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# Draft Specifications for the Medicare Spending Per Beneficiary – Post-Acute Care (MSPB-PAC) Resource Use Measures, Provided for Public Comment

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# 1 INTRODUCTION

The *Improving Post-Acute Care Transformation Act of 2014* (IMPACT Act) authorizes the Secretary to develop "resource use measures, including total estimated Medicare spending per beneficiary" and to require the reporting of standardized assessment data in post-acute care (PAC) settings: skilled nursing facilities (SNFs), home health agencies (HHAs), long-term care hospitals (LTCHs), and inpatient rehabilitation facilities (IRFs). The Medicare Spending Per Beneficiary – Post-Acute Care (MSPB-PAC) measures must be implemented according to the following statutorily mandated timelines: October 1, 2016 for SNF, LTCH, and IRF Quality Reporting Programs (QRPs), and January 1, 2017 for the HHA QRP.

The purpose of the MSPB-PAC measures is to support public reporting of resource use in all four PAC provider settings as well as to provide actionable, transparent information to support PAC providers' efforts to promote care coordination and improve the efficiency of care provided to their patients. Between 2001 and 2013, Medicare PAC spending grew at an annual rate of 6.1 percent and doubled to $59.4 billion, while payments to inpatient hospitals grew at an annual rate of 1.7 percent over this same period.[1] A study commissioned by the Institute of Medicine finds that variation in PAC spending explains 73 percent of variation in total Medicare spending.[2] Given this large variation, as well as the fact that there are currently no resource use measures in effect that target Medicare PAC providers, MSPB-PAC measures have the potential to provide valuable information on their relative efficiency. Importantly, the measures can facilitate such comparisons while taking into account each providers' patient case mix through the use of risk adjustment. Furthermore, implementation of the MSPB-PAC measures will encourage improved efficiency and coordination of care in PAC settings by holding providers accountable for the Medicare resource use during an "episode of care" (episode). This episode includes the period a patient is directly under a PAC provider's care, as well as a defined period after the end of that PAC provider's treatment which may be reflective of and influenced by the services rendered by the PAC facility. Evaluating resource use during an episode creates a continuum of accountability between Medicare providers and has the potential to improve post-treatment care planning and coordination. Given this design of the MSPB-PAC measures, post-treatment costs may serve as an indicator of the quality of care provided during PAC care, in that higher quality PAC treatment may yield lower post-treatment costs. However, CMS recognizes that resource use measures like the MSPB-PAC measures do not take into account patient outcomes or experience beyond those which are observable in claims data, and must be used in

[1] MedPAC, "A Data Book: Health Care Spending and the Medicare Program," (2015). 114
[2] Institute of Medicine, "Variation in Health Care Spending: Target Decision Making, Not Geography," (Washington, DC: National Academies 2013). 2

concert with other quality measures. Lastly, MSPB-PAC measures will affect a large number of Medicare beneficiaries receiving PAC services. In 2013, 1.7 million Medicare beneficiaries received SNF services, 3.5 million beneficiaries received HHA services, 122,000 beneficiaries received LTCH services, and 338,000 beneficiaries received IRF services.[3]

A National Quality Forum (NQF)-endorsed "total estimated Medicare spending per beneficiary" measure is currently in use for inpatient prospective payment system (IPPS) hospitals in the Hospital Value-Based Purchasing Program (Hospital VBP) (NQF #2158). The hospital MSPB measure was originally established by the *Affordable Care Act of 2010* and evaluates hospitals' efficiency relative to the efficiency of the national median hospital during a hospital MSPB episode. Specifically, the hospital MSPB measure assesses the cost to Medicare for Part A and Part B services performed by hospitals and other healthcare providers during an MSPB episode, which is comprised of the periods immediately prior to, during, and following a patient's hospital stay.[4] In the MSPB-PAC measures and all supporting documentation, the terms "cost", "spending", and "resource use" are used interchangeably to denote Medicare fee-for-service (FFS) paid claims.[5]

The IMPACT Act requires development of total estimated Medicare spending per beneficiary measures for post-acute care providers, and stipulates that these measures should align with the hospital MSPB measure in certain ways.[6] The Centers for Medicare & Medicaid Services (CMS) has contracted with Acumen, LLC ("Acumen") to develop the MSPB-PAC measures under the *Calculating Episode-Based Costs from the Medicare Episode Grouper for Physician Feedback* contract (HHSM-500-2011-000121, Task Order HHSM-500-T0008). Similar to the hospital MSPB measure, the MSPB-PAC measures evaluate a given PAC providers' efficiency relative to the efficiency of the national median PAC provider during an MSPB-PAC episode. Each MSPB-PAC measure only compares providers within a given PAC setting; different types of PAC providers are not compared to one another. For example, the MSPB-PAC measure for SNFs evaluates SNFs' efficiency relative to the efficiency of the national median SNF during MSPB-SNF episodes. These setting-specific measures account for distinctions that exist between different PAC settings in terms of patient populations, payment policy, and the types of data that are available for risk adjustment in each setting. Setting-specific measures allow for more meaningful comparisons to be made between providers than if one single measure were calculated across all providers in all PAC settings.

[3] MedPAC, "Medicare Payment Policy," Report to the Congress (2015). xvii-xviii
[4] QualityNet, "Measure Methodology Reports: Medicare Spending Per Beneficiary (MSPB) Measure," (2015).
[5] Specifically, paid claims include all payments made by Medicare and beneficiaries. This is defined as allowed amounts, which include both Medicare trust fund payments and beneficiary deductibles and coinsurance.
[6] *IMPACT Act of 2014* at section 2(d)(2)(C)

Input from a variety of stakeholders has been taken into consideration throughout the MSPB-PAC measure development process. A Technical Expert Panel (TEP) was convened on October 29 and 30, 2015 in Baltimore, Maryland consisting of 12 panelists with combined expertise in all of the PAC settings. A report summarizing the feedback received during the TEP meeting is publically available.[7] Subsequently, the MSPB-PAC measures were presented at the NQF's Measures Application Partnership (MAP) as part of the December 2015 list of Measures Under Consideration (MUC) in Washington, D.C. In preparation for this meeting, NQF sponsored a public comment period during which stakeholders submitted comments in response to information available about the MSPB-PAC measures in the MUC list. At the December 15, 2015 meeting, the MAP members voted to encourage continued development of the MSPB-PAC measures.

The purpose of this document is to provide draft measure specifications to a broad range of stakeholders for further review and comment. The remainder of the document is structured into three sections. Section 2 provides basic descriptive information on the MSPB-PAC measures. Section 3 details the draft measure specifications, organized into two subsections. Section 3.1 discusses the methodology used to construct MSPB-PAC episodes for each of the four PAC settings. Section 3.2 outlines how the MSPB-PAC measures are calculated using the episodes, in terms of the episodes that are excluded, the risk adjustment approach that is used, and the measure numerator and denominator that yield the MSPB-PAC measure.

[7] CMS, "Technical Expert Panel Summary: Medicare Spending Per Beneficiary – Post Acute Care Measures" (2016)

# 2 MEASURE INFORMATION

This section provides basic descriptive information on the four MSPB-PAC measures. A more detailed explanation of the measure specifications, including definitions of key terms, is available in Section 3, below.

## 2.1 Measure Names

(1) Medicare Spending Per Beneficiary – Post-Acute Care (PAC) Skilled Nursing Facility Measure

(2) Medicare Spending Per Beneficiary – Post-Acute Care (PAC) Home Health Measure

(3) Medicare Spending Per Beneficiary – Post-Acute Care (PAC) Long-Term Care Hospital Measure

(4) Medicare Spending Per Beneficiary – Post-Acute Care (PAC) Inpatient Rehabilitation Facility Measure

## 2.2 Measure Type

Cost/Resource Use

## 2.3 Care Settings

SNFs, HHAs, LTCHs, and IRFs

## 2.4 Data Sources

Medicare FFS claims for Parts A and B, Medicare eligibility files

## 2.5 Brief Description of Measures

The MSPB-PAC measures evaluate PAC providers' efficiency relative to the efficiency of the national median PAC provider of the same type. There is a separate MSPB-PAC measure for SNF, HHA, LTCH, and IRF providers; within each measure, a given PAC provider is only compared to other providers in the same setting. Specifically, the measures assess the cost to Medicare for services performed by the PAC provider and other healthcare providers during an MSPB-PAC episode.

The measure is calculated as the ratio of the price-standardized, risk-adjusted MSPB-PAC Amount for each PAC provider divided by the episode-weighted median MSPB-PAC Amount across all PAC providers of the same type.

