES) directly in our LTCH post-discharge readmission measures. This decision was based on NQF guidance as well as the goal to harmonize with the HWR measure (NQF #1789). We tested race "dummies" (White, Black, Other and White/Non-White) and a proxy for SES (the Medicaid Buy-In indicator or variable) in our readmission models. The Buy-In variable is an indicator that a state is paying Part B premiums and/or cost sharing for beneficiaries because of low income. Buy-In policies vary by state, so although not perfect is a reasonable test of the effect of low-income. We also compared facilities' RSRRs based on the percentage of patients within facilities that were Non-White or had Buy-In in order to determine if there were differences in readmission rates. (Other includes the following codes from the inpatient standard analytic file: unknown, other, Asian, Hispanic, and North American native.)

Table 2 and Table 3 provide some sample descriptives on race and SES, and summarize the odds ratios and confidence intervals when both race and SES risk-adjusters were added to the 2010/2011 LTCH readmission model.

Findings from the sample descriptives:

-Seventy-three percent of the LTCH sample was White, and the unadjusted, unplanned readmission rates were lowest among this group (22.6%) compared to the 20 percent of the sample in the Black race category who had the highest readmission rate, 26.0 percent. Beneficiaries coded as Other for race—7.1 percent of the sample—had a higher readmission rate (24.6%) than White, but lower than Black beneficiaries. There is a high proportion of the LTCH sample with the Buy-In indicator code (41.1%), and the unadjusted, unplanned readmission rate was slightly higher than the national average.

[SEE TABLE 2 IN ATTACHMENT]

The next table summarizes the odds ratios estimated from the hierarchical logistic regression model including race and Buy-In as risk-adjusters.

Among the LTCH sample, Black beneficiaries had about 6 percent higher odds of readmission relative to White beneficiaries; though, there was no difference between beneficiaries in the Other race group compared to Whites. The odds of readmission for LTCH beneficiaries with the Buy-In indicator were 12 percent higher relative to those with no Buy-In indicator for an unplanned readmission.

[SEE TABLE 3 IN ATTACHMENT]

In addition to analyzing the effect of including race and SES in the readmission models at the patient level, we also conducted analyses to assess the potential impact on facilities based on the facility proportion of patients that were Non-White or had the Buy-In indicator. Results of these analyses are summarized below.

Analyses of the distribution of LTCH patients by race suggest that Non-White populations are not evenly distributed across facilities, as shown in Table 4. There were slight differences in comparing LTCHs' performance on the RSRR based on facility percentages of Non-White patients. For example, LTCHs with 0 to 12 percent Non-White patients had a mean RSRR of 23.5 percent and a median of 23.5 percent compared to LTCHs with 35 percent or more Non-White patients in which the mean and median RSRRs were higher, 25.2 and 24.8 percent, respectively. These results suggest a slight trend that facilities' RSRRs increase slightly as the percentage of Non-White LTCH patients increases.

[SEE TABLE 4 IN ATTACHMENT]

Next, for LTCH patients with the Buy-In indicator, a proxy for low-income status or SES, the results were similar. There were slight increases in the RSRRs as the percentage of LTCH patients with Buy-In increased within LTCHs, as reported in Table 5. For example, LTCHs with 0 to 30 percent Buy-In patients had a mean RSRR of 23.4 percent and a median of 23.3 percent compared to LTCHs with 47 percent or more Non-White patients in which the mean and median RSRRs were higher, 25.1 and 24.9 percent, respectively.

[SEE TABLE 5 IN ATTACHMENT]

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

There is a lack of evidence in the literature specific to disparities and readmissions for patients discharged from Long-Term Care Hospitals. However evidence from readmission rates following acute-care discharge have shown disparities by race with Black beneficiaries having the highest 30-day readmission rates for acute myocardial infarction, heart failure, and pneumonia (Joynt, Orav, and Jha, 2011).

Citations

Joynt, K. E., E. J. Orav, et al. (2011). "Thirty-day readmission rates for Medicare beneficiaries by race and site of care." JAMA 305(7): 675-681.

