



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 IM1.1 relates to sub criterion IM1).

Brief Measure Information

NQF #: 3562

De.2. Measure Title: Medicare Spending Per Beneficiary – Post Acute Care Measure for Long-Term Care Hospitals

Co.1.1. Measure Steward: Centers for Medicare and Medicaid Services

De.3. Brief Description of Measure: The Medicare Spending Per Beneficiary – Post Acute Care Measure for Long-Term Care Hospitals (MSPB-PAC LTCH) was developed to address the resource use domain of the Improving Medicare Post-Acute Care Transformation Act of 2014 (IMPACT Act). This resource use measure is intended to evaluate each LTCH's efficiency relative to that of the national median LTCH. Specifically, the measure assesses Medicare spending by the LTCH and other healthcare providers during an MSPB episode. The measure reports the ratio of the payment-standardized, risk-adjusted MSPB-PAC Amount for each LTCH divided by the episode-weighted median MSPB-PAC Amount across all LTCH facilities. The MSPB-PAC Amount is the ratio of the observed episode spending to the expected episode spending, multiplied by the national average episode spending for all LTCHs. The measure is calculated using two consecutive years of Medicare Fee-for-Service (FFS) claims data and was developed using calendar year (CY) 2015-2016 data. This submission is based on fiscal year (FY) 2016-2017 data; i.e., LTCH admissions from October 1, 2015 through September 30, 2017.

Claims-based MSPB-PAC measures were developed in parallel for the LTCH, inpatient rehabilitation facility (IRF), skilled nursing facility (SNF), and home health agency (HHA) settings to meet the mandate of the IMPACT Act. To align with the goals of standardized assessment across all settings in PAC, these measures were conceptualized uniformly across the four settings in terms of the construction logic, the approach to risk adjustment, and measure calculation. Clinically meaningful case-mix considerations were evaluated at the level of each setting. For example, clinicians with LTCH expertise evaluated LTCH claims and then gave direction on how to adjust for specific patient and case-mix characteristics.

The MSPB-PAC LTCH measure was adopted by the Centers for Medicare & Medicaid Services (CMS) for the LTCH Quality Reporting Program (QRP) and finalized in the FY 2017 LTCH Prospective Payment System (PPS) Final Rule.[1] The measure entered into use on October 1, 2016. Public reporting for the measure began in Fall 2018 through the LTCH Compare website (<https://www.medicare.gov/longtermcarehospitalcompare/>) using FY 2016-2017 data.

Notes:

[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. Federal Register, Vol. 81, No. 162. <https://www.govinfo.gov/content/pkg/FR-2016-08-22/pdf/2016-18476.pdf>

IM.1.1. Developer Rationale: MSPB-PAC LTCH was developed to address the resource use domain of the Improving Medicare Post-Acute Care Transformation Act of 2014 (IMPACT Act). As part of the IMPACT Act, MSPB-PAC aims to achieve interoperability, data exchange, and standardized measurement among post-acute providers. The mandated use of MSPB-PAC measures is intended to allow for a greater ability to measure resource use and efficiency of care to improve outcomes, as well as encourage all PAC providers towards aligned incentives and care coordination.

Differences in post-acute care payments are a key driver of variation in Medicare spending overall.[1,2] There have been a number of studies demonstrating relationships between facility characteristics and resource use, links between LTCHs' financial incentives and strategic discharge of patients from facilities, and significant opportunities for improvement.[3,4,5,6] The cost and quality link is important, with this resource use measure playing an important role in discerning value of LTCH care.

The MSPB-PAC LTCH measure was adopted by CMS for the LTCH Quality Reporting Program (QRP) and finalized in the FY 2017 LTCH Prospective Payment System (PPS) Final Rule.[7] Public reporting for the measure began in Fall 2018 through the LTCH Compare website.

- [1] Institute of Medicine. (2013). Variation in Health Care Spending Assessing Geographic Variation. (July)
- [2] Kahn, E. N., Ellimoottil, C., Dupree, J. M., Park, P., & Ryan, A. M. (2018). Variation in payments for spine surgery episodes of care: Implications for episode-based bundled payment. *Journal of Neurosurgery: Spine*, 29(2), 214–219.
- [3] Medicare Payment Advisory Commission. (2019). Report to the Congress: Medicare and the Health Care Delivery System.
- [4] Einav, L., Finkelstein, A., & Mahoney, N. (2018). Provider Incentives and Healthcare Costs: Evidence From Long-Term Care Hospitals. *Econometrica*, 86(6), 2161–2219.
- [5] Eliason, P. J., Grieco, P. L., McDevitt, R. C., & Roberts, J. W. (2018). Strategic patient discharge: The case of long-term care hospitals. *American Economic Review*, 108(11), 3232–65.
- [6] Einav, L., Finkelstein, A., & Mahoney, N. (2018). Long-term care hospitals: A case study in waste (No. w24946). National Bureau of Economic Research.
- [7] 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. *Federal Register*, Vol. 81, No. 162. <https://www.govinfo.gov/content/pkg/FR-2016-08-22/pdf/2016-18476.pdf>

De.1. Measure Type: Cost/Resource Use

S.5. Data Source: Assessment Data

Claims

Enrollment Data

Other

S.3. Level of Analysis: Facility

IF Endorsement Maintenance – Original Endorsement Date: Nov 20, 2020 **Most Recent Endorsement Date:** Nov 20, 2020

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?

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.***

IM.1. Opportunity for Improvement

IM.1.1. Briefly explain the rationale for this measure (e.g., the benefits or improvements in performance envisioned by use of this measure)

MSPB-PAC LTCH was developed to address the resource use domain of the Improving Medicare Post-Acute Care Transformation Act of 2014 (IMPACT Act). As part of the IMPACT Act, MSPB-PAC aims to achieve interoperability, data exchange, and standardized measurement among post-acute providers. The mandated use of MSPB-PAC measures is intended to allow for a greater ability to measure resource use and efficiency of care to improve outcomes, as well as encourage all PAC providers towards aligned incentives and care coordination.

Differences in post-acute care payments are a key driver of variation in Medicare spending overall.[1,2] There have been a number of studies demonstrating relationships between facility characteristics and resource use, links between LTCHs' financial incentives and strategic discharge of patients from facilities, and significant opportunities for improvement.[3,4,5,6] The cost and quality link is

important, with this resource use measure playing an important role in discerning value of LTCH care.

The MSPB-PAC LTCH measure was adopted by CMS for the LTCH Quality Reporting Program (QRP) and finalized in the FY 2017 LTCH Prospective Payment System (PPS) Final Rule.[7] Public reporting for the measure began in Fall 2018 through the LTCH Compare website.

[1] Institute of Medicine. (2013). Variation in Health Care Spending Assessing Geographic Variation. (July)

[2] Kahn, E. N., Ellimoottil, C., Dupree, J. M., Park, P., & Ryan, A. M. (2018). Variation in payments for spine surgery episodes of care: Implications for episode-based bundled payment. *Journal of Neurosurgery: Spine*, 29(2), 214–219.

[3] Medicare Payment Advisory Commission. (2019). Report to the Congress: Medicare and the Health Care Delivery System.

[4] Einav, L., Finkelstein, A., & Mahoney, N. (2018). Provider Incentives and Healthcare Costs: Evidence From Long-Term Care Hospitals. *Econometrica*, 86(6), 2161–2219.

[5] Eliason, P. J., Grieco, P. L., McDevitt, R. C., & Roberts, J. W. (2018). Strategic patient discharge: The case of long-term care hospitals. *American Economic Review*, 108(11), 3232–65.

[6] Einav, L., Finkelstein, A., & Mahoney, N. (2018). Long-term care hospitals: A case study in waste (No. w24946). National Bureau of Economic Research.

[7] 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. *Federal Register*, Vol. 81, No. 162.

<https://www.govinfo.gov/content/pkg/FR-2016-08-22/pdf/2016-18476.pdf>

IM.1.2. Provide performance scores on the measure as specified (current and over time) **at the specified level of analysis.** (This is required for endorsement maintenance. Include mean, stddev, 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 subcriterion on improvement (U.3.1.) under Usability and Use.

MSPB-PAC LTCH measure scores are reported publicly for all US providers paid under Medicare's LTCH Prospective Payment System (PPS) with 20 or more eligible episodes in the reporting period. There were a total of 422 LTCHs with 20 or more episodes in FY 2016-2017. Their scores represent 153,864 patient episodes, after all exclusions were applied. The scores show a good deal of variability – the descriptive statistics are provided below.

MSPB-PAC LTCH score descriptive statistics:

Mean: 1.00

Standard Deviation: 0.08

Min: 0.76

Max: 1.50

Interquartile range: 0.09

Score Percentiles

10: 0.90

20: 0.94

30: 0.96

40: 0.98

50: 0.99

60: 1.01

70: 1.03

80: 1.05

90: 1.09

IM.1.3. If no or limited performance data on the measure as specified is reported in IM.1.2., 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.

Not applicable

IM.1.4. 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 endorsement maintenance. 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 subcriterion on improvement (U.3.1.) under Usability and Use.**

Not applicable

IM.1.5. If no or limited data on disparities from the measure as specified is reported in IM.1.4., then provide a summary of data from the literature that addresses disparities in care on the specific focus of measurement. Include citations.

Not applicable

IM.2. Measure Intent

IM.2.1. Describe intent of the measure and its components/ Rationale (including any citations) for analyzing variation in resource use in this way.

MSPB-PAC LTCH is intended to allow for a greater ability to measure resource use and efficiency of care to improve outcomes, as well as encourage all PAC providers towards aligned incentives and care coordination. The measure assesses Medicare spending by LTCHs and other healthcare providers during an MSPB-PAC LTCH episode. An MSPB-PAC LTCH episode includes all Medicare Part A and Part B services with a start date in the episode window, except for a limited set of services that are not clinically related to the episode. The episode window is opened by a trigger event (i.e., admission to the LTCH) and ends 30 days after the discharge from that LTCH. The measure is calculated as the ratio of the payment-standardized, risk-adjusted MSPB-PAC Amount for each LTCH divided by the episode-weighted median MSPB-PAC Amount across all LTCHs. The MSPB-PAC Amount is the ratio of the observed episode spending to the expected episode spending, multiplied by the national average episode spending for all LTCHs.