Mathematically, the MSPB-PAC measure for an individual PAC provider j is:

$$\frac{MSPB\ PAC\ Amount_j}{National\ Median\ MSPB\ PAC\ Amount}$$

An MSPB-PAC measure of less than 1 indicates that a given PAC provider's resource use is less than that of the national median provider in that setting during a performance period. This is done by comparing the MSPB PAC Amount of the given provider (numerator) to the national median MSPB PAC Amount (denominator) as defined below.

### *2.5.1 Numerator*

The numerator for a PAC provider's MSPB-PAC Amount is the average risk-adjusted episode cost across all episodes for the attributed provider, multiplied by the national average episode spending level for all PAC providers in the same setting.

The MSPB-PAC Amount for each PAC provider depends on two factors:

(1) the average of the ratio of the standardized episode spending level to the expected episode spending for each PAC provider; and

(2) the average standardized episode spending across all PAC providers of the same type.

To calculate the MSPB-PAC Amount for each PAC provider, one calculates the average of the ratio of the standardized episode spending over the expected episode spending, and then multiplies this quantity by the average episode spending level across all PAC providers of the same type.

### *2.5.2 Denominator*

The denominator for a PAC provider's MSPB-PAC measure is the episode-weighted national median of the MSPB-PAC Amounts across all PAC providers in the same setting.

### *2.5.3 Episode Definition*

An MSPB-PAC episode includes all Medicare Part A and Part B services with a start date falling in the episode window, except for a defined set of services that are excluded for being clinically unrelated to PAC treatment. The episode window is opened by a trigger event. For SNF, LTCH, and IRF episodes, this is the day of admission to the respective facility, and for HHA episodes this is the first day of a home health claim. This trigger event marks the first day of the PAC treatment period. The treatment period is the time during which the patient receives care services from the provider for whom the measure is being calculated (the "attributed PAC provider"), and includes claims for the PAC provider as well as all Physician/Supplier (PB) and durable medical equipment, prosthetics, orthotics, and supplies (DMEPOS) claims, excepting services that are determined to be clinically unrelated to PAC treatment (see Section 3.1.5, below, for a description of clinically unrelated services). The treatment period ends at discharge for SNF, LTCH, IRF, and Partial Episode Payment (PEP) HHA episodes, and after 60 days for standard and Low Utilization Payment Adjustment (LUPA) HHA episodes. The associated services period is the time during which any Medicare Part A or Part B services other than those in the treatment period are counted towards the episode cost, subject to a list of service-level

exclusions for services that are clinically unrelated to PAC treatment (see Section 3.1, below, for a detailed explanation on the distinction between treatment and associated services periods). The associated services period starts at the episode trigger for all MSPB-PAC episodes, except LTCH site neutral payment rate cases. For these episodes, the associated services period starts at the time of discharge to align with the episode definition used in the hospital MSPB measure. In all settings, the associated services period ends 30 days after the last day of the episode's treatment period.

# 3 DRAFT MSPB-PAC MEASURE SPECIFICATIONS

The MSPB-PAC measures assess a PAC provider's resource use during an episode. This section presents the draft measure specifications for the MSPB-PAC measures. Section 3.1 details the steps involved in constructing MSPB-PAC episodes. Section 3.2 discusses the steps involved in calculating the MSPB-PAC measures using the episodes constructed in Section 3.1.

## 3.1 Episode Construction

MSPB-PAC episodes include all Medicare Part A and Part B claims with a start date during the episode window, subject to exclusions for particular services that are clinically unrelated to PAC treatment. While there are many common features in the specifications for MSPB-PAC episodes across all PAC settings, there are separate episode definitions for each setting to accommodate differences between payment systems. Within the LTCH and HHA settings, the episode definitions are further refined to reflect provisions within the respective payment systems. Specifically, certain methodological distinctions are made between episodes triggered by standard and site neutral stays in the LTCH setting and episodes triggered by standard, LUPA, and PEP claims in the HHA setting. In the LTCH setting, site neutral payment rate cases are reimbursed at a rate based on the hospital IPPS amount while standard payment rate cases are paid according to the existing LTCH rate: this distinction is discussed in detail below in Section 3.1.2. In the HHA setting, a LUPA adjustment applies when there are fewer than four visits in a claim, and a PEP adjustment applies to shortened episodes due to beneficiary discharge and readmission. These claims are described in detail below in Section 3.1.1.

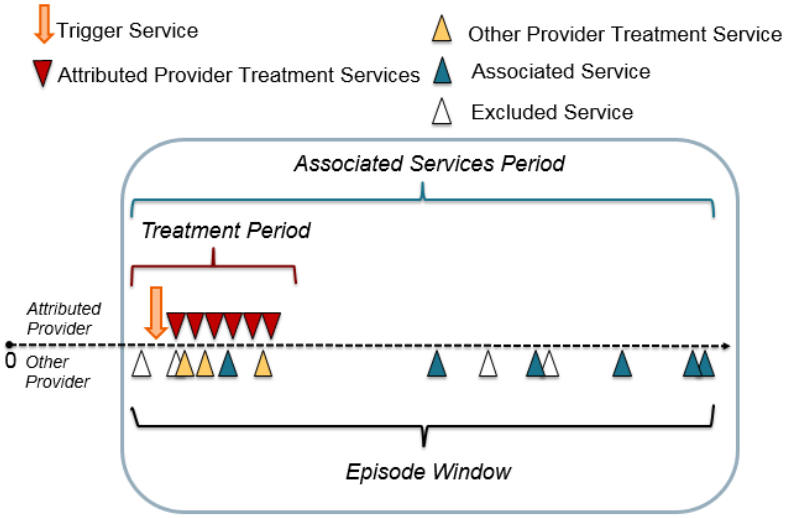
Constructing an MSPB-PAC episode involves the following steps: defining the episode trigger, episode window, treatment period, and associated services period; and excluding certain services from the episode that are clinically unrelated to PAC treatment. Each episode is opened by an *episode trigger*. The trigger for SNF, LTCH, and IRF episodes is the day of admission to the respective facility, excepting readmissions occurring within 7 days to the same facility (see Section 3.1.1, below, for an explanation of how these readmissions are handled). The trigger for HHA episodes is the first day of the home health claim. The PAC provider that triggers the episode is the provider to whom the episode is attributed for the purpose of calculating the MSPB-PAC measure.

Next, the treatment and associated services periods must be defined. The *treatment period* of an MSPB-PAC episode begins on the day of the trigger, and includes those services that are provided directly or reasonably managed by the attributed PAC provider (*treatment services*). The treatment period ends at discharge for SNF, LTCH, and IRF, at the end of the PEP claim for HHA - PEP episodes, and after 60 days for standard HHA and HHA - LUPA

episodes. The *associated services period* is the time during which all non-treatment services are counted towards the episode (*associated services*).

The associated services period starts at the trigger event for SNF, IRF, HHA, and LTCH - standard episodes, and ends 30 days after the end of the treatment period. For LTCH - site neutral episodes, the associated services period starts at the end of the treatment period to align with the hospital MSPB measure. Together, the treatment and associated services periods constitute the length of the *episode window*. Each component of an MSPB-PAC episode is depicted in the context of a timeline for a given patient's health care services in Figure 1, below.

**Figure 1. MSPB-PAC Episode Window**




Services occurring in both the treatment period and associated service periods are subject to a defined set of exclusions for services that are clinically unrelated to PAC treatment. The distinction between the treatment period and the associated services period is important because clinical exclusions of services in the treatment period may differ from clinical exclusions of services in the associated services period.

The definition of PAC episodes allows episodes to overlap with hospital and other PAC episodes. Allowing for this overlap ensures that there is alignment of incentives between settings to ensure integrated, efficient care for any given beneficiary. As a beneficiary moves from one provider to the next in his/her care trajectory, every PAC and hospital provider that the beneficiary encounters will have incentives to deliver cost efficient care.

Importantly, services are averaged and not summed across episodes. As such, services are never double counted within a single MSPB-PAC episode. Episode overlap could be an issue if one were intending to simply sum Medicare spending for a beneficiary. However, as with the hospital MSPB measure, the MSPB-PAC calculation is not intended to be a simple summation of Medicare spending across episodes. Rather, the construction of the numerator and

denominator is such that the ratio of observed and predicted episode spending are averaged across all of a given provider's episodes, in order to provide a dollar-denominated measure of cost efficiency. In order to address the concern that certain services appearing in the post-treatment period of one provider's episode and the treatment period of a second provider's episode may not be the responsibility of the second provider and therefore should not count against the second provider's cost efficiency, the MSPB-PAC measure includes clinical exclusions of certain services (such as a planned hospital admissions).

Each of the steps involved in constructing MSPB-PAC episodes are described in turn, below. A brief overview of the specifications for each PAC setting's MSPB-PAC episodes is provided in Appendix A.