2. Reliability and Validity—Scientific Acceptability of Measure Properties

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

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

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

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

Care Coordination, Care Coordination : Readmissions, Care Coordination : Transitions of Care

De.7. **Target Population Category** *(Check all the populations for which the measure is specified and tested if any):*
Elderly, Populations at Risk, Populations at Risk : Individuals with multiple chronic conditions

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

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

S.2b. **Data Dictionary, Code Table, or Value Sets** *(and risk model codes and coefficients when applicable) must be attached. (Excel or csv file in the suggested format preferred - if not, contact staff)*
No data dictionary **Attachment:**

S.2c. Is this an instrument-based measure (i.e., data collected via instruments, surveys, tools, questionnaires, scales, etc.)? Attach copy of instrument if available.
No, this is not an instrument-based measure **Attachment:**

S.2d. Is this an instrument-based measure (i.e., data collected via instruments, surveys, tools, questionnaires, scales, etc.)? Attach copy of instrument if available.
Not an instrument-based measure

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

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

S.4. **Numerator Statement** *(Brief, narrative description of the measure focus or what is being measured about the target population, i.e., cases from the target population with the target process, condition, event, or outcome) DO NOT include the rationale for the measure.*
IF an OUTCOME MEASURE, state the outcome being measured. Calculation of the risk-adjusted outcome should be described in the calculation algorithm (S.14).
The numerator is mathematically related to the number of patients in the target population who have the event of an unplanned readmission in the 30- day post-discharge window. The measure does not have a simple form for the numerator and denominator—that is, the risk adjustment method used does not make the observed number of readmissions the numerator and a predicted number the denominator. Instead, the numerator is the risk-adjusted estimate of the number of unplanned readmissions that occurred within 30 days from discharge. This estimate includes risk adjustment for patient characteristics and a statistical estimate of the facility effect beyond patient mix.

S.5. **Numerator Details** *(All information required to identify and calculate the cases from the target population with the target process, condition, event, or outcome such as definitions, time period for data collection, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b)*
IF an OUTCOME MEASURE, describe how the observed outcome is identified/counted. Calculation of the risk-adjusted outcome should be described in the calculation algorithm (S.14).
The numerator is the risk-adjusted estimate of the number of unplanned readmissions that occurred within 30 days after discharge

from an LTCH. This estimate includes risk adjustment for patient characteristics and a statistical estimate of the facility effect beyond patient mix. The numerator uses a model estimated on full national data; it is applied to the facility's patients and includes the facility effect term for that facility.

Planned readmissions are not counted in the numerator. The planned readmissions (Appendix Tables A1-A4) are defined largely by the definition used for the CMS Hospital-Wide Readmission (HWR) measure (NQF #1789), and were revised to include additional procedures determined as suitable for LTCHs with input from a Technical Expert Panel convened by CMS contractor RTI International. International Classification of Diseases (ICD-9) codes for these additional procedures were identified by a certified coder. The definition is based on the claim from the readmission having a code for a procedure that is frequently planned, but if a principal diagnosis in a specified list of acute diagnoses is present, the readmission is reclassified as unplanned. Appendix Table A5 presents the list of codes for procedures identified as "planned" for LTCHs, which are not in the HWR list. These procedures and diagnoses are currently defined by ICD-9 procedure and diagnosis codes grouped by the Clinical Classification Software (CCS), developed by the AHRQ, where large clusters were appropriate and by individual codes, if necessary. Readmissions to psychiatric hospitals or units are also classified as planned readmissions.

The prediction equation is based on a logistic statistical model with a 2-level hierarchical structure. The patient stays in the model have an indicator as to which LTCH they are discharged from and the effect of the facility is measured as a positive or negative shift in the intercept term of the equation. The facility effects are modeled as belonging to a normal (Gaussian) distribution centered at 0, and are estimated along with the effects of patient characteristics in the model.

The data are from Medicare FFS inpatient claims and eligibility and enrollment data. See section 2a1.26 for more details on the data sources.

Note: This measure was developed with ICD-9 procedure and diagnosis codes. RTI is currently revising Appendix Table A5 with ICD-10 procedure codes. The provisional mapping is provided in Appendix Table A6. We are awaiting the ICD-10 versions of the HWR planned readmissions codes. Please refer to Section 2b2.3 for more details.

S.6. **Denominator Statement** *(Brief, narrative description of the target population being measured)*
The denominator is computed with the same model used for the numerator. It is the model developed using all non-excluded LTCH stays in the national data. For a particular facility the model is applied to the patient population, but the facility effect term is 0. In effect, it is the number of readmissions that would be expected for that patient population at the average LTCH. The measure includes all the LTCH stays in the measurement period that are observed in national Medicare FFS data and do not fall into an excluded category.

S.7. **Denominator Details** *(All information required to identify and calculate the target population/denominator such as definitions, time period for data collection, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b.)*
IF an OUTCOME MEASURE, describe how the target population is identified. Calculation of the risk-adjusted outcome should be described in the calculation algorithm (S.14).
The observation window is 30 days after being discharged from an LTCH; this window of observation excludes the day of discharge and the day thereafter (the 30 days starts on discharge day plus 2). Stays ending in transfers to LTCHs or acute hospitals are excluded. For this purpose, the term "acute hospitals" includes short-stay acute-care hospitals, critical access hospitals, LTCHs, or psychiatric hospitals and units. (The psychiatric facilities were included because transfers to or readmissions to such facilities are likely for reasons other than LTCH care.) These transfer patients are not included in the post-LTCH discharge measure. The measure is based on data for 24 months of LTCH discharges to less intense levels of care or to the community.