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.***

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):

De.7. Care Setting (Select all the settings for which the measure is specified and tested):

Post-Acute Care

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

https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/LTCH-Quality-Reporting/Downloads/2016_07_20_mspb_pac_ltch_irf_snf_measure_specs.pdf

S.2. Type of resource use measure (Select the most relevant)

Per episode

S.3. Level of Analysis (Check ONLY the levels of analysis for which the measure is SPECIFIED AND TESTED):

Facility

S.4. Target Population Category (Check all the populations for which the measure is specified and tested if any):

S.5. Data Source (Check ONLY the sources for which the measure is SPECIFIED AND TESTED).

If other, please describe in S.5.1.

Assessment Data

Claims

Enrollment Data

Other

S.5.1. Data Source or Collection Instrument (Identify the specific data source or data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.)

This measure is based on Medicare FFS administrative claims and uses data from the Medicare enrollment database and Minimum Data Set (MDS). The enrollment database provides information such as date of birth, date of death, sex, reasons for Medicare eligibility, periods of Part A and Part B coverage, and periods in the Medicare FFS program. The MDS is used to construct a risk adjustment variable, indicating beneficiaries who have been institutionalized for at least 90 days in a given year. The data elements from the Medicare FFS claims are those basic to the operation of the Medicare payment systems and include data such as date of admission, date of discharge, diagnoses, procedures, and revenue center codes. The Medicare FFS claims data files are used to identify Medicare services from LTCH and other settings (e.g., the outpatient setting) within the episode window. No data beyond the claims submitted in the normal course of business are required from providers for the calculation of this measure.

This measure submission is based on FY 2016-2017 data, which were the most recent data available at the time of our analyses. We used the data sources listed below to develop the analytic file for measure specification and testing:

- Medicare Fee-For-Services claims and enrollment data: We access inpatient, outpatient, carrier, skilled nursing facility, home health, durable medical equipment, and hospice claims through the Centers for Medicare & Medicaid Services (CMS) Common Working File (CWF). The data dictionary for all Medicare FFS claims, demographic, and enrollment data are available at: https://www.resdac.org/cms-data?tid%5B%5D=4931&tid_1%5B%5D=1&=Find+Data+Files. General information about the CWF is available at: <https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/Downloads/clm104c27.pdf>.
- Minimum Data Set (MDS): Acumen obtains the MDS through the Quality Improvement and Evaluation System (QIES). The data dictionary for the MDS data is available at: <https://www.resdac.org/cms-data/files/mds-3.0/data-documentation>.

We used two mappings to group diagnosis and procedure codes for use in identifying clinical events, implementing exclusions and applying risk adjustment:

- Agency for Healthcare Research and Quality (AHRQ) Clinical Classifications Software (CCS) groupings for Services and Procedures: Software is available for download at: https://www.hcup-us.ahrq.gov/toolssoftware/ccs_svcproc/ccssvcproc.jsp
- CMS-Hierarchical Condition Category (HCC) mappings of ICD-9 and ICD-10 codes: We used the Version 22 CMS-HCC mapping, which is included in the software available at: <https://www.cms.gov/Medicare/Health-Plans/MedicareAdvtgSpecRateStats/Risk-Adjustors.html>.

We used five additional data sources for measure testing purposes only and not for measure specification:

- 2017 American Community Survey (ACS) 5-year estimate: We used the ACS to obtain the ZIP Code Tabulation Area (ZCTA) level measures needed to compute the Agency for Healthcare Research and Quality (AHRQ) Socioeconomic Status (SES) index score for use in social risk factor testing. This
- <http://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>.
- Rural-Urban Continuum Codes 2013: We used this data source to construct rural-urban identifiers for social risk factor testing. These codes include county FIPS indicators, which are then merged onto our episode file. More information on this data source can be found at: <https://www.ers.usda.gov/data-products/rural-urban-continuum-codes/>.

- **Provider of Services Current Files (POS File):** We used this data source to describe the characteristics of LTCH facilities included in measure specification and testing, such as census region, ownership type, and rurality, as reported in Table 1. The POS file contains data on characteristics of hospitals and other types of healthcare facilities, including the name and address of the facility and the type of Medicare services the facility provides, among other information. The data are collected through the CMS Regional Offices. General information about the POS Files is available at: <https://www.cms.gov/Research-Statistics-Data-and-Systems/Downloadable-Public-Use-Files/Provider-of-Services/index.html>.
- **LTCH Compare data:** We used this data source to examine the relationship between MSPB and assessment-based quality measures. The LTCH Compare data include publicly reported LTCH quality measures. The data are available at <https://data.medicare.gov/data/long-term-care-hospital-compare>.
- **Common Medicare Environment (CME) database:** We extracted patient-level dual eligibility information from the CME database for social risk factor testing. CMS has designated the CME database as the single, enterprise-wide authoritative source for Medicare beneficiary enrollment and demographic data. The CME database integrates and standardizes different types of beneficiary data from CMS legacy systems. The CME database receives information from the EDB and also contains additional information not available in the EDB. A description of the CME is available at: <https://www.ccwdata.org/documents/10280/19002256/medicare-enrollment-impact-of-conversion-from-edb-to-cme.pdf>.

S.5.2. Data Source or Collection Instrument Reference (available at measure-specific Web page URL identified in S.1 OR in the file attached here) (Save file as: S_5_2_DataSourceReference)

<SamplingMethodologySpecificDataSourceAttachment nodeType="0" />

S.6. Data Dictionary or Code Table (Please provide a web page URL or attachment if exceeds 2 pages. NQF strongly prefers URLs. Attach documents only if they are not available on a web page.)

Data Dictionary:

URL: See section S.5.1

Please supply the username and password:

Attachment:

Code Table:

URL:

Please supply the username and password:

Attachment: S_6_Code_Table-637237729634498496.xlsx

Construction Logic

S.7.1. Brief Description of Construction Logic

If applicable, summarize the general approach or methodology to the measure construction. This is most relevant to measures that are part of or rely on the execution of a measure system or applies to multiple measures.

The MSPB-PAC LTCH measure assesses Medicare spending by LTCH facilities and other healthcare providers during an MSPB-PAC LTCH episode. An MSPB-PAC LTCH episode includes all Medicare Part A and Part B services with a start date in the episode window, except for a limited set of services that are not clinically related to the episode. The episode window is opened by a trigger event (i.e., admission to the LTCH) and ends 30 days after the discharge from that LTCH. The measure is calculated as the ratio of the payment-standardized, risk-adjusted MSPB-PAC Amount for each LTCH divided by the episode-weighted median MSPB-PAC Amount across all LTCH facilities. The MSPB-PAC Amount is the ratio of the observed episode spending to the expected episode spending, multiplied by the national average episode spending for all LTCH facilities.

An MSPB-PAC LTCH measure score of less than 1 indicates that a given LTCH's resource use is less than that of the national median LTCH during a performance period. An MSPB-PAC LTCH measure score of greater than 1 indicates that a given LTCH's resource use is

more than that of the national median LTCH during a performance period.

S.7.2. Construction Logic *(Detail logic steps used to cluster, group or assign claims beyond those associated with the measure's clinical logic.)*

See supplemental documentation (S_7_2_Construction_Logic) for a version of text provided below with standard formulas and additional graphics.

Episode Construction

MSPB-PAC LTCH episodes assess all Medicare Part A and Part B claims for services delivered to a beneficiary during the episode window, subject to exclusions for particular services that are clinically unrelated to PAC treatment. Constructing an MSPB-PAC LTCH episode involves the following steps:

- (1) Defining the episode trigger, episode window, treatment period, and associated services period;
- (2) Excluding certain services from the episode that are clinically unrelated to PAC treatment and closing the episode.

Episode Trigger. Each episode is opened by an episode trigger. The trigger for LTCH episodes is admission to the LTCH, except for readmissions occurring within 7 days to the same provider. The LTCH that triggers the episode is the provider to whom the episode is attributed for the purpose of calculating the MSPB-PAC LTCH measure (attributed provider). We identify an admission to an LTCH based on the inpatient claims with the third character of CMS Certification Number (CCN) equal to "W", or with last four digits of CCN that fall within the range of 2000-2299.[1]

The MSPB-PAC LTCH measure allows different types of claims to trigger different episodes, reflecting differences in payment policy and beneficiaries' underlying health characteristics. In the LTCH setting, the dual payment rate structure, as detailed in the FY 2016 LTCH PPS Final Rule, distinguishes between standard payment rate cases and site neutral payment rate cases.[2] A standard payment rate case is one that is not a psychiatric or rehabilitation Medicare Severity Long-Term Care Diagnosis-Related Group (MS-LTC-DRG), is immediately preceded by an acute care hospital stay, and either (i) the acute care hospital stay included at least 3 days in intensive care unit (ICU) or coronary care unit (CCU) or (ii) the beneficiary received 96+ hours of ventilator services. A site neutral payment rate case is one that does not meet the definition of a standard payment rate case. A standard payment rate case triggers an MSPB-PAC LTCH Standard episode, while a site neutral payment rate case triggers an MSPB-PAC LTCH Site Neutral episode. LTCH Standard and Site Neutral episodes are compared only with LTCH Standard and Site Neutral episodes, respectively, to ensure that the measure is making fair comparisons between clinically similar beneficiaries.

Episode Window. The episode window consists of a treatment period and an associated services period.

Treatment Period. The treatment period of an MSPB-PAC LTCH episode begins on the day of the trigger and ends at discharge. Readmissions of the same patient to the same provider within 7 or fewer days after discharge do not trigger a new episode and instead are included in the treatment period of the original episode to reflect the likelihood that these closely adjacent stays are related. For gaps of 7 or fewer days, stays in the same setting with the same patient and provider are collapsed into one treatment period. For instance, when two sequential stays at the same LTCH occur within 7 or fewer days of one another, the treatment period ends on the day of discharge for the latest LTCH stay. The treatment period includes Medicare Part A and Part B services delivered to a beneficiary that are provided directly or could reasonably have been managed by the attributed LTCH provider, and that are related to the beneficiary's care plan. Treatment services occurring on the first day of MSPB-PAC LTCH episodes are subject to exclusions related to prior institutional care, including ambulance transport to the attributed LTCH facility and durable medical equipment, prosthetics, orthotics, and supplies (DMEPOS) orders preceding the patient's admission to the LTCH. Treatment services are also subject to exclusions for particular services that are clinically unrelated to PAC treatment, as described in section S.9.1, below.