### *3.1.1 Step 1: Opening (Triggering) Episodes*

Opening, or triggering, an episode involves the initiation of an episode based on the triggering rule being satisfied in the claims data. For institutional PAC settings (SNF, LTCH, and IRF) the episode trigger is the patient's day of admission to the facility, and for HHA episodes it is the first day of a home health claim. The PAC provider that triggers the episode is attributed that episode, meaning that the episode is counted toward that provider's MSPB-PAC measure.

**Table 1. MSPB-PAC Episode Triggers**

| Setting | Episode Trigger | Specific Conditions |
|---|---|---|
| SNF | • Day of admission to SNF | • Readmissions of the same patient to the same provider within 7 or fewer days after discharge do not trigger a new episode; readmissions after 8 or more days trigger a new episode. |
| HHA | • First day of HHA claim | N/A |
| LTCH | • Day of admission to LTCH | • Readmissions of the same patient to the same provider within 7 or fewer days after discharge do not trigger a new episode; readmissions after 8 or more days trigger a new episode. |
| IRF | • Day of admission to IRF | • Readmissions of the same patient to the same provider within 7 or fewer days after discharge do not trigger a new episode; readmissions after 8 or more days trigger a new episode. |

The SNF, LTCH, and IRF settings treat closely proximate readmissions for the same patient and provider 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. See Appendix D.1 for the methodological rationale for collapsing closely proximate stays.

There are several additional rules related to episode triggers that are specific to HHA episodes. These rules are designed to reflect the structure and key features of the home health payment system. First, each HHA claim triggers its own episode; adjacent HHA claims are not collapsed into one episode given the existence of many long sequences of consecutive HHA claims lasting over 180 days. Patient characteristics and treatment regimens can change significantly during this time. Allowing each HHA claim to trigger a new episode promotes the accuracy of predicted episode payments by using the most recent patient information for each claim in the risk adjustment model.

Second, LUPA and PEP claims are both able to trigger an episode. A LUPA claim occurs when a HHA provides four or fewer visits in a home health episode. A PEP is a pro-rated adjustment for shortened episodes as a result of patient discharge and readmission to the same provider within the same 60-day episode, or patient transfer to another HHA provider with no common ownership within the same 60-day episode. If a patient is discharged to a hospital, SNF, or IRF, and readmitted to the same HHA within the 60-day episode, a PEP adjustment does not apply. In calculating expected costs as part of the total MSPB-PAC measure calculation, episodes triggered by LUPA or PEP claims are only compared to HHA episodes of the same type (i.e., LUPA episodes will only be compared to LUPA episodes, and PEP episodes to PEP episodes). See Appendix D.2 for the methodological rationale for PEP and LUPA episodes triggering HHA episodes.

### *3.1.2 Step 2: Defining the Episode Window*

The episode window is the time period during which Medicare Part A and Part B services are counted toward the MSPB-PAC episode. The episode window is comprised of a treatment period and an associated services period. The *treatment period* of an MSPB-PAC episode begins on the day of the trigger, and includes those services that are provided directly or reasonably managed by the attributed PAC provider. The *associated services period* is the time during which all non-treatment services are counted towards the episode. The definition of the treatment and associated services periods are detailed below for each PAC setting's MSPB-PAC episode in Table 2.

**Table 2. MSPB-PAC Episode Windows**

| Setting and Payment Methodology | Treatment Period | Associated Services Period |
|---|---|---|
| SNF | • Begins at trigger (i.e., admission)<br>• Ends at discharge | • Begins at trigger<br>• Ends 30 days after the end of the treatment period (i.e., discharge) |
| HHA - Standard and HHA- LUPA | • Begins at trigger<br>• Ends 60 days after trigger | • Begins at trigger<br>• Ends 30 days after the end of the treatment period |
| HHA - PEP | • Begins at trigger<br>• Ends at discharge | • Begins at trigger<br>• Ends 30 days after the end of the treatment period |
| LTCH - Standard | • Begins at trigger<br>• Ends at discharge | • Begins at trigger<br>• Ends 30 days after the end of the treatment period |
| LTCH - Site Neutral | • Begins at trigger<br>• Ends at discharge | • Begins at end of treatment period<br>• Ends 30 days after the end of the treatment period |
| IRF | • Begins at trigger<br>• Ends at discharge | • Begins at trigger<br>• Ends 30 days after the end of the treatment period |

As illustrated in Table 2, above, the duration of the associated services period for LTCHs depends on whether it is a standard or site neutral episode. The LTCH prospective payment system (PPS) is a dual payment rate system as of October 1, 2015. Standard payment rate cases are defined in the LTCH PPS as respiratory and post-intensive care unit (ICU) patients directly admitted from an inpatient hospital and are eligible to be reimbursed at the standard LTCH payment rate: these cases are LTCH - standard episodes. All cases not meeting the criteria for standard payment rate cases are site neutral payment rate cases, reimbursed at a rate based on the hospital IPPS amount for the equivalent MS-DRG, and are LTCH - site neutral episodes. To reflect this policy intent of the dual-payment rate LTCH PPS to reimburse lower acuity cases that could be treated in less intensive settings at a rate comparable to the IPPS, site neutral episodes will be based on the hospital MSPB measure definition in the following way: for both the inpatient hospital episode and the LTCH-site neutral episode, the associated services period begins at the end of the treatment period (i.e., upon discharge) and ends after a 30-day period.

Further, the construction of the episode window also differs for standard, LUPA, and PEP HHA episodes. The treatment period for episodes triggered by standard HHA and LUPA HHA claims is 60 days from the day of the episode trigger. For standard HHA claims, the PPS for

HHAs is based on a 60-day unit of payment. The HHA may decide to discharge the patient from their care before the end of the 60 day period, but will still receive the full 60-day payment as long as there is not another HHA claim for the patient initiated within the same period (in which case the claim would be prorated as a PEP). HHA - LUPA claims are paid on a per-visit basis, when there are four or fewer visits during a 60-day period. The HHA determines how to allocate those visits over the course of that period. The treatment period for episodes triggered by PEP claims is the length of the HHA claim, given that the claim has resulted in a transfer. This ensures that HHA transfers are treated in an analogous way to transfers for SNF, LTCH, and IRF episodes.

### *3.1.3 Step 3: Defining Treatment Services*

The treatment period is comprised of services furnished by the attributed PAC provider and other providers under the patient's care plan. Treatment services are either provided directly or reasonably managed by the attributed PAC provider. Treatment services can broadly be described as services that are:

- directly rendered by the PAC provider;
- necessary to maintain a patient's health status or assist in recovery (e.g., evaluation and management, screening);
- attributable to PAC referrals (e.g., further diagnostic testing); or
- potential substitutions for PAC care.

All of the following services during the treatment period are counted toward the episode: (1) the attributed PAC provider's claims, (2) PB claims, and (3) DMEPOS claims during the treatment period. Treatment services in categories (2) and (3) are subject to certain clinically determined exclusions, as described in Section 3.1.5, below. Furthermore, treatment services occurring on the first day of MSPB-PAC episodes are subject to exclusions related to prior institutional care including ambulance transport to the attributed PAC provider facility and DMEPOS orders preceding the patient's admission to the PAC provider. For a detailed description of these rules pertaining to first day services, see Appendix B.

### *3.1.4 Step 4: Defining Associated Services*

Associated services are non-treatment services that occur within the associated services period for a given episode. All Medicare Part A and Part B services during the associated services period are counted toward the episode, with the exception of certain services, as described below in Section 3.1.5.

### *3.1.5 Step 5: Excluding Clinically Unrelated Services*

Certain services are excluded from the treatment and associated services periods because they are clinically unrelated to PAC care and/or because PAC providers may have limited

influence over certain Medicare services delivered by other providers during the episode window. Inclusion of services that cannot be reasonably managed by the PAC provider could create incentives for providers to avoid treating patients with certain conditions or complex care needs (e.g., patients requiring chemotherapy or dialysis) that cannot be fully accounted for in risk adjustment models. Further, including such services in the MSPB-PAC measures would limit the extent to which MSPB-PAC measures reflect meaningful and actionable variation in PAC providers' efficiency. Lists of clinically assessed service exclusions have been developed for each PAC setting by clinicians from CMS and the measure development contractor. These lists are being further refined by these clinicians as well as a group of independent clinicians with PAC expertise according to the following steps:

(1) Organize Claims into Clinically Meaningful Service Categories

Prior to performing clinical review on Medicare Part A and Part B services occurring within the episode window, claims for Medicare beneficiaries with PAC episodes are organized into service categories that have a coherent clinical meaning and are thus more appropriate for review. For example, this process segregates outpatient hospital facility (OP) claims into the following clinically meaningful types of service categories:

(i) emergency room (ER) visits not resulting in hospitalization, identified by CPT code and place of service; and

(ii) OP claims (excluding ER visits) as classified by the Clinical Classification Software for Services and Procedures (CCS-Services and Procedures, or CCS) categorization.[8]

A complete list of the types of service categories assessed for clinical review are outlined in Table 3.