For the includable LTCH stays at each facility, the measure denominator is the risk-adjusted expected number of readmissions. This estimate includes risk adjustment for patient characteristics with the facility effect removed. The "expected" number of readmissions is the predicted number of risk-adjusted readmissions if the patients were treated at the average LTCH.

This population, like that for the numerator, is the group of Medicare FFS LTCH patients who are not excluded for the reasons below. Because some information for risk adjustment comes from a prior short-stay inpatient record, having such a discharge within the prior 30 days is an important requirement. Fewer than 10% of LTCH stays do not meet this requirement.

S.8. **Denominator Exclusions** *(Brief narrative description of exclusions from the target population)*
The measure excludes some LTCH patient stays; some of these exclusions result from data limitations.

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

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

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

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

4.Patients who were not continuously enrolled in Part A FFS Medicare for the 12 months prior to the LTCH stay admission date, and at least 30 days after LTCH stay discharge date.
Rationale: The adjustment for certain comorbid conditions in the measure requires information on acute inpatient bills for 1 year prior to the LTCH admission, and readmissions must be observable in the observation window following discharge. Patients without Part A coverage or who are enrolled in Medicare Advantage plans will not have complete inpatient claims in the system.

5.Patients who did not have a short-term acute-care stay within 30 days prior to an LTCH stay admission date.
Rationale: This measure requires information from the prior short-term acute-care stay in the elements used for risk adjustment.

6.LTCH patients discharged against medical advice (AMA).
Rationale: Patients discharged AMA are excluded because these patients have not completed their full course of treatment in the opinion of the facility.

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

8.LTCH stays with data that are problematic (e.g., anomalous records for hospital stays that overlap wholly or in part or are otherwise erroneous or contradictory).
Rationale: This measure requires accurate information from the LTCH stay and prior short-term acute-care stays in the elements used for risk adjustment. No-pay LTCH stays involving exhaustion of Part A benefits are also excluded.

S.9. **Denominator Exclusion Details** *(All information required to identify and calculate exclusions from the denominator such as definitions, time period for data collection, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b.)*
The exclusion criteria are determined by processing Medicare claims and eligibility data to determine whether the individual criteria in section S.11. are met. The claims are also analyzed to determine transfers and appropriate patterns of dates. All the criteria are based on administrative data.

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

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

S.12. **Type of score:**
Rate/proportion
If other:

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

S.14. **Calculation Algorithm/Measure Logic** (*Diagram or describe the calculation of the measure score as an ordered sequence of steps including identifying the target population; exclusions; cases meeting the target process, condition, event, or outcome; time period for data, aggregating data; risk adjustment; etc.)*
The population being tracked in the measure includes LTCH Medicare FFS patients, aged 18 years and older, who are discharged to less intense levels of care or to the community.

This group includes patients discharged from the LTCH to skilled nursing facilities for short-term skilled nursing care or rehabilitation or home health care, or who are discharged to the community or to a nursing home as a resident. It excludes patients who are transferred to another LTCH, short-stay acute-care hospital, including IPPS and Critical Access Hospitals (CAH), or an Inpatient Psychiatric Facility (IPF) on the day of discharge or the day following the day of discharge from the LTCH.

The Medicare LTCH claims in each year are matched to prior acute hospital stays, hospital stays post LTCH discharge and patient eligibility data to determine which stays remain in the measure (not excluded per the exclusions described in section 2a1.8) and which have unplanned readmissions.

To clarify the relationships between events used to define the population included in this measure, Figures 1 through 3 present the time and event relationships. Figure 1 indicates a patient stay included in the measure. It has a prior short-term acute-care hospital stay within 30 days prior to the LTCH admission. The prior acute stay referred to in this document includes stays in a CAH or IPF in addition to an IPPS hospital. There may have been interruptions to the LTCH stay, which are not considered in the measure. If the discharge from LTCH is a transfer to another acute-level facility, the stay would not be included in the measure. In Figure 1, the observation window of 30 days has no readmissions.

Note: If the admission to the acute-care facility occurs on the day of discharge from the LTCH or the day after, it is counted as a "transfer" to an acute-care facility. The 30-day window starts the next day.

[SEE FIGURE 1 IN ATTACHMENT]

In Figure 2, the situation is similar to figure 1, except that an unplanned readmission occurs within the 30-day window.