Associated Services Period. The associated services period starts at the trigger event for each of the MSPB-PAC LTCH episodes, and ends 30 days after the end of the treatment period. The associated services period is the time during which all non-treatment services are counted towards the episode (associated services). Such services are associated with LTCH care but are not provided directly, or could not reasonably have been managed by the attributed provider. For instance, an associated service includes an acute inpatient hospital admission for a complication arising during or after LTCH treatment. The Medicare spending for all Part A and Part B services during the associated services period are counted toward the episode, with exceptions for clinically unrelated services, as described in section S.9.1, below.

Closing Episodes. MSPB-PAC LTCH episodes end 30 days after discharge from the facility. The full payment for all claims that begin within the episode window is counted toward the episode; this is done to maintain consistency with the MSPB-Hospital measure (NQF #2158) and to fairly assign payment to the episode for Medicare claims paid on a prospective payment system, regardless of episode length.

An MSPB-PAC LTCH episode may begin during the associated services period of another MSPB-PAC LTCH episode in the 30 days post-treatment. See section S.7.3 for examples of situations in which this occurs and how it is handled in the MSPB-PAC LTCH measure.

Measure Calculation

Certain episodes are excluded from the MSPB-PAC LTCH calculation to ensure that the measure facilitates meaningful comparisons between LTCH providers. These exclusions are distinct from the exclusions for clinically unrelated services discussed above, which exclude a limited set of services from MSPB-PAC LTCH episodes. In contrast, episode-level exclusions, discussed in section S.9.1, remove entire episodes from measure calculation when certain criteria are met.

After applying the episode-level exclusions, the measure can be calculated in the following steps:

Step 1: Standardize Claim Payments. The first step in calculating the standardized payment for a claim is to eliminate variation in payments due to Medicare geographic adjustment factors and add-on payments for Medicare programs, such as indirect medical education (IME) and disproportionate share hospitals (DSH). The goal of this step is to remove sources of variation not directly related to decisions to provide clinical services. Payment standardization controls for geographic variation in healthcare payments, such as the hospital wage index and geographic practice cost index (GPCI).[3] All payment data shown in the MSPB-PAC LTCH measure and supporting documentation reflect allowed amounts, which include both Medicare trust fund payments and beneficiary deductible and coinsurance. Bonus or penalty amounts due to Medicare quality reporting or other special programs are not included.

Step 2: Calculate Standardized Episode Payments. Next, to prepare claims data for calculating risk-adjusted payments, standardized episode payments are calculated. For each episode, standardized payments include all standardized Medicare claims payments for services in the episode window, as detailed in previous paragraphs.

Step 3: Calculate Predicted Episode Payments. The third step calculates predicted payments for each episode. This step estimates the relationship between the independent variables and standardized episode payments using an ordinary least squares (OLS) regression. The calculation is performed separately for Standard and Site Neutral episodes (described above). See Appendix C of the Measure Specifications document provided in section S.1 for a full list of the independent variables used in the risk adjustment model.

Step 4: Winsorize (Bottom Code) Predicted Values. Next, the distribution of predicted values is examined. If the distribution of predicted values includes extremely low values (defined as below the 0.5th percentile), winsorization is performed at the low end of the distribution (i.e., “bottom coding”). The resultant values are renormalized to maintain a consistent average episode payment. If the distribution of predicted values does not include extremely low values, winsorization is not required to ensure meaningful ratios of observed to predicted spending (see below). In accordance with the MSPB-Hospital measure (NQF #2158) calculation, renormalization multiplies the winsorized predicted values by the ratio of the average original predicted payment and the average winsorized predicted payment. For example, suppose an episode’s predicted value (PREDICTED_VALUE) is \$1,000, but the 0.5th percentile of predicted values is \$1,500. Then, that episode’s “winsorized” predicted value (WINS_PREDICTED_VALUE) would be \$1,500. The “renormalized” winsorized predicted value would be:

$$(\$1500 \times \text{mean}(\text{PREDICTED_VALUE})) / \text{mean}(\text{WINS_PREDICTED_VALUE})$$

where the mean is taken over the entire national sample of the MSPB-PAC LTCH episodes. This re-normalization ensures that the average of the resulting winsorized predicted values is equal to the average of the original predicted values.

Step 5: Calculate Residuals. The residuals for each episode are calculated as the difference between the standardized episode spending and the standardized predicted spending for episode *i* and LTCH *k*.

$$\text{Residual_ik} = Y_{ik} - (Y_{ik})^{\wedge}$$

where:

Y_{ik} is the attributed standardized spending for episode i and provider k.

$(Y_{ik})^{\wedge}$ is the standardized predicted spending for episode i and provider k, as predicted from risk adjustment.

Step 6: Exclude Episodes with Outlier Residuals. The next step excludes outliers from the calculation and renormalizes the resultant predicted values to maintain a consistent average episode payment level. Episodes with residuals below the 1st percentile or above the 99th percentile of the residual distribution are excluded, reducing the impact of high- and low-payment outliers on a PAC provider's measure. Predicted values after outlier exclusion are renormalized by multiplying each value by the ratio of the average standardized un-risk-adjusted payments to the average of the standardized predicted payments remaining after exclusion of episodes with outlier residuals.

Step 7: Calculate MSPB-PAC LTCH Measure. The MSPB-PAC LTCH measure is calculated for individual providers, allowing them to be compared relative to other LTCH providers nationally. The MSPB-PAC LTCH measure is calculated as the ratio of the MSPB-PAC Amount for each LTCH provider divided by the episode-weighted median MSPB-PAC Amount across all LTCH providers. MSPB-PAC LTCH measure calculation is performed separately for LTCH Standard and Site Neutral episodes to ensure that they are compared only to other episodes of the same type. The final MSPB-PAC LTCH measure combines the ratios of the episode types to construct one provider score.

To calculate the MSPB-PAC Amount for each LTCH provider, one calculates the ratio of the standardized spending for LTCH Standard episodes over the expected spending (as predicted in risk adjustment) for LTCH Standard episodes, and the ratio of the standardized spending for LTCH Site Neutral episodes over the expected spending (as predicted in risk adjustment) for LTCH Site Neutral episodes, and then averages these ratios across all episodes for the attributed provider. This quantity is then multiplied by the average episode spending level across all LTCH providers nationally for Standard and Site Neutral episodes.

Mathematically, MSPB-PAC LTCH for individual provider k is:

$$\text{"MSPB-PAC LTCH Amount"}_k / \text{"National Median MSPB-PAC LTCH Amount"}$$

The numerator is the MSPB-PAC LTCH Amount, or the average risk-adjusted episode spending across all episodes for the attributed provider, comparing Standard and Site Neutral episodes only with episodes of the same type. This is then multiplied by the national average episode spending level for all LTCH providers nationally. Mathematically, the MSPB-PAC LTCH Amount numerator is calculated as:

$$\text{"MSPB-PAC IRF Amount"}_k = ((1/n_k) * \sum_{i \in k} [Y_{ik} / (Y_{ik})^{\wedge}]) * ((1/N) * \sum_k [\sum_{i \in k} Y_{ik}])$$

where:

Y_{ik} is the attributed standardized spending for episode i and provider k.

$(Y_{ik})^{\wedge}$ is the expected standardized spending for episode i and provider k, as predicted from risk adjustment, and resulting from Step 6 above

n_k is the number of episodes for provider k

N is the number of episodes nationally

$i \in k$ is all episodes i in the set of episodes attributed to provider k

The denominator is the episode-weighted national median of the MSPB-PAC LTCH Amounts for all LTCH facilities nationally.

The MSPB-PAC LTCH measure score is calculated for each provider. An MSPB-PAC LTCH measure score with a value less than 1 indicates that a given LTCH's resource use is less, after risk-adjustment, than the resource use of the national median MSPB-PAC LTCH Amount across all LTCH facilities nationally in the given performance period.

Notes:

[1] Resdac – Long-term care hospitals in the Medicare data. <https://www.resdac.org/articles/long-term-care-hospitals-medicare-data>

[2] Medicare Program; Hospital Inpatient Prospective Payment System for Acute Care Hospitals and the Long-Term Care Hospital

Prospective Payment System and Fiscal Year 2016 Rates. Federal Register, Vol. 80, Num. 158.

<https://www.govinfo.gov/content/pkg/FR-2015-08-17/pdf/2015-19049.pdf>

[3] QualityNet, “CMS Price (Payment) Standardization Overview” (April 2019))

<https://www.qualitynet.org/inpatient/measures/payment-standardization>

S.7.2a. CONSTRUCTION LOGIC ATTACHMENT or URL: If needed, attach supplemental documentation (Save file as: S_7_2_Construction_Logic). All fields of the submission form that are supplemented within the attachment must include a summary of important information included in the attachment and its intended purpose, including any references to page numbers, tables, text, etc.

URL:

Please supply the username and password:

Attachment: S_7_2_Construction_Logic-637135710443434103.docx

S.7.3. Concurrency of clinical events, measure redundancy or overlap, disease interactions *(Detail the method used for identifying concurrent clinical events, how to manage them, and provide the rationale for this methodology.)*

We do not provide specifications for concurrency of clinical events.

The MSPB-PAC LTCH measure methodology does not separate concurrent events. The MSPB-PAC LTCH measure methodology defines an MSPB episode as all claims from the start of admission to the LTCH to 30 days post LTCH discharge. Please refer to section S.8.4., which details the rationale for the construction of the MSPB-PAC LTCH episode, for a discussion of the advantages of this approach.

The definition of MSPB-PAC LTCH episodes allow one episode to overlap with other episodes. One possible scenario occurs where an LTCH provider discharges a beneficiary who is then admitted to another LTCH within 30 days. In this case, the second episode begins in the associated services period of the first episode in the 30 day post-treatment. The LTCH stay will be included once as an associated service for the attributed provider of the first MSPB-PAC LTCH episode and once as a treatment service for the attributed provider of the second MSPB-PAC LTCH episode. This overlap is necessary to ensure continuous accountability between providers throughout a beneficiary’s trajectory of care, as both providers share incentives to deliver high quality care at a lower cost to Medicare and engage in patient-focused care planning and coordination.

S.7.4. Complementary services *(Detail how complementary services have been linked to the measure and provide rationale for this methodology.)*

We do not provide specifications for linking complementary services.

An MSPB-PAC LTCH episode includes all Medicare Part A and Part B services that fall within the episode window that starts at the LTCH index admission and ends at 30-days post LTCH discharge, except for a limited set of services that are excluded for being clinically unrelated to LTCH treatment (as described in section S.9.1).