**Table 3. Types of Service Categories Assessed for Exclusion**

| Claim Type | Description of Service Categorization |
|---|---|
| Acute Inpatient | Inpatient services, aggregated by MS-DRG families and ICD-9 CM procedure codes. MS-DRG families combine "w/o MCC/CC", "w/CC", and "w/MCC" MS-DRGs into a single DRG family. |
| Outpatient ER | Outpatient emergency room services classified by evaluation and management CPT-4 procedure codes. |
| Physician/Supplier Part B and Outpatient non-ER | PB and all remaining OP services aggregated into CCS categories and CPT-4 procedure codes. |
| Durable Medical Equipment, Prosthetics, Orthotics and Supplies | DMEPOS as defined by HCPCS code. |

[8] The CCS-Services and Procedures categorization is maintained by the Agency for Healthcare Research and Quality (AHRQ) through its Healthcare Cost and Utilization Project (HCUP). CCS organizes Healthcare Common Procedure Coding System (HCPCS) and CPT procedure codes into 244 mutually exclusive procedure categories with no hierarchical structure.

(2) Exclude Services Representing Insignificant Cost

Once integrated into clinically meaningful service categories, categories that do not account for a sufficiently large share of payments are excluded from review to allow clinicians to focus their review on high-cost services occurring within the episode window for each type of MSPB-PAC episode.

(3) Perform Clinical Review to Determine Service Exclusions

The complete list of services identified in steps (1) and (2) of the clinically determined exclusions are reviewed by measure development contractor clinicians, independent clinicians with PAC expertise, and CMS clinicians. The clinicians are developing a list of service-level exclusions, using the following framework to decide which services should be excluded as being outside the scope of credible influence of PAC providers:

- Planned admissions[9]
- Routine management of certain preexisting chronic conditions (e.g., dialysis for end-stage renal disease (ESRD), chemotherapy and radiation therapy for cancer)
- Services related to genetic, inborn, or congenital diseases (e.g., surgical correction of congenital cardiac abnormalities, enzyme treatment for genetic metabolic abnormalities)
- Some routine screening and health care maintenance (e.g., colonoscopy)

Clinicians determine exclusion rules for services using the options presented in Table 4, below. For each option, clinicians are able to select a specified timeframe for the rule to apply to the MSPB-PAC episodes. These timeframes include the following choices: exclude the service if it occurs (a) anytime during the episode window, (b) less than 4 days after the start of PAC care, (c) greater than 14 days after the end of PAC treatment, or (d) options (b) or (c).

[9] The service-level exclusions will build off of the existing 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 for measures of readmissions that occur during or after the end of PAC stays. 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

**Table 4. Options for Excluding Services Occurring within the Episode Window**

| Exclusion Rule | Description |
|---|---|
| 1. Always Exclude Service | The service is excluded from the episode when occurring in the specified timeframe (regardless of diagnosis or any other information). |
| 2. Exclude if Service is Previously Occurring in the prior 90 days* | The service, when occurring in the specified timeframe, is excluded from the episode if the service was previously occurring in the patient's claims history. |
| 3. Exclude Service with Diagnosis | The service, when occurring in the specified timeframe, is excluded from the episode when occurring with the specified diagnosis on the claim. |
| 4. Exclude Service with Diagnosis if Service is Previously Occurring in the prior 90 days* | The service, when occurring in the specified timeframe, is excluded from the episode when occurring with the specified diagnosis on the claim and the service is previously occurring in the patient's claims history. |
| 5. Exclude if Diagnosis is Previously Occurring in the prior 90 days* | The service, when occurring in the specified timeframe, is excluded from the episode if the specified diagnosis on the claim is previously occurring in the patient's claims history. |
| 6. Exclude if Service or Diagnosis are Previously Occurring in the prior 90 days* | The service, when occurring in the specified timeframe, is excluded from the episode if the service *or* specified diagnosis on the claim is previously occurring in the patient's claims history. |
| 7. Exclude if Service and Diagnosis are Previously Occurring in the prior 90 days* | The service, when occurring in the specified timeframe, is excluded from the episode if the service *and* specified diagnosis on the claim is previously occurring in the patient's claims history. |

*"Previously occurring" services or diagnoses are defined as those that occur in the patient's claim history in the 90 days prior to the episode trigger.

Clinicians use a web tool to determine if each service should be subject to one of the exclusion rules listed in Table 4 above. This tool lists all the candidate services for assignment, with all necessary diagnosis and procedure information about each service. Clinicians have the option to exclude services based on the services alone or only when the services appeared on claims with specific procedural or diagnosis information. The service exclusion rules developed during this exercise will become a part of the specifications used for constructing MSPB-PAC episodes.

### *3.1.6 Step 6: Closing Episodes*

The final step in episode construction is determining when the MSPB-PAC episode is completed. MSPB-PAC episodes end according to the rules described in Section 3.1.2, above: across all settings, the episode ends 30 days after the end of the treatment period. The full payment for all claims that begin within the episode window is counted toward the episode, to maintain consistency with the hospital MSPB measure and to fairly assign payment to the episode for Medicare claims paid on a prospective payment system, regardless of their length. See Appendix D.3 for the methodological rationale for this treatment of claims in the associated services period.

## 3.2 Measure Calculation

This section describes the steps involved in calculating the MSPB-PAC measures. Section 3.2.1 describes the episode-level exclusions that are applied to the episodes constructed according to the steps in Section 3.1, above. Section 3.2.2 outlines the risk adjustment approach that is under consideration for determining predicted episode payments. Finally, Section 3.2.3 details the steps involved in calculating the MSPB-PAC measures after episode-level exclusions have been implemented. Within this section, Step 7 provides the measure numerator and denominator.

### *3.2.1 Implementing Episode-Level Exclusions*

Certain episodes are excluded from the MSPB-PAC measure calculation. These are distinct from another type of service previously discussed in Section 3.1.5, above (service-level exclusions). Service-level exclusions refer to the removal of certain clinically unrelated services from an episode, while episode-level exclusions, discussed below, remove entire episodes from the measure calculation when certain criteria are met. The episode-level exclusions are listed below along with a rationale.

#### *Exclusions from All MSPB-PAC Measures*

(1) Any episode that is triggered by a claim outside the 50 states and D.C.

U.S. territories have different Medicare reimbursement policies, preventing meaningful comparisons between the efficiency of providers within and outside of the 50 states and D.C.

(2) Any episode where the standard allowed amount cannot be calculated or is equal to 0

Episodes with zero or unknown allowed payment do not reflect the cost to Medicare, and to include these episodes would skew the data to make the provider appear less expensive than they are in reality. Claims may not have a standard allowed amount included due to split billing, future-dated HHA claims, or because payment standardization was not performed.[10]

(3) Any episode in which a patient is not enrolled in Medicare FFS for the entirety of the lookback plus episode window (including where a beneficiary dies), or is enrolled in Part C for any part of the lookback plus episode window

Episodes are only included in which a beneficiary is enrolled continuously in Medicare FFS Parts A and B for the entirety of the lookback period and episode window: if a beneficiary is not enrolled in this way, there is the possibility that there are other claims (e.g., for services provided under Part C) that we do not observe in our data. They are therefore excluded as complete claims information is needed for risk adjustment and measure calculation. Including episodes without all observable claims or a complete episode window could potentially make a provider

[10] After a given service year of Medicare claims data has attained one year of run-out for claims processing, claims in that service year are no longer standardized.

seem efficient not due to any action of their own, but because the data is missing services that would be included in the measure. It also allows us to faithfully construct HCCs for each episode by scanning the lookback period prior to its start without missing claims. Beneficiaries who die during the lookback plus episode window are excluded from the measures.

Beneficiaries who are enrolled in Medicare Advantage (Part C) are excluded as their complete claims information is not available. Including these beneficiaries in the measure without accounting for services provided under Part C may result in some beneficiaries artificially appearing less expensive during the period of Medicare Advantage coverage.

(4) Any episode in which a patient has a primary payer other than Medicare for any part of the lookback plus episode window

Where a patient has a primary payer other than Medicare, we may not see the complete claims data. We remove these episodes to ensure that the measures are accurately calculated using complete data.

#### *Exclusions from MSPB-HHA Measure*

In addition to the episode-level exclusions listed above, the HHA MSPB measure has an additional exclusion to reflect differences in its payment system.