[SEE FIGURE 2 IN ATTACHMENT]

In Figure 3, a planned readmission occurs as the first of two readmissions in the 30-day observation window. This readmission is not counted and the observation period ends. Any unplanned readmission thereafter (i.e., after the observation window is terminated) is not counted.

[SEE FIGURE 3 IN ATTACHMENT]

Step 1: Identify patients meeting the denominator criteria.
Step 2: Identify patients meeting the numerator criteria taking into account the planned readmission algorithm.
Step 3: Identify presence or absence of risk adjustment variables for each patient.
Step 4: Calculate the predicted and expected number of readmissions for each LTCH using the hierarchical logistic regression model

as specified in Appendix C.

The predicted number of readmissions for each LTCH is calculated as the sum of the predicted probability of readmission for each patient included in the measure discharged from the facility, including the LTCH-specific effect. Using the notation of the previous section, the model specific risk standardized readmission ratio for each LTCH is calculated as follows.

[SEE EQUATIONS 2-5 IN ATTACHMENT]

NOTE: Because the statistic described in Equation (5) is a complex function of parameter estimates, re-sampling and simulation techniques (e.g., bootstrapping) are necessary to derive a confidence interval estimate for the final risk-standardized rate, to characterize the uncertainty of the estimate if the application of the measure requires such a measure. The results of bootstrapping are reported in the Identification of Statistically Significant & Meaningful Differences in Performance (section 2b5.) of the Measure Testing form.

S.15. **Sampling** *(If measure is based on a sample, provide instructions for obtaining the sample and guidance on minimum sample size.)*
IF an instrument-based performance measure (e.g., PRO-PM), identify whether (and how) proxy responses are allowed.
N/A

S.16. **Survey/Patient-reported data** *(If measure is based on a survey or instrument, provide instructions for data collection and guidance on minimum response rate.)*
Specify calculation of response rates to be reported with performance measure results.
N/A

S.17. **Data Source** *(Check ONLY the sources for which the measure is SPECIFIED AND TESTED).*
If other, please describe in S.18.
Claims, Other

S.18. **Data Source or Collection Instrument** *(Identify the specific data source/data collection instrument (e.g. name of database, clinical registry, collection instrument, etc., and describe how data are collected.)*
IF instrument-based, identify the specific instrument(s) and standard methods, modes, and languages of administration.
This measure is for Medicare FFS beneficiaries and uses the data in the Medicare eligibility files and inpatient claims data. The eligibility files provide information on date of birth, sex, reasons for Medicare eligibility, periods of Part A coverage and periods in the fee-for-service program. The data elements from the Medicare FFS claims are those basic to the operation of the Medicare payment systems and include date of admission, date of discharge, diagnoses, procedures, indicators for use of dialysis services and indicators of whether the Part A benefit is exhausted. The inpatient claims data files contain beneficiary-level LTCH and other hospital records. No data beyond the bills submitted in the normal course of business are required from the providers for the calculation of this measure.

The measure uses 2 years of data to calculate the rate for the All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Long-Term Care Hospitals measure, which we believe is sufficient to calculate this measure in a statistically reliable manner. This is because the reliability of a facility's rate is related to its sample size.

Following are the specific files and links to the documentation:

-Medicare Inpatient claims - standard analytical files (2007-2012), index LTCH claims (2009-2011). (Note that the index LTCH claims cover the 2009-2011 period; however, the inpatient claims data which identify the prior acute care claim extends back to 2007 in order to include very long lengths of stay.)
Documentation for the Medicare claims data is provided online by the CMS contractor, Research Data Assistance Center (ResDAC) at the University of Minnesota. The following web page includes data dictionaries for these files: Standard analytical files (Inpatient RIF): http://www.resdac.org/cms-data/files/ip-rif/data-documentation

-Medicare Enrollment Database
Information about the Enrollment Database may be found here:
http://aspe.hhs.gov/datacncl/datadir/cms.htm

-Medicare Denominator files (2009-2011)
Documentation available at:
http://www.cms.gov/Research-Statistics-Data-and-Systems/Files-for-Order/IdentifiableDataFiles/DenominatorFile.html

-AHRQ CCS groupings of ICD-9 codes
Documentation available at:
http://www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp

-CMS-HCC mappings of ICD-9 codes
Mappings are included in the software at the following website: http://www.cms.gov/Medicare/Health-Plans/MedicareAdvtgSpecRateStats/Risk-Adjustors.html

S.19. **Data Source or Collection Instrument** *(available at measure-specific Web page URL identified in S.1 OR in attached appendix at A.1)*
No data collection instrument provided

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

S.21. **Care Setting** *(Check ONLY the settings for which the measure is SPECIFIED AND TESTED)*
Post-Acute Care
If other:

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

2. Validity – See attached Measure Testing Submission Form
LTCH_MSF_MEASURE_TESTING_02052014-635277185877276331-636733979320001495.docx

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

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

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

3. Feasibility

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

3a. Byproduct of Care Processes

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

3a.1. **Data Elements Generated as Byproduct of Care Processes.**
Coded by someone other than person obtaining original information (e.g., DRG, ICD-9 codes on claims)
If other:

3b. Electronic Sources

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

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

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

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

3c. Data Collection Strategy

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

3c.1. **Required for maintenance of endorsement. Describe difficulties (as a result of testing and/or operational use of the measure) regarding data collection, availability of data, missing data, timing and frequency of data collection, sampling, patient confidentiality, time and cost of data collection, other feasibility/implementation issues.**
IF instrument-based, consider implications for both individuals providing data (patients, service recipients, respondents) and those whose performance is being measured.
The creation of this measure requires Medicare Part A claims data for both LTCH and acute care hospital inpatient stays. The inpatient claims are electronically available from CMS and can be used to define and track the measure in a timely fashion. However, allowing a lag of up to six months after the end of the service year is applied to account for delays in claims submissions, and adjustments to submitted claims. Data are already collected as part of Medicare payment process, so this measure poses no additional data collection burden on providers, and, because claims are used for payment, data are complete and subject to audit. In addition to the claims the electronic Medicare enrollment and eligibility data are used.

Through the analytic work to develop this measure, we found that one year of claims data provided a somewhat limited sample size. In order to have a more sufficient sample size, we expanded the data to include two consecutive years of claims data. In this way, the LTCH readmission measure diverges from the Hospital Wide Readmission (HWR) QM (NQF #1789) which utilizes only one year of data. The acute care setting has substantially larger samples sizes compared to the LTCH setting. Thus, pooling two years of data provides more reliable and stable estimates for the proposed LTCH readmission measure.

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

N/A

4. Usability and Use

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

4a. Accountability and Transparency

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

4.1. **Current and Planned Use**

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

Specific Plan for Use	Current Use (for current use provide URL)
Public Reporting Quality Improvement (Internal to the specific organization)	

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

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

N/A

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

The Centers for Medicare & Medicaid Services is developing this readmission measure in order to publicly report this measure as part of the LTCH Quality Reporting Program.

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

At this time, CMS is working to establish procedures for public reporting, including procedures that provide the opportunity for LTCHs to review their data before it is made public.

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

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

The NQF-endorsed All-Cause Unplanned Readmission Measure for 30 Days Post-Discharge from IRFs and All-Cause Unplanned Readmission Measure for 30 Days Post-Discharge from LTCHs were adopted for the IRF/LTCH Quality Reporting Programs in the IRF/LTCH FY 2016 final rules. CMS began public reporting these measures in fall of 2016 via their respective Compare sites. Provider training on these measures began prior to the start of public reporting.

In fall 2015, CMS conducted dry run implementation activities for both measures in anticipation of public reporting. These dry runs involved calculating provider performance for all facilities using real data and distributing this information to IRFs/LTCHs through confidential feedback reports. The purpose of these dry runs was to educate providers on the measures; share and help interpret measure results and data; provide IRFs/LTCHs the opportunity to ask questions; test CMS processes for dissemination of measure information; and receive feedback from the provider community. For each measure, CMS held live training sessions through Special Open Door Forums, which were held in October and December 2015. Additionally, CMS responded to Help Desk questions from providers throughout the dry run period and beyond.
Following the dry runs, CMS began public reporting activities in the fall of 2016. All IRFs/LTCHs with at least one eligible stay during the two-year measure performance period (CY 2013-2014) received facility-specific Confidential Feedback Reports and Provider Preview Reports via the Certification and Survey Provider Enhanced Report (CASPER) reporting system. These reports contained facility-level information, including each providers' count of eligible stays, their measure score, and performance category, as well as national performance data. During this stage of implementation, CMS hosted several training sessions to assist providers with understanding the various data points that would be included in these reports and eventually on public display, as well as how to interpret their rates.

Public display of the measures on IRF/LTCH Compare began in late 2016. All facilities with at least one eligible stay were included, however, measure performance scores were suppressed for those facilities with fewer than 25 eligible stays during the performance period. In 2016, 1,110 IRFs and 410 LTCHs were included in public reporting. Of these, less than 1% of IRFs and 2% of LTCHs had their scores on these measures suppressed because of small sample sizes (<25 eligible stays).
Subsequent to the initial public reporting activities that took place in 2015 and 2016, CMS repeated the process of disseminating CASPER reports and refreshed the publicly displayed data on IRF/LTCH Compare. These updates occurred in the fall of 2017 to reflect measure scores calculated on the 2014-2015 performance period.

4a2.1.2. **Describe the process(es) involved, including when/how often results were provided, what data were provided, what educational/explanatory efforts were made, etc.**
Please see section 4a2.1.1. above for a description of the processes involved.

The data made available to providers included each facility's stay volume, risk-standardized readmission rate (RSRR, or the measure "score"), a comparative performance category wherein each facility was classified as better, no different, or worse than the national rate, and the upper and lower limits of the 95% confidence interval used to determine the comparative performance category. Data at the national level were also provided, including the national readmission rate (i.e. calculated on IRF/LTCH stays pooled across all providers), the number of facilities falling into each of the three performance categories, and the number of facilities that were suppressed from public display because they had less than 25 eligible stays.

In addition to the provider training sessions outlined in section 4a2.1.1, assistance with interpretation is also available through the data dictionaries that accompany each report and the descriptions included on the Compare sites. Finally, providers, and any other interested users, can use the IRF/LTCH Help Desk to submit questions about the measures or their implementation.

4a2.2.1. **Summarize the feedback on measure performance and implementation from the measured entities and others described in 4d.1.**
Describe how feedback was obtained.
We obtained feedback on measure performance and implementation through several mechanisms, including through the IRF/LTCH Help Desks, federal rulemaking, and the NQF process. Following is a summary of this feedback.

Some providers have stated that the IRF/LTCH all-cause measures are duplicative with the potentially preventable readmission measures developed to meet the requirements of the IMPACT Act. Others have noted challenges around the variation in measure specifications and inconsistency of performance periods for measures within and between the various Post-Acute Care (PAC) Quality Reporting Programs. Providers have also expressed concern over the comparative performance categories (i.e., better, no different, or worse than the national performance) assigned to each IRF/LTCH, commenting that a small change in the RSRR could easily shift a provider's classification from "better" to "worse" or vice versa. Other feedback has included suggestions for additional risk adjusters, such as social risk factors and functional status in the IRF measure, and concern regarding the potential unintended consequences of publicly reporting this measure, where facilities may cherry-pick patients based on their comorbidities.

Some providers have commented that the measures reflect outdated assessments of provider performance given the time lag

associated with claims data. Relatedly, they expressed concern over the use of claims for measure calculation because these data are not accessible to providers in real time.

Providers requested that patient-level data be made available to facilities, stating that post-PAC discharge data is necessary for tracking patients and quality improvement efforts. In 2017, NQF and CMS addressed a measure appeal by the Association of Rehabilitation Nursing regarding the IRF all-cause readmission measure. Appellants were concerned over the lack of patient-level data furnished by CMS, stating that by not making this level of data available, providers would be limited in their ability to improve on the measure. The appellants also stated the measure was inappropriate because it does not consider the cause for readmission and suggested CMS adopt a process of care measure to replace it. In its response, NQF addressed the appeal by noting access to patient-level data is not a requirement for endorsement.

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

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

4a2.3. **Describe how the feedback described in 4a2.2.1 has been considered when developing or revising the measure specifications or implementation, including whether the measure was modified and why or why not.**
With respect to concerns over the duplication of readmission measures in the IRF/LTCH QRPs, we do not plan to report both the all-cause measures and the potentially preventable readmission measures at the same time. The all-cause measures were removed from public reporting on the IRF/LTCH Compare websites as of Fall 2018.

Measures within and across the PAC QRPs are designed to harmonize and align as much as possible, however, the measures are not identical given there are limitations around the timeliness of data availability and certain setting-specific considerations.

Regarding the feedback about comparative performance categories, an alternative method is being considered by CMS and any change would be included in endorsement maintenance (expected Spring 2020).

We have tested additional risk adjusters for these measures, included SES factors, but they generally have not had a significant impact on facility performance. For example, both measures were included in NQF's two-year risk adjustment for social risk factors trial period, however, the measures were recommended for continued endorsement without social risk factor adjustment. Regarding adjustment for function in the IRF measure, CMS has noted that this measure does adjust for differences in functional status by including risk adjusters based on the IRF PPS case mix groups. However, adding patient assessment data may be another refinement to be considered during endorsement maintenance.

With regard to patient-level data, CMS has recognized providers' desire for detailed patient-level data and is considering approaches to potentially make this information available in the future. However, CMS notes that unrestricted access to the data necessary for calculating these measures is not feasible or reasonable, and that providing this level of information to providers is not a criterion for measure endorsement.

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

4b1. **Refer to data provided in 1b but do not repeat here. Discuss any progress on improvement (trends in performance results, number and percentage of people receiving high-quality healthcare; Geographic area and number and percentage of accountable entities and patients included.)**
If no improvement was demonstrated, what are the reasons? If not in use for performance improvement at the time of initial endorsement, provide a credible rationale that describes how the performance results could be used to further the goal of high-quality, efficient healthcare for individuals or populations.
This measure is not currently in use, and there is no available information relevant to progress on improvement.

4b2. Unintended Consequences

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

4b2.1. **Please explain any unexpected findings (positive or negative) during implementation of this measure including unintended impacts on patients.**
No unintended or negative consequences were identified during testing, and this measure has not yet been publicly reported. However, one potential unintended consequence that should be monitored is that LTCHs may be deterred from admitting certain patients or types of patients with higher acuity or greater complexity that may be more likely to have a subsequent readmission post LTCH discharge; this behavior might occur despite the risk adjustment. If so, this could result in barriers to access for some Medicare beneficiaries who may otherwise benefit from LTCH services. Another potential unintended consequence is that LTCHs could increase the rate at which they transfer patients back to the acute care setting in order to exclude these transfers from the measure denominator. These potential issues could be mitigated by training, and making it clear that there is no expectation of a perfect score (where no patients are ever readmitted). Additionally, we recommend ongoing monitoring and evaluation for these potential unintended consequences.

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

5. Comparison to Related or Competing Measures

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

5. Relation to Other NQF-endorsed Measures
Are there related measures (conceptually, either same measure focus or target population) or competing measures (conceptually both the same measure focus and same target population)? If yes, list the NQF # and title of all related and/or competing measures.
Yes

5.1a. **List of related or competing measures (selected from NQF-endorsed measures)**
1789 : Hospital-Wide All-Cause Unplanned Readmission Measure (HWR)

5.1b. **If related or competing measures are not NQF endorsed please indicate measure title and steward.**
NQF # 1789 Hospital-Wide All-Cause Unplanned Readmission Measure was developed by Yale New Haven Health Services Corporation/Center for Outcomes Research and Evaluation (YNHHSC/CORE) for the Centers for Medicare & Medicaid Services (Measure Steward). This measure was used as a basis for the All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Long-Term Care Hospitals in order to harmonize across settings even though there are differences between the two measures. We consulted with YNHHSC/CORE in several ways including discussion about their modeling, their cohort approach, and planned readmissions algorithm. YNHHSC/CORE also shared their programming code which was adapted for this measure.

Several measures that focus on readmissions are being developed for a variety of health care settings, including readmission measures for inpatient rehabilitation facilities (IRF), skilled nursing facilities (SNF), dialysis facilities, and home health agencies. The LTCH readmission measure is specified to target fee-for-service Medicare beneficiaries treated in LTCHs following an acute care discharge.

Competing Measures: Same Target Population and Same Measure Focus

There are no existing measures with the same LTCH target population and same measure focus.

Measures with Similar Focus and Different Target Population

The following measures have similar foci to the LTCH readmission measure, in that they are measuring readmission rates, but they

are not specifically designed to address the Medicare population utilizing LTCH services. For example, NQF #0695 is designed for pediatric patients and NQF #1768 is a measure designed for an adult population, but excludes adults over 65.

–NQF #0695: PICU Unplanned Readmission Rate

–NQF #1768: Plan All-Cause Readmissions

The next set of measures have a similar focus as the LTCH readmission measure in that all the measures focus on 30-day all cause readmission. However, the target populations differ in that these measures focus on Medicare patients with an inpatient index hospital stay, but are not specific to the subset of Medicare patients utilizing LTCH services. The LTCH readmission measure focuses exclusively on patients discharged from an LTCH, and is not focused exclusively on one diagnosis.

–NQF #0330: Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following heart failure hospitalization

–NQF #0506: Thirty-day all-cause risk standardized readmission rate following pneumonia hospitalization

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

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

–NQF #1550: Hospital-level risk-standardized complication rate (RSCR) following elective primary total hip arthroplasty (THA) and total knee arthroplasty (TKA)

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

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

–NQF #1891: Hospital 30-Day, All-Cause, Risk-Standardized Readmission Rate (RSRR) following Chronic Obstructive Pulmonary Disease (COPD) Hospitalization

Measures with Similar Focus and Different Target Population that are Not NQF-Endorsed

PacifiCare Hospital Readmission: This is an all-cause hospital readmission measure, but the patient population is Medicare and commercial payer and the measure is intended for use in short-term acute hospitals, therefore not competing with the LTCH readmission measure. The measure is calculated using an “observed/expected” ratio utilizing simpler statistical techniques than were utilized in the LTCH readmission measure.