S.7.5. Clinical hierarchies *(Detail the hierarchy of codes or condition groups used and provide rationale for this methodology.)*

Clinical Classification Software (CCS). We use CCS for Services and Procedures to group HCPCS codes on outpatient (OP) claims that occur during the episode into clinically meaningful categories. This grouping is used to identify clinically unrelated events which are then excluded from episode calculation (as detailed in section S.9.1).

Hierarchical Condition Categories (HCC). Hierarchical Condition Categories with a 90-day lookback period are included as covariates in the risk-adjustment model. The MSPB-PAC LTCH risk adjustment methodology is discussed in additional detail in section S.12.

Clinical Case-Mix Category. The clinical case-mix category variables used in the MSPB-PAC LTCH risk-adjustment model are included to account for beneficiary characteristics prior to the start of an MSPB-PAC LTCH episode that may influence the type and intensity of care. Taking the most recent institutional claim (by end date) in the 60 days prior to the start of an MSPB-PAC LTCH episode, the episode is assigned to one of the following mutually exclusive and exhaustive clinical case-mix categories:

- (1) Prior Acute Surgical IP – Orthopedic – beneficiaries who have most recently undergone orthopedic surgery in an acute inpatient hospital
- (2) Prior Acute Surgical IP – Non-Orthopedic – beneficiaries who have most recently undergone a non-orthopedic surgery in an acute inpatient hospital
- (3) Prior Acute Medical IP with Intensive Care Unit (ICU) – beneficiaries who have most recently stayed in an acute inpatient hospital for non-surgical reasons and had a stay in the ICU
- (4) Prior Acute Medical IP without ICU – beneficiaries who have most recently stayed in an acute inpatient hospital for non-surgical reasons but did not have a stay in the ICU
- (5) Prior PAC - Institutional – beneficiaries who are continuing PAC from an institutional PAC setting (i.e., coming from an LTCH, IRF, or SNF)
- (6) Prior PAC - HHA – beneficiaries who are continuing PAC from a HHA
- (7) Community – all other beneficiaries

In the event that there are multiple prior claims with the same end date in the 60 days prior to the start of a PAC episode, additional logic is employed to determine the episodes' clinical case-mix category. For conflicts occurring between two IP claims, the clinical case-mix category corresponding to the claim with the longest length of stay (LOS) is assigned. For all other types of conflicts, including those where the LOS is the same between two IP claims, the clinical case-mix category is assigned using a hierarchy in the order of the categories listed above. Different logic is used to handle LTCH Standard episodes with multiple prior claims sharing the same end date. Given that LTCH Standard episodes are defined by the presence of a prior acute IP stay between 0 to 1 days prior to the start of the LTCH Standard episode, only information about this required prior hospitalization is used to assign the episode's clinical case mix category. Given the role of ICU days in determining eligibility for LTCH Standard payment rates, the clinical case mix category is assigned based on the inpatient stay with the most ICU days. In the event of a tie in the number of ICU days, the clinical case mix category is assigned based on the IP claim with the longer length of stay. Should a tie still persist, the most recent IP claim by discharge date is used. Finally, if the prior criteria do not result in a category assignment, the original hierarchy above is used.

S.7.6. Missing Data *(Detail steps associated with missing data and provide rationale for this methodology (e.g., any statistical techniques to impute missing data))*

We do not provide measure specifications or guidelines for missing data :

Accurate and complete Part A and Part B claims are necessary for physician and hospital billing. Thus, missing data on Medicare enrollment and claims are very rare. All the data used to calculate MSPB-PAC LTCH measure values are included on Medicare claims and enrollment data. The data fields used to calculate the MSPB-PAC LTCH measure (e.g., payment amounts, DRGs, diagnosis and procedure codes, etc.) are included in all Medicare claims because LTCH facilities only receive payments for complete claims. We do have complete data for each beneficiary who has an MSPB-PAC LTCH episode since beneficiaries are excluded if they are not continuously enrolled in only Medicare Parts A and B or if Medicare is not the primary payer during an episode, as described in section S.9.1. This ensures that we have all claims data for beneficiaries included in the MSPB-PAC LTCH measure calculation.

S.7.7. Resource Use Service Categories (Units) (Select all categories that apply)

Inpatient services: Inpatient facility services

Inpatient services: Evaluation and management

Inpatient services: Procedures and surgeries

Inpatient services: Imaging and diagnostic

Inpatient services: Lab services

Inpatient services: Admissions/discharges

Ambulatory services: Outpatient facility services

Ambulatory services: Emergency Department

Ambulatory services: Pharmacy

Ambulatory services: Evaluation and management

Ambulatory services: Procedures and surgeries

Ambulatory services: Imaging and diagnostic

Ambulatory services: Lab services

Durable Medical Equipment (DME)

Other services not listed

All services covered by Medicare Part A and B (Hospice, SNF, Home Health, and services captured in carrier claims.)

S.7.8. Identification of Resource Use Service Categories (Units)

(For each of the resource use service categories selected above, provide the rationale for their selection and detail the method or algorithms to identify resource units, including codes, logic and definitions.)

The MSPB-PAC LTCH measure assesses the standardized allowed amounts of services performed by LTCH facilities and other healthcare providers during an MSPB-PAC LTCH episode, which includes all Part A and Part B Medicare claims that occur at the LTCH admission through 30 days after discharge from the LTCH stay. As a result, costs from all Part A and Part B claim types (i.e., inpatient, outpatient, home health agency, hospice, skilled nursing facility, durable medical equipment, and carrier) are included. Note that costs of Part B drugs are included, but costs of Part D drugs are not included since Part D is not used to calculate the MSPB-PAC LTCH measure. The methodology used to standardize payment for these claims is available for download from the URL provided in section S.7.8a ("CMS Price (Payment) Standardization").

S.7.8a. If needed, provide supplemental resource use service category specifications in either URL (preferred) or as an attachment (Save file as S.7.8a_RU_Service_Categories):

URL: <https://qualitynet.org/inpatient/measures/payment-standardization>

Please supply the username and password:

Attachment:

Clinical Logic

S.8.1. Brief Description of Clinical Logic (Briefly describe your clinical logic approach including clinical topic area, whether or not your account for comorbid and interactions, clinical hierarchies, clinical severity levels and concurrency of clinical events.)

The MSPB-PAC LTCH measure aims to calculate resource use in the period between the start of the treatment period and the end of the associated services period. An MSPB-PAC LTCH episode encompasses all procedures and clinical events that occur between the start of the treatment period and 30 days post LTCH discharge. The clinical topic area includes all LTCH admissions in the United States.

The MSPB-PAC LTCH measure accounts for differences in payment policy and beneficiaries' underlying health characteristics by stratifying by standard and site neutral payment rate admissions. An MSPB-PAC LTCH Standard episode is triggered by a standard payment rate claim, while an MSPB-PAC LTCH Site Neutral episode is triggered by a site neutral payment rate claim. To adjust for beneficiary characteristics that are out of the influence of the attributed LTCH and may affect resource use, we risk-adjust the total observed episode spending (described in section S.12) using CMS-HCC indicators and interactions between selected comorbidities. Risk adjustment is performed separately for MSPB-PAC LTCH Standard and Site Neutral cases. In addition to comorbidities, we also include indicators for clinical case-mix based on diagnosis and procedural information on the most recent institutional claim (by end date) in the 60 days prior to the start of an MSPB-PAC LTCH episode. Finally, we account for Medicare Severity-Long-Term Care Diagnosis-Related Groups (MS-LTC-DRGs) identified on the LTCH admission claim.

S.8.2. Clinical Logic *(Detail any clustering and the assignment of codes, including the grouping methodology, the assignment*

algorithm, and relevant codes for these methodologies.)

Grouping methodology:

The grouping methodology includes all Medicare Part A and B services delivered to a beneficiary during the treatment period (from admission to the LTCH through to discharge from the LTCH) and associated services period (from admission to the LTCH through to 30 days after discharge from the LTCH). To simplify the clinical logic and avoid the issue of attributing claims to MSPB episodes in the case of concurrent clinical events, all claims that begin within the episode window (treatment period and associated services period) are included in the MSPB-PAC LTCH measure.

In order to create a resource use measure that is clinically valid, there were multiple steps involved in excluding the least clinically relevant codes. Using an episode window, we organized claims into clinically meaningful service categories or settings. For example, Medicare Severity-Diagnosis Related Groups (MS-DRGs) noted after an LTCH discharge were evaluated as medical or surgical admissions post-discharge. Clinical Classifications Software (CCS) and Current Procedural Terminology/Healthcare Common Procedure Coding System (CPT/HCPCS) services were organized into outpatient services, emergency department (ER) services, and durable medical equipment claims and evaluated for their relevance or relatedness to LTCH care.

Extensive clinical review was performed by clinicians with experience and expertise in LTCH, as well as in collaboration with Medical Officers at CMS. The inpatient, outpatient, Part B physician and supplier, and DMEPOS services least clinically related to the LTCH care were excluded from the measure. For instance, services related to the routine management of preexisting chronic conditions (e.g., dialysis for ESRD, treatment for preexisting cancers, and treatment for organ transplants) were felt to be clinically unrelated to the scope of the type of care that LTCHs provide. Therefore, these types of services were excluded. Services were excluded if there was consensus across clinicians from the measure developer, external clinical experts including TEP members, and CMS medical officers. Please see section S.9.1 for overall clinical consensus regarding the types of exclusions.

Attribution algorithm:

An MSPB-PAC LTCH episode is assigned to the facility of the index admission. A new episode may begin during the associated services period of a previous MSPB-PAC LTCH episode in the 30 days post-discharge from the LTCH. Further details about attribution are provided in section S.13.2.

Risk adjustment:

To account for the association between clinical severity and resource use, we risk adjust the total observed episode spending (described in section S.12) using CMS-HCC indicators and interactions between selected comorbidities. The MSPB-PAC LTCH measure accounts for comorbid conditions and interactions by broadly following the CMS-HCC risk adjustment methodology, which is derived from Medicare Part A and B claims and is used in the Medicare Advantage (MA) program. Diagnosis codes on claims that occur during the 90-day period prior to the start of an MSPB-PAC LTCH episode (90-day “look back”) are used to create HCC indicators. For example, the measure accounts for interactions disability status and selected HCC groups (e.g., Cystic Fibrosis, Severe Hematological Disorders, Opportunistic Infections, among others). Given the fact that beneficiaries often have more than one comorbidity, the model also includes commonly observed paired condition interactions (e.g., chronic obstructive pulmonary disease [COPD] and congestive heart failure [CHF]) and commonly observed triple-interactions (e.g., diabetes mellitus, congestive heart failure, and renal failure). The full list of variables used in the risk adjustment model can be found in the Measure Specifications document provided in section S.1.