(1) Any episode that results from a Request for Anticipated Payment (RAP)

HHA RAP claims are interim claims that do not reflect the final payment made by Medicare for the services.

### *3.2.2 Risk Adjustment Approach*

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 risk adjustment model for the hospital MSPB measure adjusts for age, ESRD, long-term care institutionalization, disability, and a number of other clinical conditions and demographic factors. It does not, however, directly account for differences in intensity and type of care received by beneficiaries prior to entering an episode. This prior care status has an effect on the level of care needed while in PAC and can be accounted for through the use of clinical case mix categories to segment the PAC population into more clinically homogenous groups. Using the most recent institutional claim in the 60 days prior to the start of a PAC episode, the six following mutually exclusive and exhaustive categories have been defined by measurement development contractor's in-house clinicians:

**(1) Prior PAC** – beneficiaries who are continuing PAC (i.e., coming from an HHA, LTCH, IRF, or SNF)

**(2) Prior Acute Surgical IP – Orthopedic** – beneficiaries who have most recently undergone orthopedic surgery in an acute inpatient hospital

**(3) Prior Acute Surgical IP – Non-Orthopedic** – beneficiaries who have most recently undergone a non-orthopedic surgery in an acute inpatient hospital

**(4) 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

**(5) 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

**(6) Community** – all other beneficiaries

These groups of patients have an increased degree of clinical homogeneity, allowing for a more accurate estimation of risk-adjusted spending for these subpopulations of PAC patients.

When multiple claims have the same end date, priority is given to clinical case-mix categories in the following order:

(1) Prior Acute Surgical IP – Orthopedic

(2) Prior Acute Surgical IP – Non-Orthopedic

(3) Prior Acute Medical IP with ICU

(4) Prior Acute Medical IP without ICU

(5) Prior PAC

(6) Community

This order of priority was decided by the measure contractor's clinicians. Procedures are at the top of the hierarchy as they are typically easier to evaluate, with the remaining categories ranked in decreasing severity.

Risk adjustment is then performed within each of these clinical case mix categories for HHA, SNF, LTCH - standard, and IRF episodes. LTCH - site neutral episodes are risk adjusted more similarly to the hospital MSPB measure as discussed below. The MSPB-PAC risk adjustment model is adapted from the model used in the hospital MSPB measure, which aligns with the NQF-endorsed MSPB method as described in the MSPB Measure Information Form available on QualityNet and is itself an adaptation of the standard CMS hierarchical condition categories (CMS-HCC) risk adjustment model.[11] The MSPB-PAC model uses a linear regression framework and a 90-day HCC lookback period. The following covariates under consideration are as follows (see Appendix B for the full list):

- 70 HCC indicators
- Originally disabled/ESRD enrollment indicators
- Long-term care indicator
- 11 health condition interactions

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

- 11 age bracket indicators

LTCH - site neutral episodes are risk adjusted in a manner more similar to the hospital MSPB measure to reflect the policy of reimbursing these beneficiaries at a rate comparable to the IPPS rate. For this reason, the clinical case mix categories are not used to segment episodes based on the patient's care status prior to admission to the LTCH. The hospital MSPB approach cannot be directly applied because of markedly smaller sample sizes among LTCH site neutral payment rates cases. Accordingly, instead of allowing coefficients to differ for each MDC and including MS-DRG indicators, the LTCH site neutral payment rate cases simply use MDC indicators. The LTCH - standard and LTCH - site neutral episodes are risk adjusted separately. One regression model is estimated for the LTCH - standard episodes to obtain predicted episode spending for standard rate cases. A separate regression model is estimated for the LTCH - site neutral episodes to obtain predicted episode spending for site neutral cases.

### *3.2.3 MSPB-PAC Measure Calculation*

The steps to calculate the MSPB-PAC measures, after applying the episode-level exclusions discussed in Section 3.2.1, and using the risk adjustment approach described in Section 3.2.2, are described in sequence below.

#### *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).[12] All payment data shown in the MSPB-PAC measures 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 sum all standardized Medicare claims payments for services in the episode window as detailed in previous sections.

[12] QualityNet, "CMS Price Standardization" (Revised May 2015) https://qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228772057350

#### *Step 3: Calculate Predicted Episode Payments*

The third step calculates predicted payments for each episode. This step estimates the relationship between the independent variables (age, HCCs, disabled/ESRD enrollment status, long term care indicator, and HCC interactions) and standardized episode payments using an ordinary least squares (OLS) regression. See Appendix C for a full list of the independent variables, determined using a 90 day lookback window, used in the risk adjustment model.

For each PAC setting, the model is estimated separately for episodes within each clinical case mix category to account for differences in intensity and type of care received by beneficiaries prior to entering PAC, which can affect the level of care needed while in PAC.

#### *Step 4: Truncate Predicted Values*

Next, extreme predicted values are truncated (i.e., "bottom coded") and the resultant values are renormalized to maintain a consistent average episode payment. Predicted values are currently truncated at the 1st percentile. In accordance with the hospital MSPB measure calculation, renormalization multiplies the truncated predicted values by the ratio of the average original predicted payment and the average truncated predicted payment. For example, suppose an episode's predicted value (PREDICTED_VALUE) is $1,000, but the 1st percentile of predicted values is $1,500. Then that episode's "truncated" predicted value (TRUNC_PREDICTED_VALUE) would be $1,500. The "renormalized" truncated predicted value would be:

$$\frac{\$1500 \times MEAN\ (PREDICTED\_VALUE)}{MEAN\ (TRUNC\_PREDICTED\_VALUE)}$$

where the mean is taken over the entire national sample. This re-normalization ensures that the average of the resulting truncated 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 standardized episode spending and truncated predicted renormalized spending for episode *i* and hospital *j* :

$$Residual_{ij} = Y_{ij} - \widehat{Y}_{ij}$$

where:

$Y_{ij}$ is the attributed standardized spending for episode *i* and provider *j*

$\widehat{Y}_{ij}$ is the truncated predicted renormalized standardized spending for episode *i* and provider *j,* 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 truncated predicted renormalized payments remaining after Step 5.

***Step 7: Calculate MSPB-PAC Measure***

The MSPB-PAC measure is calculated for individual providers, allowing them to be compared relative to other providers in the same PAC setting. Mathematically, the MSPB-PAC Measure for individual provider *j* is:

$$\frac{MSPB\ PAC\ Amount_j}{National\ Median\ MSPB\ PAC\ Amount}$$

The numerator is the MSPB PAC Amount, or the average risk-adjusted episode costs across all episodes for the attributed provider. This is then multiplied by the national average resource use. Mathematically, the MSPB PAC Amount numerator is calculated as:

$$MSPB\ PAC\ Amount_j = \left(\frac{1}{n_j}\sum_{i\in\{I_j\}}\frac{Y_{ij}}{\widehat{Y}_{ij}}\right)\left(\frac{1}{n}\sum_{j}\sum_{i\in\{I_j\}}Y_{ij}\right)$$

where:

$Y_{ij}$ is the attributed standardized spending for episode *i* and provider *j*

$\widehat{Y}_{ij}$ is the expected standardized spending for episode *i* and provider *j,* as predicted from risk adjustment, and resulting from Step 6, above

$n_j$ is the number of episodes for provider *j*

$n$ is the total number of episodes nationally

$i \in \{I_j\}$ is all episodes *i* in the set of episodes attributed to provider *j*

The denominator is the national median of the MSPB PAC Amounts.

The MSPB-PAC measures are calculated for each PAC provider. An MSPB-PAC measure that is less than 1 indicates that a given PAC provider's resource use is less, after risk and case mix adjustment, than the resource use of the national median MSPB-PAC Amount across all PAC providers in the same setting during a given performance period.

# Appendix A - EPISODE SPECIFICATIONS

**Table A-1. HHA Episode Specifications**

| Episode Characteristic | Definition |
|---|---|
| Trigger Event | First day of a 60-day home health episode |
| Episode Window | The episode window comprises two periods, the definition of which depends on whether it is a standard, LUPA, or PEP episode.<br>***HHA - Standard Episodes***<br>• Treatment period: begins at trigger, ends after 60 days<br>• Associated services period: begins at trigger, ends 30 days after the end of the treatment period<br><br>***HHA - LUPA Episodes***<br>• Treatment period: begins at trigger, ends after 60 days<br>• Associated services period: begins at trigger, ends 30 days after the end of the treatment period<br><br>***HHA - PEP Episodes***<br>• Treatment period: begins at trigger, ends at discharge<br>• Associated services period: begins at trigger, ends 30 days after the end of the treatment period |
| Treatment Services | The following services occurring during the treatment period are included in the episode:<br>• Attributed provider: all services delivered to the beneficiary<br>• Other providers: PB claims and DMEPOS claims |
| Associated Services | Claims in the following settings that occur during the associated services period are included in the episode:<br>• Inpatient<br>• Outpatient<br>• SNF<br>• HHA<br>• IRF<br>• LTCH<br>• Part B<br>• DMEPOS<br>• Hospice |
| Service Exclusions | The following services are excluded from the episode from both the treatment and associated services period:<br>• Planned admissions<br>• Routine management of certain preexisting chronic conditions (e.g., dialysis ESRD, chemotherapy and radiation therapy for cancer)<br>• Genetic, inborn, congenital diseases (e.g., surgical correction of congenital cardiac abnormalities, enzyme treatment for genetic metabolic abnormalities)<br>• Some routine screening and health care maintenance (e.g., colonoscopy)<br>• Select services billed on the first day of the HHA episode (see Appendix B) |

| Episode Characteristic | Definition |
|---|---|
| Episode Exclusions | • Any episode that results from a RAP<br>• Any episode that is triggered by an HHA claim outside the 50 states and D.C.<br>• Any episode where the standard allowed amount cannot be calculated or is equal to 0<br>• Any episode in which a beneficiary is not enrolled in Medicare FFS for the entirety of the lookback plus episode window (including where a beneficiary dies), or is enrolled in Part C for any part of the lookback plus episode window<br>• Any episode in which a beneficiary has a primary payer other than Medicare for any part of the lookback plus episode window |
| Overall Claim Exclusions | • Claims with payment ≤ 0 |

## Table A-2. SNF Episode Specifications

| Episode Characteristic | Definition |
|---|---|
| Trigger Event | Day of admission to SNF |
| Episode Window | The episode window comprises two periods.<br>• Treatment period: begins at trigger, ends at discharge<br>• Associated services period: begins at trigger, ends 30 days after the end of the treatment period (i.e., discharge) |
| Treatment Services | The following services occurring during the treatment period are included in the episode:<br>• Attributed provider: all services delivered to the beneficiary<br>• Other providers: PB claims and DMEPOS claims |
| Associated Services | Claims in the following settings that occur during the associated services period are included in the episode:<br>• Inpatient<br>• Outpatient<br>• SNF<br>• HHA<br>• IRF<br>• LTCH<br>• Part B<br>• DMEPOS<br>• Hospice |
| Service Exclusions | The following services are excluded from the episode from both the treatment and associated services period:<br>• Planned admissions<br>• Routine management of certain preexisting chronic conditions (e.g., dialysis for ESRD, chemotherapy and radiation therapy for cancer)<br>• Genetic, inborn, congenital diseases (e.g., surgical correction of congenital cardiac abnormalities, enzyme treatment for genetic metabolic abnormalities)<br>• Some routine screening and health care maintenance (e.g., colonoscopy)<br>• Select services billed on the first day of the HHA episode (see Appendix B) |

| Episode Characteristic | Definition |
|---|---|
| Episode Exclusions | • Any episode that is triggered by a SNF claim outside the 50 states and D.C.<br>• Any episode where the standard allowed amount cannot be calculated or is equal to 0<br>• Any episode in which a beneficiary is not enrolled in Medicare FFS for the entirety of the lookback plus episode window, or is enrolled in Part C for any part of the lookback plus episode window<br>• Any episode in which a beneficiary has a primary payer other than Medicare for any part of the lookback plus episode window |
| Overall Claim Exclusions | • Claims with payment ≤ 0 |

## Table A-3. LTCH Episode Specifications

| Episode Characteristic | Definition |
|---|---|
| Trigger Event | Day of admission to LTCH |
| Case Definition | ***LTCH - Standard Payment Rate Cases***<br>• LTCH stay is not a psychiatric or rehabilitation MS-LTC-DRG: 876, 880, 881, 882, 883, 884, 885, 886, 887, 894, 895, 896, 897, 945, or 946.<br>• Admission to the LTCH is on the same or following day as discharge from a subsection (d) hospital ("immediately preceding IP stay").[13]<br>• One of the following:<br>  ○ The immediately preceding IP stay included 3 days in ICU or CCU (presence of revenue center codes 020x and 021x); *OR*<br>  ○ The LTCH stay involves 96+ hours of ventilator services (presence of ICD-10-PCS code 5A1955Z.)[14]<br>***LTCH - Site Neutral Payment Rate Cases***<br>• All episodes not meeting the definition of standard payment rate cases |
| Episode Window | The episode window comprises two periods, the definition of which depends on whether it is a standard or site neutral episode.<br>***LTCH - Standard Episodes***<br>• Treatment period: begins at trigger, ends at discharge<br>• Associated services period: begins at trigger, ends 30 days after the end of the treatment period<br>***LTCH - Site Neutral Episodes***<br>• Treatment period: begins at trigger, ends at discharge<br>• Associated services period: begins at end of the treatment period, ends after 30 days |
| Treatment Services | The following services occurring during the treatment period are included in the episode:<br>• Attributed provider: all services delivered to the beneficiary<br>• Other providers: PB claims and DMEPOS claims |

[13] A hospital that is not a psychiatric hospital, rehabilitation hospital, LTCH, children's hospital, or cancer hospital.
[14] The site neutral policy refers to ICD-10 procedure code 5A1955Z (Respiratory ventilation, greater than 96 consecutive hours) which excludes the 96th hour of ventilation, while the closest equivalent ICD-9 procedure code 9672 (Continuous invasive mechanical ventilation for 96 consecutive hours or more) includes the 96th hour. CMS's position is that in the rare case of a beneficiary receiving exactly 96 hours of ventilator services, an LTCH should contact its Medicare Administrator Contractor to ensure that the correct payment amount is received. The ICD-10 codes came into effect on October 1, 2015.

| Episode Characteristic | Definition |
|---|---|
| Associated Services | Claims in the following settings that occur during the associated services period are included in the episode:<br>• Inpatient<br>• Outpatient<br>• SNF<br>• HHA<br>• IRF<br>• LTCH<br>• Part B<br>• DMEPOS<br>• Hospice |
| Service Exclusions | The following services are excluded from the episode from both the treatment and associated services period:<br>• Planned admissions<br>• Routine management of certain preexisting chronic conditions (e.g., dialysis for ESRD, chemotherapy and radiation therapy for cancer)<br>• Genetic, inborn, congenital diseases (e.g., surgical correction of congenital cardiac abnormalities, enzyme treatment for genetic metabolic abnormalities)<br>• Some routine screening and health care maintenance (e.g., colonoscopy)<br>• Select services billed on the first day of the HHA episode (see Appendix B) |
| Episode Exclusions | • Any episode that is triggered by an LTCH claim outside the 50 states and D.C.<br>• Any episode where the standard allowed amount cannot be calculated or is equal to 0<br>• Any episode in which a beneficiary is not enrolled in Medicare FFS for the entirety of the lookback plus episode window, or is enrolled in Part C for any part of the lookback plus episode window<br>• Any episode in which a beneficiary has a primary payer other than Medicare for any part of the lookback plus episode window |
| Overall Claim Exclusions | • Claims with payment ≤ 0 |

## Table A-4. IRF Episode Specifications

| Episode Characteristic | Definition |
|---|---|
| Trigger Event | Day of admission to IRF |
| Episode Window | The episode window comprises two periods.<br>• Treatment period: begins at trigger, ends at discharge<br>• Associated services period: begins at trigger, ends 30 days after the end of the treatment period |
| Treatment Services | The following services occurring during the treatment period are included in the episode:<br>• Attributed provider: all services delivered to the beneficiary<br>• Other providers: PB claims and DMEPOS claims |

| Episode Characteristic | Definition |
|---|---|
| Associated Services | Claims in the following settings that occur during the associated services period are included in the episode:<br>• Inpatient<br>• Outpatient<br>• SNF<br>• HHA<br>• IRF<br>• LTCH<br>• Part B<br>• DMEPOS<br>• Hospice |
| Service Exclusions | The following services are excluded from the episode from both the treatment and associated services period:<br>• Planned admissions<br>• Routine management of certain preexisting chronic conditions (e.g., dialysis for ESRD, chemotherapy and radiation therapy for cancer)<br>• Genetic, inborn, congenital diseases (e.g., surgical correction of congenital cardiac abnormalities, enzyme treatment for genetic metabolic abnormalities)<br>• Some routine screening and health care maintenance (e.g., colonoscopy)<br>• Select services billed on the first day of the HHA episode (see Appendix B) |
| Episode Exclusions | • Any episode that is triggered by an IRF claim outside the 50 states and D.C.<br>• Any episode where the standard allowed amount cannot be calculated or is equal to 0<br>• Any episode in which a beneficiary is not enrolled in Medicare FFS for the entirety of the lookback plus episode window, or is enrolled in Part C for any part of the lookback plus episode window<br>• Any episode in which a beneficiary has a primary payer other than Medicare for any part of the lookback plus episode window |
| Overall Claim Exclusions | • Claims with payment $\leq 0$ |

# Appendix B - FIRST DAY SERVICE EXCLUSIONS

Where a beneficiary has transferred directly to a PAC provider from another provider, PB or DMEPOS services occurring on the first day of the episode may have been delivered by other providers before the start of PAC care. For instance, a beneficiary who is discharged from an inpatient hospital on the same day as admission to SNF will likely receive discharge-related PB services in the hospital before entering the SNF. Given that this care is outside the control or influence of the attributed PAC provider, measure development contractor has developed a set of rules to systematically exclude these services from MSPB-PAC episodes. This appendix outlines the methodology developed by the measure contractor for removing services occurring on the first day of a PAC episode and includes separate rules for claims related to the discharging provider as well as PB and DMEPOS claims. Each approach is described in turn below.

Firstly, the claim representing the transfer source is removed if it has a discharge date occurring on the first day of the episode. The transfer source may be an IP, SNF, IRF, LTCH, or HHA claim. For example, for a patient transferring from IP to a SNF on the first day, the IP claim is not counted toward the SNF episode. This exclusion of claims associated with the transfer facility occurring on the first day of a PAC episode applies to all settings.

For PB services, the first step is to identify cases in which a beneficiary has been discharged from another type of PAC provider or inpatient hospital on the first day of a PAC episode. Contingent upon identification of a discharge from another type of PAC setting or inpatient hospital, the following claims are excluded:

- PB claims associated with the transferring provider's care, identified using either Place of Service values or HCPCS codes (see Table B-1, below) listed on claims.
- HCPCS codes are used in instances where the Place of Service does not differentiate between the transferring provider and the attributed PAC provider.[15]

[15] For example, LTCHs and inpatient hospitals both use a Place of Service of 21 ("Inpatient Hospital") on PB claims associated with stays at their facilities. Also, while IRFs have a specific Place of Service code (61 – "Comprehensive IRF"), analysis of Medicare claims indicates that PB claims occurring during IRF stays frequently use a Place of Service of 21.

**Table B-1. Exclusion Rules for PB Services by Type of Episode and Transfer Source**

| First Day Transfer Source | PB Service Exclusion Rules, by Type of Episode | | | |
|---|---|---|---|---|
| | **SNF** | **HHA** | **LTCH** | **IRF** |
| **IP** | Place of Service<br>06 – Indian Health Service Provider-based Facility<br>08 – Tribal 638 Free-standing Facility<br>09 – Prison/Correctional Facility<br>21 – Inpatient Hospital<br>26 – Military Treatment Facility<br>51 – Inpatient Psychiatric Facility (IPF) | Place of Service<br>06 – Indian Health Service Provider-based Facility<br>08 – Tribal 638 Free-standing Facility<br>09 – Prison/Correctional Facility<br>21 – Inpatient Hospital<br>26 – Military Treatment Facility<br>51 – Inpatient Psychiatric Facility (IPF) | Place of Service<br>06 – Indian Health Service Provider-based Facility<br>08 – Tribal 638 Free-standing Facility<br>09 – Prison/Correctional Facility<br>26 – Military Treatment Facility<br>51 – Inpatient Psychiatric Facility (IPF)<br>AND<br>HCPCS codes in Table B-2 | Place of Service<br>06 – Indian Health Service Provider-based Facility<br>08 – Tribal 638 Free-standing Facility<br>09 – Prison/Correctional Facility<br>26 – Military Treatment Facility<br>51 – Inpatient Psychiatric Facility (IPF)<br>AND<br>HCPCS codes in Table B-2 |
| **SNF** | N/A | Place of Service<br>31 – SNF | Place of Service<br>31 – SNF | Place of Service<br>31 – SNF |
| **HHA** | Place of Service<br>12 – Home<br>13 – Assisted Living Facility | N/A | Place of Service<br>12 – Home<br>13 – Assisted Living Facility | Place of Service<br>12 – Home<br>13 – Assisted Living Facility |
| **LTCH** | Place of Service<br>21 – Inpatient Hospital | Place of Service<br>21 – Inpatient Hospital | N/A | HCPCS codes in Table B-2 |
| **IRF** | Place of Service<br>21 – Inpatient Hospital<br>61 – Comprehensive IRF | Place of Service<br>21 – Inpatient Hospital<br>61 – Comprehensive IRF | HCPCS codes in Table B-2 | N/A |
| **None** | N/A | N/A | N/A | N/A |

To develop the list of HCPCS for the service-based exclusions above, the measure development contractor's in-house clinicians reviewed a complete list of Part B claims occurring on the first day of IP to LTCH, IP to IRF, IRF to LTCH, and LTCH to IRF episodes to determine what services are part of the prior inpatient stay and outside of the credible influence of the

attributed PAC provider. These services can be broadly classified as discharge care services and are listed in Table B-2, below.

**Table B-2. HCPCS Codes Applying to Certain First Day Scenarios**

| HCPCS Code | Description |
|---|---|
| 99217 | Hospital Observation Care Discharge |
| 99234 | Hospital Observation Or Inpatient Care Low Severity, 40 Minutes Per Day |
| 99235 | Hospital Observation Or Inpatient Care Moderate Severity, 50 Minutes Per Day |
| 99236 | Hospital Observation Or Inpatient Care High Severity, 55 Minutes Per Day |
| 99238 | Hospital Discharge Day Management, 30 Minutes Or Less |
| 99239 | Hospital Discharge Day Management, More Than 30 Minutes |
| 99315 | Nursing Facility Discharge Day Management, 30 Minutes Or Less |
| 99316 | Nursing Facility Discharge Management, More Than 30 Minutes |

The second step related to PB services is to remove ambulance claims for SNF, LTCH, and IRF MSPB-PAC episodes, regardless of whether a transfer source was identified on the first day. Ambulance claims are only excluded from HHA claims for days on which a transfer source is identified from an institutional setting (IP, SNF, LTCH, or IRF). Given the different nature of HHA as compared to institutional PAC providers, clinicians from the measure development contractor determined that review of ambulance-related claims for exclusion on the first day of an HHA episode should be performed using the clinical review process described in Section 3.1.5, so that more granular information on the beneficiary's corresponding diagnosis may be used to perform any exclusions for that type of episode. Table B-3, below, summarizes the exclusion rules for ambulance-related services for each type of MSPB-PAC episode.

**Table B-3. Exclusion Rules for Ambulance-Related PB Services by Type of Episode**

| Exclusion Rules for Ambulance-Related PB Services, by Type of Episode | | | |
|---|---|---|---|
| **SNF** | **HHA** | **LTCH** | **IRF** |
| Place of Service<br>41 – Ambulance – Land<br>42 – Ambulance – Air or Water | Place of Service[16]<br>41 – Ambulance – Land<br>42 – Ambulance – Air or Water | Place of Service<br>41 – Ambulance – Land<br>42 – Ambulance – Air or Water | Place of Service<br>41 – Ambulance – Land<br>42 – Ambulance – Air or Water |

The exclusion of DMEPOS claims depends on the type of PAC episode and whether the applicable payment system covers these claims. For SNF, IRF, and LTCH episodes, DMEPOS

[16] For HHA episodes, ambulance-related PB services are only excluded if an institutional transfer source is identified on the first day of the episode.

claims occurring on the first day are excluded. Given that these services are covered by each institutional PAC provider's respective PPS, it is unlikely that they are the responsibility of the attributed PAC provider. For HHA episodes, DMEPOS claims are not removed as these services are not paid for through the HHA PPS. As such, we cannot make the same assumption about the provider origin of the DMEPOS claims occurring on the first day of an HHA episode as we do for the SNF, IRF, and LTCH episodes.

After the exclusion rules are applied to each episode, the remaining PB and DMEPOS claims will be reviewed according to the process described in Section 3.1.5, "Step 5: Excluding Clinically Unrelated Services," above.

# Appendix C - RISK ADJUSTMENT VARIABLES

Tables C-1 through C-5 present the variables included in the MSPB-PAC risk adjustment model.

**Table C-1. Age Variables**

| Indicator Variable | Description Label |
|---|---|
| 0-34 | Age between 0 and 34 years old |
| 35-44 | Age between 35 and 44 years old |
| 45-54 | Age between 45 and 54 years old |
| 55-59 | Age between 55 and 59 years old |
| 60-64 | Age between 60 and 64 years old |
| 65-69 | Age between 65 and 69 years old (reference category)[17] |
| 70-74 | Age between 70 and 74 years old |
| 75-79 | Age between 75 and 79 years old |
| 80-84 | Age between 80 and 84 years old |
| 85-89 | Age between 85 and 89 years old |
| 90-94 | Age between 90 and 94 years old |
| 95+ | Age greater than or equal to 95 years old |

**Table C-2. Severity of Illness Variables**

| Indicator Variable | Description Label |
|---|---|
| HCC1 | HIV/AIDS |
| HCC2 | Septicemia/Shock |
| HCC5 | Opportunistic Infections |
| HCC7 | Metastatic Cancer and Acute Leukemia |
| HCC8 | Lung, Upper Digestive, and Other Severe Cancers |
| HCC9 | Lymphatic, Head and Neck, Brain, and Other Cancers |
| HCC10 | Breast, Prostate, Colorectal, and Other Cancers and Tumors |
| HCC15 | Diabetes with Renal or Peripheral Circulatory Manifestation |
| HCC16 | Diabetes with Neurologic or Other Specified Manifestation |
| HCC17 | Diabetes with Acute Complications |
| HCC18 | Diabetes with Ophthalmologic or Unspecified Manifestation |
| HCC19 | Diabetes without Complication |
| HCC21 | Protein-Calorie Malnutrition |
| HCC25 | End-Stage Liver Disease |
| HCC26 | Cirrhosis of Liver |
| HCC27 | Chronic Hepatitis |
| HCC31 | Intestinal Obstruction/Perforation |
| HCC32 | Pancreatic Disease |
| HCC33 | Inflammatory Bowel Disease |
| HCC37 | Bone/Joint/Muscle Infections/Necrosis |
| HCC38 | Rheumatoid Arthritis and Inflammatory Connective Tissue Disease |
| HCC44 | Severe Hematological Disorders |
| HCC45 | Disorders of Immunity |
| HCC51 | Drug/Alcohol Psychosis |
| HCC52 | Drug/Alcohol Dependence |
| HCC54 | Schizophrenia |
| HCC55 | Major Depressive, Bipolar, and Paranoid Disorders |
| HCC67 | Quadriplegia, Other Extensive Paralysis |

[17] To prevent collinearity in the case of mutually exclusive, exhaustive categorical variables when an intercept term is present, the 65-69 age indicator variable is omitted from the regression.

| Indicator Variable | Description Label |
|---|---|
| HCC68 | Paraplegia |
| HCC69 | Spinal Cord Disorders/Injuries |
| HCC70 | Muscular Dystrophy |
| HCC71 | Polyneuropathy |
| HCC72 | Multiple Sclerosis |
| HCC73 | Parkinson's and Huntington's Diseases |
| HCC74 | Seizure Disorders and Convulsions |
| HCC75 | Coma, Brain Compression/Anoxic Damage |
| HCC77 | Respirator Dependence/Tracheostomy Status |
| HCC78 | Respiratory Arrest |
| HCC79 | Cardio-Respiratory Failure and Shock |
| HCC80 | Congestive Heart Failure |
| HCC81 | Acute Myocardial Infarction |
| HCC82 | Unstable Angina and Other Acute Ischemic Heart Disease |
| HCC83 | Angina Pectoris/Old Myocardial Infraction |
| HCC92 | Specified Heart Arrhythmias |
| HCC95 | Cerebral Hemorrhage |
| HCC96 | Ischemic or Unspecified Stroke |
| HCC100 | Hemiplegia/Hemiparesis |
| HCC101 | Cerebral Palsy and Other Paralytic Syndromes |
| HCC104 | Vascular Disease with Complications |
| HCC105 | Vascular Disease |
| HCC107 | Cystic Fibrosis |
| HCC108 | Chronic Obstructive Pulmonary Disease |
| HCC111 | Aspiration and Specified Bacterial Pneumonias |
| HCC112 | Pneumococcal Pneumonia, Empyema, Lung Abscess |
| HCC119 | Proliferative Diabetic Retinopathy and Vitreous Hemorrhage |
| HCC130 | Dialysis Status |
| HCC131 | Renal Failure |
| HCC132 | Nephritis |
| HCC148 | Decubitus Ulcer of Skin |
| HCC149 | Chronic Ulcer of Skin, Except Decubitus |
| HCC150 | Extensive Third-Degree Burns |
| HCC154 | Severe Head Injury |
| HCC155 | Major Head Injury |
| HCC157 | Vertebral Fractures without Spinal Cord Injury |
| HCC158 | Hip Fracture/Dislocation |
| HCC161 | Traumatic Amputations |
| HCC164 | Major Complications of Medical Care and Trauma |
| HCC174 | Major Organ Transplant Status |
| HCC176 | Artificial Openings for Feeding or Elimination |
| HCC177 | Amputation Status, Lower Limb/Amputation Complications |

## Table C-3. Enrollment Status Variables

| Indicator Variable | Description Label |
|---|---|
| ORIGDS | Originally Disabled. |
| ESRD | End-Stage Renal Disease |

## Table C-4. Long-Term Care Variables

| Indicator Variable | Description Label |
|---|---|
| LTC_Indicator | Long-Term Care |

## Table C-5. Variable Interaction Terms

| Indicator Variable | Description Label |
|---|---|
| DM_CHF | Diabetes Mellitus*Congestive Heart Failure |
| DM_CVD | Diabetes Mellitus*Cerebrovascular Disease |
| CHF_COPD | Congestive Heart Failure*Chronic Obstructive Pulmonary Disease |
| COPD_CVD_CAD | Chronic Obstructive Pulmonary Disease*Cerebrovascular Disease*Coronary Artery Disease |
| RF_CHF | Renal Failure*Congestive Heart Failure |
| RF_CHF_DM | Renal Failure*Congestive Heart Failure*Diabetes Mellitus |
| D_HCC5 | Disabled, Opportunistic Infections |
| D_HCC44 | Disabled, Severe Hematological Disorders |
| D_HCC51 | Disabled, Drug/Alcohol Psychosis |
| D_HCC52 | Disabled, Drug/Alcohol Dependence |
| D_HCC107 | Disabled, Cystic Fibrosis |

# Appendix D – RELEVANT METHODOLOGICAL RATIONALE

This Appendix provides methodological rationale for certain aspects of episode construction.

## D.1 Collapsing Proximate Stays

The SNF, LTCH, and IRF settings treat readmissions for the same patient and provider within 7 or fewer days as part of the same treatment period to reflect the likelihood that these closely adjacent stays are related. The gap length was selected after conducting analyses on periods of various lengths. Empirical analyses of Medicare FFS claims data suggested that a 7-day gap would be appropriate, through investigation of the following:

- percentage of episodes that would be affected by collapsing stays at a given gap length;
- concordance of diagnostic information (longer gaps decreased the percentage of subsequent stays with the same diagnosis information as the first stay); and
- median gap length between adjacent stays in each setting, with the median calculated across SNF-SNF, LTCH-LTCH, and IRF-IRF stays for the same patient and provider.

Additionally, TEP panelists and CMS clinicians were in favor of a consistent period across the institutional PAC settings.

## D.2 HHA PEP and LUPA Claims as Episode Triggers

PEP and LUPA claims trigger HHA episodes, but are compared only against other PEP and LUPA episodes respectively. This methodological approach was implemented in response to TEP member feedback. A few panelists felt that these types of HHA claims should be allowed to trigger an MSPB-PAC episode, while others expressed concern that their inclusion as triggers would favor HHA providers with a higher share of LUPA or PEP episodes given that LUPA and PEP claims are intrinsically less expensive than standard HHA claims. The methodology discussed above satisfies both concerns, as it means the MSPB-PAC measure for HHAs covers as much Medicare utilization as possible, while also ensuring that comparisons between HHA providers are meaningful and fair.

## D.3 No Proration of Claims in Associated Services Period

MSPB-PAC episodes end according to the rules described in Section 3.1.2, above: across all settings, the episode ends 30 days after the end of the treatment period. The full payment for all claims that begin within the episode window is counted toward the episode for consistency with the hospital MSPB measure and for fairness. For instance, using the alternative approach in which claims are prorated, consider the following cases: (1) an episode in which an inpatient claim starts within the episode window and lasts just a few days after its close, versus (2) an

episode with an equivalent inpatient claim that starts at the same time but extends for one month after the episode's close. Given that the inpatient claim in examples (1) and (2) has the same MS-DRG and is therefore paid at the same rate, the episode in (2) would have considerably less cost attributed to the episode under pro-ration due to the longer duration of the inpatient claim. This would run contrary to the notion that a resource use measure should actually reflect the greater cost efficiency in episode (1) than in episode (2) in treating patients with the same MS-DRG.