These next measures are examples of readmissions measures used in acute hospitals with a similar focus that are not NQF-endorsed. These are all condition- or disease-specific measures that are used in broad patient populations. The importance of tracking readmissions specific to these conditions provides value. However, the proposed LTCH readmission measure is not condition specific nor does it focus on readmissions for specific causes.

•Venous thromboembolism (VTE) prophylaxis: percentage of discharged patients who are readmitted to the hospital for conditions related to VTE within 30 days of discharge

•Diagnosis and management of asthma: percentage of discharged patients with asthma who are readmitted to hospital within 30 days of discharge

5a. Harmonization of Related Measures

The measure specifications are harmonized with related measures;

OR

The differences in specifications are justified

5a.1. **If this measure conceptually addresses EITHER the same measure focus OR the same target population as NQF-endorsed measure(s):**
Are the measure specifications harmonized to the extent possible?
Yes

5a.2. **If the measure specifications are not completely harmonized, identify the differences, rationale, and impact on interpretability and data collection burden.**
NQF # 1789 Hospital-Wide All-Cause Unplanned Readmission Measure was developed by Yale New Haven Health Services Corporation/Center for Outcomes Research and Evaluation (YNHHSC/CORE) for the Centers for Medicare & Medicaid (Measure Steward). This measure was used as a basis for the All-Cause Unplanned Readmission Measure for 30 Days Post Discharge from Long-Term Care Hospitals in order to harmonize across settings, even though there are differences between the two measures. We consulted with YNHHSC/CORE in several ways including discussion about their modeling, their cohort approach, and planned readmissions algorithm. YNHHSC/CORE also shared their programming code which was adapted for this measure.

5b. Competing Measures

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

5b.1. **If this measure conceptually addresses both the same measure focus and the same target population as NQF-endorsed measure(s):**
Describe why this measure is superior to competing measures (e.g., a more valid or efficient way to measure quality); OR provide a rationale for the additive value of endorsing an additional measure. (Provide analyses when possible.)
Not applicable; there are no competing measures. There are no measures that conceptually address both the same measure focus and the same target population.

Appendix

A.1 Supplemental materials may be provided in an appendix. All supplemental materials (such as data collection instrument or methodology reports) should be organized in one file with a table of contents or bookmarks. If material pertains to a specific submission form number, that should be indicated. Requested information should be provided in the submission form and required attachments. There is no guarantee that supplemental materials will be reviewed.
Attachment **Attachment:** LTCH_RM_MSF_ATTACHMENT_APPENDIX_02052014-636733979321902835.docx

Contact Information

Co.1 **Measure Steward (Intellectual Property Owner):** Centers for Medicare & Medicaid Services
Co.2 **Point of Contact:** Corette, Byrd, MMSSupport@Battelle.org, 202-786-1158-
Co.3 **Measure Developer if different from Measure Steward:** RTI International
Co.4 **Point of Contact:** Melvin, Ingber, mingber@rti.org, 410-730-1506-

Additional Information

Ad.1 **Workgroup/Expert Panel involved in measure development**
Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.
This measure was developed with significant and ongoing input by a Technical Expert Panel (TEP). The list below includes the TEP members along with their organization. TEP members provided general input on the readmission measure development and recommended additional reasons for planned readmissions relevant to post-acute care that were not included in the Hospital-Wide Readmission measure (NQF #1789).

LTCH TEP Member Name - Organization

T. Brian Callister, MD - LifeCare Hospitals; Reno, NV

Alfred J. Chiplin, Jr, JD, MDic, CPE - Center for Medicare Advocacy

Dexanne Clohan, MD - HealthSouth Birmingham, AL

Margaret Crane, RN - Barlow Respiratory Hospital

Jean de Leon, MD - Baylor Specialty Hospital

Maura Hopkins, RN, MSN, NEW-BC - RML Specialty Hospital

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Sean Muldoon, MD, MPH - Kindred Healthcare

Lisa Snyder, MD, MPH - Select Medical Corporation

Patricia Stimac, MS, RD, LDN, NHA - Spartanburg Hospital for Restorative Care

Margaret Stineman, MD - Department of Physical Medicine and Rehabilitation, University of Pennsylvania

John J. Votto, DO, FCCP - Hospital for Special Care New Britain, CT

Measure Developer/Steward Updates and Ongoing Maintenance
Ad.2 **Year the measure was first released:**
Ad.3 **Month and Year of most recent revision:**
Ad.4 **What is your frequency for review/update of this measure?**
Ad.5 **When is the next scheduled review/update for this measure?**

Ad.6 **Copyright statement:**
Ad.7 **Disclaimers:**

Ad.8 **Additional Information/Comments:**