In addition to comorbidities, the MSPB-PAC LTCH measure utilizes clinical case-mix categories to create clinically meaningful subgroups that influence the type of services a beneficiary will receive in an LTCH. To create these subgroups, information was derived from the institutional claim of the most recent hospitalization. The clinical case-mix category variables used in the MSPB-PAC LTCH risk-adjustment model are included to account for differences in intensity and type of care received by beneficiaries prior to the start of an MSPB-PAC LTCH episode. Taking the most recent institutional claim (by end date) in the 60 days prior to the start of an MSPB-PAC LTCH episode, the episode is assigned to one of the following mutually exclusive and exhaustive clinical case-mix categories:

- 1) Prior Acute Surgical IP – Orthopedic – beneficiaries who have most recently undergone orthopedic surgery in an acute inpatient hospital
- 2) Prior Acute Surgical IP – Non-Orthopedic – beneficiaries who have most recently undergone a non-orthopedic surgery in an acute inpatient hospital
- 3) Prior Acute Medical IP with ICU – beneficiaries who have most recently stayed in an acute inpatient hospital for non-

surgical reasons and had a stay in the ICU

- 4) Prior Acute Medical IP without ICU – beneficiaries who have most recently stayed in an acute inpatient hospital for non-surgical reasons but did not have a stay in the ICU
- 5) Prior PAC - Institutional – beneficiaries who are continuing PAC from an institutional PAC setting (i.e., coming from an LTCH, IRF, or SNF)[1]
- 6) Prior PAC - HHA – beneficiaries who are continuing PAC from a HHA[1]
- 7) Community – all other beneficiaries[1]

Finally, the MSPB-PAC LTCH Measure includes variables for MS-LTC-DRGs from the LTCH admission. A full list of the MS-LTC-DRGs used in the risk-adjustment model is included in Appendix C of the Measure Specifications document provided in section S.1.

Notes:

[1] This variable is only used in the MSPB-PAC LTCH Site Neutral risk adjustment model. Since LTCH Standard episodes are defined to have a prior IP stay, the MSPB-PAC LTCH Standard risk adjustment model omits variables representing non-IP sources of entry in the clinical case-mix categories.

S.8.3. Evidence to Support Clinical Logic Described in S.8.2 *Describe the rationale, citing evidence to support the grouping of clinical conditions in the measurement population(s) and the intent of the measure (as described in IM3)*

As part of the IMPACT Act, the goals of the MSPB-PAC measures were to standardize assessment data to allow for interoperability, data exchange, and standardized measurement among post-acute providers. It also mandated the use of quality measures for PAC.[1] This would ultimately allow for greater ability to measure resource use and efficiency of care to improve outcomes, as well as encourage all PAC providers towards aligned incentives and care coordination. The MSPB-PAC LTCH Measure aims to provide actionable, transparent information to support LTCH providers' efforts to promote care coordination and improve the efficiency of care provided to their patients.

The Pathway for SGR Reform Act of 2013 created a dual-payment rate structure that altered how Medicare pays LTCH providers based on clinical criteria of LTCH patients prior to admission. The MSPB-PAC LTCH measure is stratified to account for these distinct patient populations. A standard payment rate claim triggers an MSPB-PAC LTCH Standard episode, while a site neutral payment rate claim triggers an MSPB-PAC LTCH Site Neutral episode. LTCH Standard and Site Neutral episodes are compared only with LTCH Standard and Site Neutral episodes, respectively, to ensure that the measure is making fair comparisons between clinically similar beneficiaries.

Accounting for patient clinical severity is essential for accurately predicting resource use within the MSPB-PAC LTCH episode. There is ample evidence in both inpatient and post-acute care settings that Medicare episode payments are associated with clinical case-mix or severity. The large variation in clinical severity among post-acute care patients, and with medical conditions and comorbidities, is a major driver of the variation in post-acute care spending.[2] For example, Vertrees et al. (2013) tested the relationship between case-mix and Medicare payments for acute hospitalization episodes, using MS-DRGs and Clinical Risk Groups (CRGs), which are similar to the HCCs groupings. This analysis found that Medicare costs of acute-hospitalization episodes that use 30, 60, and 90-days post-discharge windows can be predicted in part by the use of clinical severity groupings and case mix indicators as risk adjusters.[3]

Clinical severity groupings, such as MS-DRGs, have been shown to be associated with resource use in the LTCH post-acute setting. For example, the average full PPS payment among LTCHs for the DRG "Respiratory System Diagnosis with Prolonged Mechanical Ventilation" is \$78,749, while the payment for the DRG "Aftercare with Complication Conditions or Major Complicating Conditions" is \$27,153.[4] The percent of patients in the highest severity of illness category in LTCHs (43%) is more three times that of SNFs and IRFs (approximately 12%) and more than ten times that of HHAs (4%). A similar pattern is repeated in Medicare payments per day by setting.[5]

Patient admission sources, which are similar to clinical case-mix categories defined in section S.8.2, are also associated with resource use. LTCHs with more admissions from acute care hospitals were associated with more resource usage than those with more admissions from the community.[6] The majority of LTCH admissions, 70 percent, come from acute care hospitals, while 14 percent of admissions come from the community. LTCH admissions represent only 1 to 2 percent of Medicare discharges from acute care hospitals.[6,7] Accounting for clinical severity and case-mix is thus important to factor into a measure that estimates the expected cost of the episode to Medicare.

The MSPB-PAC LTCH Measure methodology defines an MSPB-PAC episode as all claims with start dates falling between the treatment period start date (date of admission to LTCH) and the associated services period end date (30-days post LTCH discharge). This episode definition is consistent with NQF's theoretical definition of an episode of care in that it is "...a series of temporally contiguous healthcare services related to the treatment of a given spell of illness or provided in response to a specific request by the patient or other relevant entity." [8] Moreover, NQF has endorsed multiple episode-based measure of resource use and cost, including the MSPB-Hospital Measure (NQF #2158) and hospital-level measures for episodes of care for pneumonia (NQF #2579), acute myocardial infarction (NQF #2431), and heart failure (NQF #2436). Each of these measures estimate the risk-adjusted cost of a hospital based episode of care covering 30 days post-admission or post-discharge.

Notes:

[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. Federal Register, Vol. 81, No. 162.

<https://www.govinfo.gov/content/pkg/FR-2016-08-22/pdf/2016-18476.pdf>

[2] American Hospital Association (AHA). (December, 2015). The role of post-acute care in new care delivery models. Trend Watch. Retrieved from <http://www.aha.org/research/reports/tw/15dec-tw-postacute.pdf>

[3] Vertrees, J. C., Richard, A. F., Eisenhandler, J, Quain, A., & Switalski, J. (2013). Bundling post-acute care services into MS-DRG payments. Medicare & Medicaid Research Review 3, no. 3

[4] Eliason, Paul J., Paul L. E. Grieco, Ryan C. McDevitt, and James W. Roberts. 2018. "Strategic Patient Discharge: The Case of Long-Term Care Hospitals." American Economic Review, 108 (11): 3232-65. doi: 10.1257/aer.20170092.

[5] Einav, Liran, Amy Finkelstein, and Neale Mahoney. "Provider Incentives and Healthcare Costs: Evidence from Long-Term Care Hospitals." Econometrica: Journal Of The Econometric Society 86, no. 6 (2018): 2161-219.

[6] Liu K, Baseggio C, Wissoker D, Maxwell S, Haley J, Long S. Long-term care hospitals under Medicare: facility-level characteristics. Health Care Financ Rev. 2001;23(2):1–18.

[7] Kandilov A, Dalton K. Utilization and payment effects of Medicare referrals to long-term care hospitals: final report. 2011. Final report prepared by Kennell and Associates Inc. and RTI International for Centers for Medicare & Medicaid Services under contract HHSM-500- 2006-00008I

[8] National Quality Forum (NQF). (2010). Measurement framework: Evaluating efficiency across patient-focused episodes of care. In Patient-Focused Episodes of Care. Retrieved from

http://www.qualityforum.org/Publications/2010/01/Measurement_Framework__Evaluating_Efficiency_Across_Patient-Focused_Episodes_of_Care.aspx

S.8.3a. CLINICAL LOGIC ATTACHMENT or URL: If needed, attach supplemental documentation (Save file as: S_8_3a_Clinical_Logic). All fields of the submission form that are supplemented within the attachment must include a summary of important information included in the attachment and its intended purpose, including any references to page numbers, tables, text, etc.

URL:

Please supply the username and password:

Attachment: MSPB-PAC_LTCH_-_NQF_Testing_Attachment_-_Appendix_Tables_.xlsx

S.8.4. Measure Trigger and End mechanisms (Detail the measure's trigger and end mechanisms and provide rationale for this methodology)

Trigger Event: LTCH admission

Start Date: Date of the LTCH admission

End Date: 30 days after discharge from the LTCH stay

MSPB-PAC LTCH episodes include services that take place during the time period 30 days post-LTCH discharge in order to emphasize the importance of care transitions and care coordination in improving post-acute care and reducing unnecessary service use. As a result, services with claim start dates on or between the LTCH admission date and 30 days after LTCH discharge are attributed to the LTCH episode. This timeframe was selected to align with other measures and was felt to be long enough to capture

clinically relevant events, but not so long as to reduce the attributed facility's influence in future events.

The advantages of this measure trigger and end mechanism are twofold. First, this approach is simple and easily implementable since it includes all claims, except those described in section S.9.1, during the MSPB-PAC LTCH episode. Second, the MSPB-PAC LTCH approach incorporates costs due to consequences of care, such as complications, encouraging LTCH care coordination.

S.8.5. Clinical severity levels *(Detail the method used for assigning severity level and provide rationale for this methodology)*

Clinical Severity levels are embedded in the risk-adjustment model, as described in section S.12.

S.8.6. Comorbid and interactions *(Detail the treatment of co-morbidities and disease interactions and provide rationale for this methodology.)*

Co-morbidities and disease interactions are accounted for in the MSPB-PAC LTCH measure risk adjustment methodology, as discussed in sections S.8.2 and S.12. Conditions which most directly impact beneficiaries' health status at the time of the LTCH admission are captured in the risk-adjustment via the 90-day look-back period prior to the start of an episode. Because the relationship between comorbidities and episode cost may be non-linear in some cases (i.e., beneficiaries may have more than one disease during an LTCH episode), the model also takes into account a limited set of interactions between HCCs and/or enrollment status variables. Example variable interaction terms include Diabetes Mellitus/Congestive Heart Failure, Renal Failure/Congestive Heart Failure, and Disability/Opportunistic Infections. (For a complete list of these variable interaction terms and other risk adjustment variables, please refer to Appendix C of the Measure Specifications document provided in section S.1). The MSPB-PAC LTCH measure risk adjustment methodology includes only a limited set of interaction terms for two reasons. First, inclusion of too many interaction terms will over-fit the model. Second, the MSPB-PAC LTCH measure risk adjustment methodology broadly follows the established CMS-HCC risk adjustment methodology, which uses similar interaction terms.

Adjustments for Comparability

S.9.1. Inclusion and Exclusion Criteria *Detail initial inclusion/exclusion criteria and data preparation steps (related to clinical exclusions, claim-line or other data quality, data validation, e.g. truncation or removal of low or high dollar claim, exclusion of ESRD patients)*

:
Exclusion of clinically unrelated services. Certain services are excluded from the MSPB-PAC LTCH episodes because they are clinically unrelated to LTCH care and/or because LTCH providers may have limited influence over certain Medicare services delivered by other providers during the episode window. These limited service-level exclusions are not counted towards a given LTCH provider's Medicare spending to ensure that beneficiaries with certain conditions and complex care needs receive the necessary care. The list of excluded services was developed by obtaining consensus on the exclusion of each service from CMS clinicians, eight independently contracted clinicians (including two TEP members) with expertise in each of the PAC settings, and the measure developer's clinicians. Feedback from the TEP provided through the in-person meeting and follow-up email survey was also taken into consideration. Additional information on the process for developing the list of clinically unrelated services is available in Appendix D of the Measure Specifications document provided in section S.1. The specialties of the non-CMS clinicians with whom we consulted during the measure development process are provided in Appendix F of the Measure Specifications document provided in section S.1. Services that were determined by clinical consensus to be outside of the control of PAC providers include:

- Planned hospital admissions[1]
- Routine management of certain preexisting chronic conditions (e.g., dialysis for end-stage renal disease (ESRD), enzyme treatments for genetic conditions, treatment for preexisting cancers, and treatment for organ transplants)
- Some routine screening and health care maintenance (e.g., colonoscopy and mammograms)
- Immune modulating medications (e.g., immunosuppressants for organ transplant or rheumatoid arthritis)

Other Exclusions. Once clinically unrelated services are excluded at the claim line level, we exclude episodes based on several other characteristics, such as:

- 1) Any episode that is triggered by a PAC claim outside the 50 states, D.C., Puerto Rico, and U.S. Territories.

Rationale: This exclusion ensures that complete claims data are available for each provider.

- 2) Any episode where the claim(s) constituting the attributed PAC provider's treatment have a standard allowed amount of zero or where the standard allowed amount cannot be calculated.

Rationale: Episodes where the claim(s) constituting the attributed PAC provider's treatment are zero or have unknown allowed payment do not reflect the cost to Medicare. Including these episodes in the calculation of MSPB-PAC LTCH measure could potentially misrepresent a providers' resource use.

- 3) Any episode in which a patient is not enrolled in Medicare FFS for the entirety of a 90-day lookback period (i.e., a 90-day period prior to the episode trigger) plus episode window (including where a beneficiary dies) or is enrolled in Part C for any part of the lookback period plus episode window.

Rationale: Episodes meeting this criteria do not have complete claims information that is needed for risk-adjustment and the measure calculation as there may be other claims (e.g., for services provided under Medicare Advantage [Part C]) that we do not observe in the Medicare Part A and B claims data. Similarly, episodes in which the patient dies are, by definition, truncated episodes and do not have a complete episode window. Including these episodes in the MSPB-PAC LTCH measure could potentially misrepresent a provider's resource use. This exclusion also allows us to faithfully construct Hierarchical Condition Categories (HCCs) for each episode by scanning the lookback period prior to its start without missing claims.

- 4) Any episode in which a patient has a primary payer other than Medicare for any part of the 90-day lookback period plus episode window.

Rationale: When a patient has a primary payer other than Medicare, complete claims data may not be observable. These episodes are removed to ensure that the measures are accurately calculated using complete data.

- 5) Any episode where the claim(s) constituting the attributed PAC provider's treatment include at least one related condition code indicating that it is not a prospective payment system bill.

Rationale: Claims that are not a prospective payment system bill may not report sufficient information to allow for payment standardization.

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

Rationale: The episode with the most recent processing date is kept to ensure the accuracy of data elements.

Finally, as part of the measure construction process described in section S.7.2, episodes with residuals below the 1st or above the 99th percentile of the residual distribution are excluded, reducing the impact of high- and low-payment outliers.

Notes:

[1] The lists of clinically unrelated services built off the planned readmissions algorithm developed by the Yale New Haven Health Services Corporation/Center for Outcomes Research & Evaluation, as well as the expansions to the Yale algorithm by RTI. Clinicians reviewed the list of exclusions from that algorithm in the context of PAC treatment. During the review process, clinicians reviewed admissions observed in MSPB-PAC episodes and created exclusions that overlap with the Yale algorithm. Details on the Yale and RTI algorithms are available here: "Hospital-Wide All-Cause Unplanned Readmission Measure - Version 4.0," in 2015 Measure Updates and Specifications Report, ed. Yale New Haven Health Services Corporation/Center for Outcomes Research & Evaluation (2015). 10-11. Laura Smith, West, S., Coots, L., Ingber, M., "Skilled Nursing Facility Readmission Measure (SNFRM) NQF #2510: All-Cause Risk-Standardized Readmission Measure," (Centers for Medicare & Medicaid Services, 2015). 5-6

S.9.2. Risk Adjustment Type (Select type)

Statistical risk model

If other:

S.9.3. Stratification Details/Variables *(All information required to stratify the measure results including the stratification variables, definitions, specific data collection items/responses, code/value sets)*

The MSPB-PAC LTCH measure is stratified by standard and site neutral payment rate admissions. An MSPB-PAC LTCH Standard episode is triggered by a standard payment rate claim, while an MSPB-PAC LTCH Site Neutral episode is triggered by a site neutral payment rate claim. Risk adjustment is then performed separately for MSPB-PAC LTCH Standard and Site Neutral cases. Thus, LTCH Standard and Site Neutral episodes are compared only with LTCH Standard and Site Neutral episodes, respectively, to ensure that the measure is making fair comparisons between clinically similar beneficiaries.

S.9.4 Costing method

Detail the costing method including the source of cost information, steps to capture, apply or estimate cost information, and provide rationale for this methodology.

Standardized pricing

As discussed in section S.7.2, the MSPB-PAC LTCH measure removes sources of variation which are not directly related to decisions to utilize care, such as local or regional price differences, to capture differences in beneficiary resource use that an IRF can influence through appropriate practices and care coordination. The MSPB-PAC LTCH measure relies on a detailed price standardization methodology to exclude geographic payment rate differences; in other words, the MSPB-PAC LTCH measure adjusts observed payments for Medicare geographic adjustment factors.[1]

Notes:

[1] QualityNet, “CMS Price (Payment) Standardization – Detailed Methods” (Revised April 2019)
<https://www.qualitynet.org/inpatient/measures/payment-standardization>

S.10. Type of score*(Select the most relevant):*

Ratio

If other:

Attachment:

S.11. Interpretation of Score *(Classifies interpretation of a ratio score(s) according to whether higher or lower resource use amounts is associated with a higher score, a lower score, a score falling within a defined interval, or a passing score, etc.)*

An MSPB-PAC LTCH measure score of 1 indicates that an LTCH had an average MSPB-PAC Amount (i.e., risk-adjusted spending level) which is equal to the national episode-weighted median MSPB-PAC Amount across all LTCH facilities during a given performance period. An MSPB-PAC LTCH measure score of greater than 1 indicates that an LTCH had higher average risk-adjusted spending levels compared to those of the national median LTCH. For example, a measure score of 1.1 indicates that the LTCH had average risk-adjusted spending levels that are 10 percent higher than the median LTCH. On the other hand, an MSPB-PAC LTCH measure score of less than 1 indicates that an LTCH had lower average risk-adjusted spending levels compared to those of the median LTCH. For example, a measure score of 0.9 indicates that the LTCH had average risk-adjusted spending levels that are 10 percent lower than the median LTCH.

S.12. Detail Score Estimation *(Detail steps to estimate measure score.)*

The detailed steps to computing the measure score are described in section S.7.2. Risk-adjustment is applied in “Step 3: Calculate Predicted Episode Payments.” The purpose of risk adjustment is to compensate for patient health circumstances and demographic factors that affect resource use but are beyond the influence of the attributed provider. The MSPB-PAC LTCH measure risk adjustment model is adapted from the model used in the NQF-endorsed MSPB-Hospital measure, which itself is an adaptation of the standard CMS-HCC risk-adjustment model.[1,2] The MSPB-PAC LTCH model uses a linear regression framework and a 90-day HCC lookback period. The risk adjustment model is estimated on all MSPB-PAC LTCH episodes that meet the exclusion criteria.

The model is estimated separately for Standard and Site Neutral episodes (see section S.7.2 for description of episode types). LTCH episodes are only compared to episodes of the same type (i.e., Standard episodes are only compared to Standard episodes, and Site Neutral episodes to Site Neutral episodes). This ensures that comparisons are fair, meaningful, and reflective of payment policy differences within particular LTCH settings.

Each provider’s MSPB-PAC LTCH measure score is calculated as a provider’s average MSPB-PAC Amount divided by the median

MSPB-PAC Amount across all providers. A provider's MSPB-PAC LTCH Amount is defined as the sum of standardized, risk-adjusted spending across all of a provider's eligible episodes divided by the number of episodes for that provider. Below is a description of the risk adjustment variables.

Risk-Adjustment Variables

The following beneficiary health status indicators are included as covariates in each MSPB-PAC LTCH risk adjustment model and to the greatest extent possible are consistent across PAC settings (see Appendix C of the Measure Specifications document provided in section S.1 for a comprehensive list of independent variables used in the risk adjustment model):

- 70 HCCs
- 11 HCC interactions
- 11 brackets for age at the start of the episode
- Original entitlement to Medicare through disability
- ESRD status
- Long-term care institutionalization at start of episode.[3]
- Six clinical case-mix categories reflecting recent prior care (described further below).[4]
- Hospice utilization during the episode
- Prior acute ICU utilization day categories
- Prior acute length of stay categories
- Medicare Severity-Long-Term Care Diagnosis-Related Groups (MS-LTC-DRGs)

The clinical case-mix category variables used in the MSPB-PAC LTCH risk adjustment model are included to account for differences in intensity and type of care received by beneficiaries prior to the start of an MSPB-PAC LTCH episode. See section S.7.5 for more details on the methodology of assigning clinical case-mix categories to each episode.

Notes:

[1] QualityNet, "Measure Methodology Reports: Medicare Spending Per Beneficiary (MSPB) Measure," (2015).

<http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228772057350>

[2] CMS, "Medicare Risk Adjustment Information" (2016) <https://www.cms.gov/Medicare/Health-Plans/MedicareAdvtgSpecRateStats/Risk-Adjustors.html>

[3] Identifies beneficiaries who have been institutionalized for at least 90 days in a given year. The indicator is based on 90-day assessments from the Minimum Data Set (MDS) and is calculated based on CMS' definition of institutionalized individuals.

[4] There are 7 case-mix categories as described above, but one category is removed to prevent collinearity.

Reporting Guidelines

This section is optional and will be available for users of the measure as guidance for implementation and reporting.

S.13.1. Describe discriminating results approach

Detail methods for discriminating differences (reporting with descriptive statistics--e.g., distribution, confidence intervals).

MSPB-PAC LTCH measure scores are reported publicly for providers with 20 or more eligible episodes, along with the national average score. The distribution of MSPB-PAC LTCH measure scores (based on FY 2016-2017 data) that are statistically significantly different from the national average is as follows:

- Significantly lower than the national average: 17.5%
- Not statistically different from the national average: 60.0%
- Significantly higher than the national average: 22.5%

Inference about both measure performance of individual providers can be made based on the score value. The distribution of MSPB-PAC LTCH measure score values based on FY 2016-2017 data is as follows:

- Minimum: 0.76
- 10th Percentile: 0.90
- 25th Percentile: 0.95
- 75th Percentile: 1.04
- 90th Percentile: 1.09
- Maximum: 1.50

S.13.2. Detail attribution approach

Detail the attribution rules used for attributing resources/costs to providers (e.g., a proportion of total measure cost or frequency of visits during the measure's measurement period) and provide rationale for this methodology.

Each MSPB-PAC LTCH episode is attributed to the LTCH whose inpatient admission claim triggers the episode. Adjacent readmissions for the same patient and provider are treated as part of the same treatment period to reflect the likelihood that these closely adjacent stays are related. For gaps of 7 or fewer days, stays in the same setting with the same patient and provider are collapsed into one treatment period. Stays with a gap of 8 or more days trigger separate episodes.

The definition of MSPB-PAC LTCH episodes allows episodes to overlap with hospital and other MSPB-PAC episodes. MSPB-PAC LTCH episodes may begin within 30 days of discharge from an inpatient hospital discharge as part of a patient's trajectory from an acute to a PAC setting. An MSPB-PAC LTCH stay beginning within 30 days of discharge from an inpatient hospital will therefore be included once in the hospital's MSPB-Hospital measure and once in the PAC provider's MSPB-PAC measure. Aligning the MSPB-Hospital and MSPB-PAC measures in this way creates continuous accountability and aligns incentives to improve care planning and coordination across inpatient and PAC settings.

Additionally, an MSPB-PAC episode may begin during the associated services period of another MSPB-PAC episode in the 30 days post-discharge. One possible scenario occurs where, for example, an LTCH provider discharges a beneficiary who is then admitted to another LTCH within 30 days. The LTCH claim would be included once as an associated service for the attributed provider of the first MSPB-PAC LTCH episode and once as treatment services for the attributed provider of the second MSPB-PAC LTCH episode.

S.13.3. Identify and define peer group

Identify the peer group and detail how peer group is identified and provide rationale for this methodology.

The peer group for this measure includes all inpatient rehabilitation facilities in the United States that are Medicare-certified. Any Medicare-certified LTCH that submits a PAC claim during the measure performance period can be included in this measure. The rationale for identifying this peer group is that under the Improving Medicare Post-Acute Care Transformation Act (IMPACT) of 2014, LTCH facilities (and other PAC providers) are required to report data on quality, resource use, and other measures. The MSPB-PAC LTCH measure was created to fulfill the statutory requirement for LTCH facilities to submit measures of resource use for public reporting. As such, LTCH facilities reporting the MSPB-PAC LTCH measure can compare their performance relative to all other Medicare-certified LTCH facilities in the United States.

S.13.4. Sample size

Detail the sample size requirements for reporting measure results.

MSPB-PAC LTCH measure scores are publicly reported on LTCH Compare for LTCH facilities with 20 or more eligible episodes. Out of 429 LTCH facilities with FY 2016-2017 episodes, only 7 did not meet this minimum threshold.

S.13.5. Define benchmarking and comparative estimates

Detail steps to produce benchmarking and comparative estimates and provide rationale for this methodology.

The MSPB-PAC LTCH measure itself is not calculated using benchmarks but rather is a comparison between a given LTCH's MSPB-PAC LTCH Amount and national episode-weighted median MSPB-PAC LTCH Amount. The measure score is expressed as a ratio to that national amount, wherein a measure ratio of less than one indicates lower Medicare spending than the national median, a ratio of one indicates spending that is equivalent to the national median, and a ratio of greater than one indicates spending that is greater than the national median.

Validity – See attached Measure Testing Submission Form

SA.1. Attach measure testing form

MSPB-PAC_LTCH_-_NQF_Testing_Attachment_2020-04-28.docx

Feasibility

F.1. 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).

F.1.1. 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:

F.2. 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.

F.2.1. 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)

ALL data elements are in defined fields in a combination of electronic sources

F.2.1a. 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.

F.2.2. If this is an eMeasure, provide a summary of the feasibility assessment in an attached file or make available at a measure-specific URL.

Attachment:

F.3. 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.

F.3.1. Describe what you have learned/modified 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.

This measure uses Medicare Enrollment data and Medicare FFS claims from the home health, inpatient, outpatient, and physician office settings claims data, which are routinely collected for payment purposes. These data are electronically available from the Centers for Medicare & Medicaid Services (CMS) at no cost beyond that of data processing and can be used to specify, publicly report, and track the measure in a timely fashion. Since data are already collected as part of Medicare's payment process, 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, this measure uses data from the Minimum Data Set (MDS). The MDS is necessary to construct one of the risk adjustment variables, indicating beneficiaries who have been institutionalized for at least 90 days in a given year. The submission of MDS is part of the federally mandated process for clinical assessment of all residents in Medicare and Medicaid certified nursing homes and does not pose additional burden on providers.

F.3.2. 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, and algorithm)?

None

F.3.3. If there are any fees associated with the use of this measure as specified, attach the fee schedule here. (Save file as: F3_3_FeeSchedule)

Usability and Use

Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making.

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.

U.1.1. Current and Planned Use

Specific Plan for Use	Current Use (for current use provide URL)
Quality Improvement (Internal to the specific organization)	Public Reporting Long-Term Care Hospital Facilities Quality Reporting Program https://www.medicare.gov/longtermcarehospitalcompare/

U.1.2. For each CURRENT use, checked above, provide:

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

Name of program and sponsor:

This measure is publicly reported as part of the Center of Medicare & Medicaid Services' Long-Term Care Hospital Quality Reporting Program.

Purpose:

Section 1895(b)(3)(B)(v)(II) of the Social Security Act (SSA) requires the Secretary to establish quality reporting requirements for LTCHs. More information about the LTCH QRP can be found at <https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/LTCH-Quality-Reporting>. In addition to tracking quality of care, quality measure data are intended to help consumers make informed decisions when selecting healthcare providers. Most quality measure data, including MSPB-PAC LTCH scores, from the LTCH QRP are publicly reported on the LTCH Compare website at <https://www.medicare.gov/longtermcarehospitalcompare/>. LTCH quality measure data are also available for download for providers, researchers, and other public at <https://data.medicare.gov/data/long-term-care-hospital-compare>.

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

The LTCH QRP includes all LTCHs paid under the LTCH PPS. MSPB-PAC LTCH scores are publicly reported for active providers with 20 or more eligible episodes in the reporting period; thus, the number of providers included in the measures can vary by reporting period. The MSPB-PAC LTCH measure results presented in this submission are based on 429 LTCHs and 157,004 patient episodes; of these, 422 LTCHs had 20 or more eligible episodes.

U.1.3. 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?)

Not applicable – measure is publicly reported

U.1.4. 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.)

Not applicable – measure is publicly reported

U.2.1.1. 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.
Confidential feedback reports on the MSPB-PAC LTCH measure were provided to all active LTCH providers under the LTCH QRP

starting in Fall 2017. These on-demand, user requested, reports are available via the internet Quality Improvement and Evaluation System (iQIES) application. Public reporting of the MSPB-PAC LTCH measure began in Fall 2018. Providers have a 30-day preview period to check their provider preview reports and submit suppression requests if there is evidence of errors in their data. CMS maintains an active provider helpdesk to which providers can submit any questions about the measure, including questions about performance data and interpretation. Individual responses are provided to each question. In addition, CMS conducts open door forums during which stakeholders can ask general questions about the measure. Along with the publicly-reported data, CMS includes consumer-friendly language to help consumers interpret measure data. Finally, MSPB-PAC LTCH measure specifications were publicly posted along with the FY 2017 LTCH PPS final rule at https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/NursingHomeQualityInits/Downloads/2016_07_20_mspb_pac_ltch_irf_snf_measure_specs.pdf and <https://www.govinfo.gov/content/pkg/FR-2016-08-22/pdf/2016-18476.pdf>, respectively. The measure specifications are detailed and precise, allowing stakeholders to replicate measure calculations if they would like.

U.2.1.2. Describe the process(es) involved, including when/how often results were provided, what data were provided, what educational/explanatory efforts were made, etc.

See U.2.1.1.

Confidential feedback reports include the following data, for the provider and for the national average: reporting period, number of eligible episodes, spending during treatment period, spending during associated services period, total spending during episode, average risk-adjusted spending, national median risk-adjusted spending, and the MSPB-PAC LTCH score.

Publicly available data and provider preview reports include the following: reporting period, number of eligible episodes, provider MSPB-PAC LTCH score, and the national average MSPB-PAC LTCH score.

U.2.2.1. Summarize the feedback on measure performance and implementation from the measured entities and others described in 4d.1. Describe how feedback was obtained.

In addition to the processes described above, we solicited public comments on the MSPB-PAC LTCH measure via a 24-day public comment period during January – February 2016. We posted the call for public comment on a CMS website and reached out via CMS listserv and notified TEP members. We received 45 comments during this period.

We also sought feedback on the measure through the pre-rulemaking process. We received four public comments after the release of the Measures Under Consideration (MUC) List on December 1, 2015. The MAP PAC/LTC Workgroup met on December 14-15 to consider this measure, and provided the preliminary decision of “encourage continued development” for the MSPB-PAC LTCH measure. Following the release of the MAP PAC Workgroup’s preliminary recommendation, the report was open for a public comment period. Eight public comments on this measure were received in this time. The MAP Coordinating Committee considered these comments alongside the Workgroup recommendation and finalized the recommendation of “encourage continued development,” releasing their final recommendations in February 2016. Members of the public could comment during both MAP meetings.

The measure was subject to public comment during the FY 2017 LTCH QRP rulemaking process. Stakeholders could comment on the specifications that were posted with the rule.

U.2.2.2. Summarize the feedback obtained from those being measured.

Comments were received from a range of stakeholders, including providers and provider associations, at each of these public comment opportunities. The comments covered a range of topics, including episode construction, exclusions, score calculation, risk adjustment, and reporting. Several commenters expressed support for the approach taken on these topics. Several commenters commented on issues such as: usefulness of setting-specific MSPB-PAC measures, usefulness of a resource use measure as a measure of quality, the adequacy of the risk adjustment model, and the process of sharing measure scores with providers. All comments were addressed, either by revising the measure or by providing the rationale why revisions are not necessary or appropriate.

The public comment summary report can be found at https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Post-Acute-Care-Quality-Initiatives/Downloads/2016_03_24_mspb_pac_public_comment_summary_report.pdf.

The supplementary materials for public comment summary report can be found at <https://www.cms.gov/Medicare/Quality->

[Initiatives-Patient-Assessment-Instruments/Post-Acute-Care-Quality-Initiatives/Downloads/2016_03_24_mspb_pac_public_comment_summary_report_supplementary_materials.pdf](#)

The MAP recommendations and summaries of public comments can be found at <http://www.qualityforum.org/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=81593>

The FY 2017 LTCH PPS final rule with public comments and responses can be found at <https://www.govinfo.gov/content/pkg/FR-2016-08-22/pdf/2016-18476.pdf>.

U.2.2.3. Summarize the feedback obtained from other users.

Comments were received from a range of stakeholders, including researchers, government agencies, information system vendors, advocacy groups, and individuals at each of these public comment opportunities.

See U.2.2.2 for details and links to public comment summaries.

U.2.3. Describe how the feedback described in 4a2.2 has been considered when developing or revising the measure specifications or implementation, including whether the measure was modified and why or why not

CMS and Acumen, LLC., reviewed and considered all public comments during development and implementation, before finalizing the measure in the FY 2017 LTCH PPS final rule. Details of these considerations were provided in the public comment summary report (see link in U.2.2.2). For example, in response to public comments about the inclusion of hospice services, we added a risk adjustor for when a hospice claim begins within the beneficiary's episode window. This ensures that the LTCH continues to have incentives for the efficient delivery of services, but also accounts for the higher cost of episodes with hospice. We also considered public comments about risk adjusting for prior hospital stays and added risk adjustors for length of prior inpatient and ICU stays.

Additionally, in response to public comments requesting more detail about the clinically unrelated excluded services, we provided detailed descriptions of the systematic process we used during development to identify clinically unrelated services.[1] This systematic process included organizing all claims into meaningful service categories, populating all services representing significant costs into a web tool used by clinicians with expertise in PAC care to determine service exclusions, and having multiple rounds of reviews to refine the list of exclusions.

We also considered other feedback that we did not implement. For example, commenters suggested to risk adjust for prolonged ventilator use, a predictor of resource use in LTCHs. However, our model currently includes adjustments for MS-LTC-DRGs that capture ventilator use, making additional adjustments unnecessary. As such, we did not risk adjust for prolonged ventilator use. Additionally, it was suggested to risk adjust for multiple organ failures, also a predictor of resource use. Our testing showed that this condition resulted in a small and not statistically significant impact on predicted spending in LTCHs and inconsistent impacts across other PAC settings. Moreover, our risk adjustment model includes HCCs that capture the most frequent sources of multiple organ failure. For these reasons, we did not implement additional controls for multiple organ failures in our risk adjustment models.

[1] The process for determining clinically unrelated services is described in Appendix D of the Measure Specifications, available at https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/NursingHomeQualityInits/Downloads/2016_07_20_mspb_pac_ltch_irf_snf_measure_specs.pdf. The complete list of excluded services is available at https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/LTCH-Quality-Reporting/Downloads/Copy-of-2016_04_06_mspb_pac_ltch_service_exclusions.xlsx.

U.3.1. Progress on Improvement. (Not required for initial endorsement unless available.) Performance results on this measure (current and over time) should be provided in IM.1.2 and IM.1.4.

Discuss:

- Purpose Progress (trends in performance results)
- Geographic area and number and percentage of accountable entities and patients included

Not applicable

U.3.2. 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.

Not applicable

U.4.1. Please explain any unexpected findings (positive or negative) during implementation of this measure including unintended impacts on patients.

No unexpected findings have been noted during implementation of this measure. Monitoring of patient characteristics and provider scores over time did not indicate unintended impacts on patients, to date. We are aware of the need to continuously monitor for unintended impacts on patients, such as cost-cutting at the expense of quality of care or avoiding complex patients. Our monitoring plans include monitoring trends in process and patient outcome measures, as well as trends in patient case-mix.

U.4.2. Please explain any unexpected benefits from implementation of this measure.

Not applicable

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.

H.1. Relation to Other NQF-endorsed Measures

If there are 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.

H.1.1. List of related or competing measures (selected from NQF-endorsed measures)

2158 : Medicare Spending Per Beneficiary (MSPB) Hospital

H.1.2. If related or competing measures are not NQF endorsed please indicate measure title and steward.

H.2. Harmonization

H.2.1. If this measure conceptually addresses EITHER the same measure focus OR the same target population as NQF-endorsed measure(s):

Are the measure specifications completely harmonized?

Yes

H.2.2. If the measure specifications are not completely harmonized, identify the differences, rationale, and impact on interpretability and data collection burden.

H.3. Competing Measure(s)

H.3.1. 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 currently no measures that address both the same measure focus AND the same target population.

MSPB-PAC measures are harmonized across PAC settings as well as with MSPB-Hospital. MSPB-PAC measures were developed in parallel for all PAC settings to meet the mandate of the IMPACT Act. To align with the goals of standardized assessment across PAC settings, these measures were conceptualized uniformly across the four settings in terms of the construction logic, the approach to risk adjustment, and measure calculation. The measures mirror the general construction of MSPB-Hospital. Aligning the MSPB-Hospital and MSPB-PAC measures in this way creates continuous accountability and aligns incentives to improve care planning and coordination across inpatient and PAC settings.

Contact Information
<p>Co.1 Measure Steward (Intellectual Property Owner): Centers for Medicare and Medicaid Services</p> <p>Co.2 Point of Contact: Ronique, Evans, ronique.evans1@cms.hhs.gov, 410-786-3966-</p> <p>Co.3 Measure Developer if different from Measure Steward: Acumen, LLC</p> <p>Co.4 Point of Contact: Mikhail, Pyatigorsky, mspb-pac-measures-support@acumenllc.com, 650-558-8882-</p>
Additional Information
<p>Ad.1 Workgroup/Expert Panel involved in measure development</p> <p>List the workgroup/panel members' names and organizations. Describe the members' role in measure development.</p> <p>A technical expert panel (TEP) was convened in Fall 2015. The TEP consisted of clinicians, researchers, and health care administrators with relevant expertise in PAC settings. TEP members provided input on measure conceptualization, definitions, specifications, exclusion criteria, unintended consequences, and other considerations related to development and implementation. The TEP summary report can be found at https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Post-Acute-Care-Quality-Initiatives/Downloads/Technical-Expert-Panel-on-Medicare-Spending-Per-Beneficiary_Jan-2016.pdf.</p> <p>TEP members' names and organizations:</p> <ol style="list-style-type: none"> 1. Alma Allen; Inova VNA Home Health, Visiting Nurse Associations of America 2. Brian Bell; Spartanburg Regional Healthcare System 3. Dexanne Clohan; Foundation for Physical Medicine and Rehabilitation Evidence-Based Practice Committee of the American Academy of Physical Medicine and Rehabilitation 4. Jean de Leon; University of Texas Southwestern Medical Center 5. Scott Guevin; Penn State Hershey Rehabilitation Hospital, AMRPA 6. Kurt Hope; Mayo Clinic, Academy of Physical Medicine and Rehabilitation 7. Steven Lichtman; Helen Hayes Hospital 8. Craig Miller; Michigan Health & Rehabilitation Services, American Physical Therapy Association 9. Mary Ousley; American Health Care Association 10. Mary Shaughnessy; Partners Continuing Care, Spaulding Rehabilitation Network and Partners Health Care at Home 11. Christopher Vaz; American Hospital Association 12. Joanne Wisely; Genesis Rehab Services, AHCA, NASL
<p>Measure Developer/Steward Updates and Ongoing Maintenance</p> <p>Ad.2 Year the measure was first released: 2018</p> <p>Ad.3 Month and Year of most recent revision: 09, 2019</p> <p>Ad.4 What is your frequency for review/update of this measure? Yearly</p> <p>Ad.5 When is the next scheduled review/update for this measure? 09, 2020</p>
<p>Ad.6 Copyright statement:</p> <p>Ad.7 Disclaimers:</p>
Ad.8 Additional Information/Comments: