Skilled Nursing Facility Quality Reporting Program

Claims-Based Measures Specifications Manual

December 2023

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1 INTRODUCTION

This document presents technical specifications for the production of Medicare fee-for-service (FFS) claims-based measures (CBMs) for the Skilled Nursing Facility (SNF) Quality Reporting Program (QRP) and Value-Based Purchasing (VBP) program maintained by the Centers for Medicare & Medicaid Services (CMS). The measures are intended to promote informed decisions among Medicare beneficiaries and their caregivers when deciding on a SNF at which to receive care.

The measures included in this manual individually assess Discharge to Community (DTC), Potentially Preventable 30-Day Post-Discharge Readmission (PPR-PD), Potentially Preventable Within-Stay Hospital Readmission (PPR-WS), SNF Healthcare-Associated Infections Requiring Hospitalization (SNF HAI), and Medicare Spending per Beneficiary – Post-Acute Care (MSPB-PAC). Maintenance and reporting of most measures, with the exception of SNF HAI, are mandated by the Improving Medicare Post-Acute Care Transformation (IMPACT) Act of 2014.[1]

The MSPB-PAC and PPR-PD measures are only reported in the SNF QRP. The PPR-WS measure is only reported in the SNF VBP program. The remaining measures, DTC and SNF HAI, are reported in both the QRP and the VBP program.

All claims-based measures included in this manual are refreshed annually, using Medicare FFS claims. Most measures utilize a reporting period of two consecutive fiscal years of data, with the exception of SNF HAI, which uses one fiscal year of data. Measure scores are published on the Care Compare website (https://www.medicare.gov/care-compare/) where consumers can compare SNFs using CMS's measures. Additionally, publicly reported measure data are published online on the CMS Provider Data Catalog (PDC) (https://data.cms.gov/provider-data/) for use by researchers in further study regarding healthcare utilization and outcomes. Measure scores are also reported confidentially to providers via confidential feedback reports.

The following sections detail the technical specifications for each of the above measures as well as supplemental information required for calculating the measures. Section 2 outlines the data sources and supplemental files used in measure calculations, Section 3 contains the specifications for the DTC measure, Section 4 contains the specifications for the PPR-PD measure, Section 5 contains the specifications for the PPR-WS measure, Section 6 contains the specifications for the MSPB-PAC measure, and Section 7 contains the specifications for the SNF HAI measure.

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[1] https://www.govinfo.gov/content/pkg/BILLS-113hr4994enr/pdf/BILLS-113hr4994enr.pdf.

Additional information on these measures and other SNF QRP measures can be found on the CMS SNF QRP Measures and Technical Information webpage: https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/NursingHomeQualityInits/Skilled-Nursing-Facility-Quality-Reporting-Program/SNF-Quality-Reporting-Program-Overview.

2 DATA, MAPPINGS, AND SUPPLEMENTAL MATERIALS

The measures specified in this document are calculated exclusively from administrative data filed by providers as required for payment. As such, all variables used for measure calculation are primarily sourced from both Medicare Parts A and B FFS claims files and the Master Beneficiary Summary File (MBSF). The DTC and MSPB measures also use Nursing Home (NH) Minimum Data Set (MDS) assessments for certain exclusions and covariates.

2.1 Publicly Available Materials

A variety of publicly available mappings are used to identify exclusion criteria, numerator events, and risk-adjustment covariates:

- **Clinical Classification Software (CCS):** CCS mappings are used to categorize International Classification of Diseases, Tenth Revision (ICD-10) codes into discrete categories. ICD-10-Clinical Modification (CM) codes are used to inform CCS diagnosis categories, and ICD-10-Procedure Coding System (PCS) codes are used to determine CCS procedure and surgical categories. The CCS categories were originally developed by the Agency for Healthcare Research and Quality (AHRQ)[2] Healthcare Cost and Utilization Project (HCUP). ICD-10 codes used in these mappings are updated annually using the CMS conversion table files.[3]

- **Hierarchical Condition Categories (HCCs):** HCCs, developed and maintained by CMS, categorize ICD-10-CM codes for purposes of risk adjustment.[4]

- **Planned Readmission Algorithm (PRA):** The PRA is used to identify whether a readmission should be considered planned or unplanned for the purposes of measure calculation. The PRA algorithm and accompanying documentation can be found in the Hospital-Wide Readmission (HWR) Measure Code Specifications Supplemental File.[5]

- **State Operations Manual (SOM):** The SOM is referenced to identify the U.S. state associated with a provider, based on the provider's CMS Certification Number (CCN).[6]

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[2] The most recent versions of the AHRQ-produced CCS mappings (2019.1 for diagnoses, published in October 2018, and 2020.1 for procedures, updated in October 2019), are available on the AHRQ CCS-Refined Tools Archive page: https://hcup-us.ahrq.gov/toolssoftware/ccsr/ccsr_archive.jsp#ccsr.
[3] The conversion table files are available on the CMS ICD-10 webpage: https://www.cms.gov/medicare/coding/icd10 (conversion tables are available for each year).
[4] CMS HCC risk adjustment mappings can be downloaded at: https://www.cms.gov/medicare/health-plans/medicareadvtgspecratestats/risk-adjustors.
[5] This file is available for download at: https://qualitynet.cms.gov/inpatient/measures/readmission/methodology.
[6] Publication #100-07 from the CMS Internet-Only Manuals (IOMs) page: https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/Internet-Only-Manuals-IOMs.

2.2 SNF QRP-Specific Supplementary Materials

Calculation of these measures may require the use of supplemental materials, contained in the SNF QRP CBMs Supplemental Files (2023-snf-qrp-cbm-supplemental-files.zip), available for download from the SNF QRP Measures Information page.[7] Table 1 describes these materials.

Table 1. SNF QRP Claims-Based Measures Supplemental Files Overview

Measure(s)	Workbook(s)	Description
DTC, PPR-PD, PPR-WS	2023-snf-dtc-pprpd-pprws-supplemental-codes.xlsx	Contains the potentially preventable diagnoses list, the PAC-specific PRA codes, pregnancy- and cancer-related CCS codes, and measure-specific covariates lists
MPSB-PAC	2023-snf-mspb-pac-clinically-unrelated -service-exclusions.xlsx	Contains the clinically unrelated services that are excluded from measure calculation
	2023-snf-mspb-pac-first-day-service-exclusions.xlsx	Contains the first-day services that are excluded from measure calculation
	2023-snf-mspb-pac-covariates.xlsx	Contains the list of covariates used for risk adjustment
SNF HAI	2023-snf-hai-supplemental-codes.xlsx	Contains the list of ICD-10 codes for which an infection could be attributed to the measure

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[7] https://www.cms.gov/medicare/quality/snf-quality-reporting-program/measures-and-technical-information.

3 SPECIFICATIONS FOR SNF DISCHARGE TO COMMUNITY (DTC) MEASURE

The SNF DTC measure assesses the rate at which beneficiaries are successfully discharged to the community from the SNF. Specifically, this measure reports a SNF's risk-standardized rate of Medicare FFS beneficiaries who are discharged to the community after a SNF stay, do not have an unplanned readmission to an acute care hospital (ACH) or Long-Term Care Hospital (LTCH), and remain alive during the 31 days following that discharge. Community, for this measure, is defined as home/self-care, with or without home health services.

The SNF DTC measure is calculated using the following steps:

1. **Select SNF and hospital stays for the measure period.** Stays are constructed using final action Medicare FFS Part A claims. Stay construction begins by linking claims that share the same beneficiary identifier, facility CCN, and admission date. To implement restrictions and apply risk adjustment, stays created from claims are linked to other Medicare claims and enrollment data using the beneficiary identifier. SNF stays indexed for the denominator prior to exclusion criteria are those that end within the measure period.

2. **Identify eligible SNF stays.** Indexed SNF stays are excluded from measure calculation if any of the following exclusion criteria are met. All remaining indexed stays are eligible for measure calculations.

   - The beneficiary was under 18 years of age at the start of the stay.

   - The beneficiary was not discharged from an acute care facility within 30 days prior to SNF admission.

   - The beneficiary was discharged from the SNF against medical advice.

   - The beneficiary was discharged from the SNF to a psychiatric hospital or to the same level of care (another SNF).

   - The beneficiary was discharged from the SNF to a federal hospital, disaster alternative care site, or court/law enforcement.

   - The beneficiary was either discharged from the SNF to hospice, or has a hospice benefit period that overlaps with the 31-day post-SNF discharge window (identified via the presence of a hospice benefit start or end date within 31 days of SNF discharge).

   - The beneficiary was not continuously enrolled in Medicare Part A for at least 365 days prior to SNF admission and for at least 31 days after SNF discharge.

- The beneficiary was discharged from an acute care facility within 30 days prior to SNF admission, but the stay was for non-surgical treatment of cancer.

- The SNF stay is associated with problematic or incomplete data. This includes anomalous records for stays that overlap wholly or in part, or are otherwise erroneous or contradictory; stays where the beneficiary cannot be matched with Medicare enrollment data; claims with zero utilization days; or if the beneficiary exhausted their Medicare Part A benefits during the stay.

- The SNF stay ended in planned discharged from the SNF to an ACH, inpatient (IP) psychiatric hospital, or an LTCH, identified by the presence of a claim from that facility type with a "claim from" date within one day of SNF discharge that is flagged as a planned admission by the PRA (note that all psychiatric hospital stays are considered planned).

- The beneficiary received care outside the 50 states, District of Columbia, Puerto Rico, and U.S. Territories (determined via the CCN of the provider rendering care, using the SOM CCN-to-U.S. state mappings).

- The beneficiary had a long-term nursing home stay in the 180 days preceding their prior proximal hospitalization (identified via NH MDS Omnibus Budget Reconciliation Act [OBRA] assessments) and was not discharged to community from that stay prior to the hospitalization.

- The indexed SNF stay occurred in a Critical Access Hospital (CAH) swing bed.

3. **Identify numerator events.** A non-excluded SNF stay is included in the numerator if the stay resulted in a successful discharge to community.

   3.1. Identify SNF stays ending in discharge to either home/self-care, home under care of an organized home health agency (HHA), home with a planned ACH readmission, or discharged home under care of an HHA with a planned ACH readmission, as indicated by the patient discharge status code on the last claim of the stay.

   3.2. Remove stays where the beneficiary died within 31 days of SNF discharge, identified by the beneficiary's date of death from the Medicare enrollment database.

   3.3. Remove stays where the beneficiary has an unplanned readmission to an ACH or an LTCH within 31 days of SNF discharge, as determined using the PRA.

4. **Determine the National Observed Rate.** Divide the number of eligible stays resulting in a successful DTC (Step 3) by the total number of all eligible stays (Step 2).

5. **Identify covariates.** Identify the following covariates associated with each SNF stay[8]:

- Beneficiary age and sex categories.

- Beneficiary is at least 65 years old and Original Reason for Entitlement Code (OREC) is either (2) disability or (3) both end-stage renal disease (ESRD) and disability.

- CCS category of principal diagnosis from the prior proximal acute stay.

- Comorbidities based on the prior acute care stay and/or a 365-day lookback, depending on the specific comorbidity, mapped to HCCs using principal and secondary ICD-10 diagnoses codes from all IP claims. HCCs are constructed using secondary diagnoses from the prior proximal stay and all diagnoses from other stays in the 365-day lookback period.

- Surgical procedure categories (if present) from the procedure codes from the prior proximal acute care stay.

- Dialysis during the prior proximal acute stay where ESRD not indicated.

- Length of prior proximal acute care stay (if stay was in non-psychiatric hospital), or indicator if prior proximal acute care stay was in a psychiatric hospital.

- Ventilator use during the SNF stay.

- Number of ACH stays in the 365 days prior to SNF admission (excluding the prior proximal acute care admission).

6. **Calculate risk-adjustment coefficients.** Once covariates have been identified for each eligible stay included in measure calculation, calculate coefficient estimates for use in risk adjustment using the following hierarchical model:

6.1. Let Y_{ij} denote the outcome (equal to 1 if beneficiary i is discharged to community, 0 otherwise) for a beneficiary i at facility j. Let $Z_{ij} = (Z_1, Z_2, ... Z_k)$ denote a set of k risk adjustment variables. Let α_j represent the facility-specific intercept, μ the adjusted average intercept across all facilities, and τ^2 the between-facility variance component.

6.2. The probability of the outcome occurring is assumed to relate to the covariates via a logit function:

$$\text{logit}\left(P\left(Y_{ij} = 1 | Z_{ij}, \alpha_j\right)\right) = \log\left(\frac{P\left(Y_{ij} = 1 | Z_{ij}, \alpha_j\right)}{1 - P\left(Y_{ij} = 1 | Z_{ij}, \alpha_j\right)}\right) = \alpha_j + \beta * Z_{ij}$$

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[8] A detailed list of individual covariates used in the model is available in the supplemental workbook (see Section 2.2).

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

7. **Calculate provider-level final scores.** Using the coefficients

$$\hat{\beta}, \hat{\mu}, \text{ and } \widehat{\alpha_j} = \hat{\mu} + \widehat{\omega_j}$$

determined in Step 6, calculate the following values for each provider:

7.1. Facility-level expected DTC number: the number of DTCs that would be expected if that facility's beneficiaries were treated at the average provider. This is defined as:

$$\text{Expected Value}_j = \sum \frac{\exp(\hat{\mu} + \hat{\beta} * Z_{ij})}{\exp(\hat{\mu} + \hat{\beta} * Z_{ij}) + 1}$$

7.2. Facility-level predicted DTC number: the predicted number of DTCs that would occur from that facility assuming the estimated provider-specific effect in the model. This is defined as:

$$\text{Predicted Value}_j = \sum \frac{\exp(\widehat{\alpha_j} + \hat{\beta} * Z_{ij})}{\exp(\widehat{\alpha_j} + \hat{\beta} * Z_{ij}) + 1}$$

7.3. Risk-Standardized DTC Rate (RSDTCR): the final risk-adjusted facility-level DTC rate, used as the final publicly reported score. Let $\bar{Y}$ denote the national observed rate calculated in Step 4. The RSDTCR is then defined as:

$$\text{RSDTCR} = \left(\frac{\text{Predicted Value}_j}{\text{Expected Value}_j} \right) * \bar{Y}$$

4 SPECIFICATIONS FOR SNF POTENTIALLY PREVENTABLE 30-DAY POST-DISCHARGE READMISSION (PPR-PD) MEASURE

The SNF PPR-PD measure assesses the rate at which beneficiaries experience a potentially preventable hospital readmission following discharge from the SNF. Specifically, this measure reports a SNF's risk-standardized rate of Medicare FFS beneficiaries who are discharged following a SNF stay, but experience a potentially preventable readmission to either an ACH or an LTCH in the 31 days following discharge.

The SNF PPR-PD measure is calculated using the following steps:

1. **Select SNF and hospital stays for the measure period.** Stays are constructed using final action Medicare FFS Part A claims. Stay construction begins by linking claims that share the same beneficiary identifier, facility CCN, and admission date. To implement restrictions and apply risk adjustment, stays created from claims are linked to other Medicare claims and enrollment data using the beneficiary identifier. SNF stays indexed for the denominator prior to exclusion criteria are those that end within the measure period.

2. **Identify eligible SNF stays.** Indexed SNF stays are excluded from measure calculation if any of the following exclusion criteria are met. All remaining indexed stays are eligible for measure calculation.

   - The beneficiary was under 18 years of age at the start of the stay.

   - The beneficiary was not discharged from an acute care facility within 30 days prior to SNF admission.

   - The beneficiary was discharged from the SNF against medical advice.

   - The beneficiary was discharged from the SNF to an IP psychiatric hospital, short-term ACH, or LTCH.

   - The beneficiary was discharged from the SNF to a federal hospital.

   - The beneficiary was not continuously enrolled in Medicare Part A for at least 365 days prior to SNF admission and for at least 31 days following the end of the SNF stay.

   - The beneficiary was discharged from an acute care facility within 30 days prior to SNF admission, but the stay was for pregnancy or for non-surgical treatment of cancer.

   - The SNF stay is associated with problematic or incomplete data. This includes anomalous records for stays that overlap wholly or in part, or are otherwise erroneous or contradictory; stays where the beneficiary cannot be matched with Medicare enrollment

data; claims with zero utilization days; or if the beneficiary exhausted their Medicare Part A benefits during the stay.

- The beneficiary received care outside the 50 states, District of Columbia, Puerto Rico, and U.S. Territories (determined via the CCN of the provider rendering care, using the SOM CCN-to-U.S. state mappings).

- The beneficiary died during the stay.

- The indexed SNF stay occurred in a CAH swing bed.

3. **Identify numerator events.** A non-excluded SNF stay is included in the numerator if a PPR event is identified following discharge from the SNF.

   3.1. Determine the SNF stays where at least one ACH or LTCH admission occurred during the period spanning the day of discharge (day 0) through the 31st day following discharge (day 31).

   3.2. Remove stays where all of the ACH or LTCH admissions are identified as planned as determined via the PRA (note: for the purposes of measure calculation, all admissions to a psychiatric hospital are considered planned).

   3.3. Keep stays where at least one of the unplanned ACH or LTCH admissions is determined to be potentially preventable using the potentially preventable diagnoses and procedures list.[9]

4. **Determine the National Observed Rate.** Divide the number of eligible stays resulting in a post-discharge PPR (Step 3) by the total number of all eligible stays (Step 2).

5. **Identify covariates.** Identify the following covariates associated with each SNF stay[10]:

- Beneficiary age and sex categories.

- Beneficiary is at least 65 years old and OREC is (2) disability, or (3) both ESRD and disability.

- CCS category of principal diagnosis from the prior proximal acute stay.

- Surgical procedure categories (if present) from the procedure codes from the prior acute care stay.

- Comorbidities based on prior acute stay or based on 365-day lookback, depending on specific comorbidity, clustered into HCCs using principal and secondary ICD-10

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[9] This list is available in the supplemental workbook (see Section 2.2).
[10] A detailed list of individual covariates used in the model is available in the supplemental workbook (see Section 2.2).

diagnoses codes from claims. HCCs are constructed using secondary diagnoses from the prior proximal stay and all diagnoses from other stays in the 365-day lookback period.

- Dialysis during the prior proximal acute stay where ESRD not indicated.

- Number of ACH stays in the 365 days prior to SNF admission (excluding the prior proximal acute care admission).

- Length of prior proximal acute care stay.

- Indicator for any intensive care unit (ICU) or cardiac care unit (CCU) days associated with the prior proximal acute stay.

6. **Calculate risk-adjustment coefficients.** Calculate coefficient estimates for use in risk adjustment using the following hierarchical model:

6.1. Let Y_{ij} denote the outcome (equal to 1 if beneficiary i experiences a post-discharge PPR, 0 otherwise) for a beneficiary i at facility j. Let $Z_{ij} = (Z_1, Z_2, ... Z_k)$ denote a set of k risk adjustment variables. Let α_j represent the facility-specific intercept, μ the adjusted average intercept across all facilities, and τ^2 the between-facility variance component.

6.2. The probability of the outcome occurring is assumed to relate to the covariates via a logit function:

$$\text{logit}\left(P\left(Y_{ij} = 1 | Z_{ij}, \alpha_j\right)\right) = \log\left(\frac{P\left(Y_{ij} = 1 | Z_{ij}, \alpha_j\right)}{1 - P\left(Y_{ij} = 1 | Z_{ij}, \alpha_j\right)}\right) = \alpha_j + \beta * Z_{ij}$$

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

7. **Calculate provider-level final scores.** Using the coefficients

$$\hat{\beta}, \hat{\mu}, \text{ and } \widehat{\alpha_j} = \hat{\mu} + \widehat{\omega_j}$$

determined in Step 6, calculate the following values for each provider:

7.1. Facility-level expected PPR number: the number of PPRs that would be expected if that facility's beneficiaries were treated at the average provider. This is defined as:

$$\text{Expected Value}_j = \sum \frac{\exp\left(\hat{\mu} + \hat{\beta} * Z_{ij}\right)}{\exp\left(\hat{\mu} + \hat{\beta} * Z_{ij}\right) + 1}$$

7.2. Facility-level predicted PPR number: the predicted number of PPRs that would occur from that facility assuming the estimated provider-specific effect in our model. This is defined as:

$$\text{Predicted Value}_j = \sum \frac{\exp(\widehat{\alpha_j} + \hat{\beta} * Z_{ij})}{\exp(\widehat{\alpha_j} + \hat{\beta} * Z_{ij}) + 1}$$

7.3. Risk-Standardized Readmission Rate (RSRR): the final risk-adjusted facility-level PPR rate, used as the final publicly reported score. Let $\bar{Y}$ denote the national observed rate calculated in Step 4. The RSRR is then defined as:

$$\text{RSRR} = \left(\frac{\text{Predicted Value}_j}{\text{Expected Value}_j}\right) * \bar{Y}$$

5 SPECIFICATIONS FOR SNF POTENTIALLY PREVENTABLE WITHIN-STAY HOSPITAL READMISSION (PPR-WS) MEASURE

The SNF PPR-WS measure assesses the rate at which beneficiaries experience a potentially preventable hospital readmission while actively receiving care at the SNF. Specifically, this measure reports a SNF's risk-standardized rate of Medicare FFS beneficiaries who experience a potentially preventable readmission to either an ACH or an LTCH in the period following SNF admission, before the beneficiary is discharged to a non-acute-care setting.

The SNF PPR-WS measure is calculated using the following steps:

1. **Select SNF and hospital stays for the measure period.** Stays are constructed using final action Medicare FFS Part A claims. Stay construction begins by linking claims that share the same beneficiary identifier, facility CCN, and admission date. To implement restrictions and apply risk adjustment, stays created from claims are linked to other Medicare claims and enrollment data using the beneficiary identifier. SNF stays indexed for the denominator prior to exclusion criteria are those that end within the measure period.

2. **Identify eligible SNF stays.** Indexed SNF stays are excluded from measure calculation if any of the following exclusion criteria are met. All remaining indexed stays are eligible for measure calculations.

   - The beneficiary was under 18 years of age at the start of the stay.

   - The beneficiary was not discharged from an acute care facility within 30 days prior to SNF admission.

   - The beneficiary was discharged from the SNF against medical advice.

   - The beneficiary was discharged from the SNF to a federal hospital.

   - The beneficiary was not continuously enrolled in Medicare Part A for at least 365 days prior to SNF admission and through the end of the SNF stay.

   - The beneficiary was discharged from an acute care facility within 30 days prior to SNF admission, but the stay was for pregnancy or for non-surgical treatment of cancer.

   - The SNF stay is associated with problematic or incomplete data. This includes anomalous records for stays that overlap wholly or in part, or are otherwise erroneous or contradictory; stays where the beneficiary cannot be matched with Medicare enrollment data; claims with zero utilization days; or if the beneficiary exhausted their Medicare Part A benefits during the stay.

- The beneficiary received care outside the 50 states, District of Columbia, Puerto Rico, and U.S. Territories (determined via the CCN of the provider rendering care, using the SOM CCN to U.S. state mappings).

- The indexed SNF stay occurred in a CAH swing bed.

3. **Identify numerator events.** A non-excluded SNF stay is included in the numerator if the stay resulted in a within-stay PPR event.

    3.1. Determine the SNF stays where at least one ACH or LTCH admission occurred during the period spanning the day of admission through the day of discharge.

    3.2. Remove stays where all of the above ACH or LTCH admissions are identified as planned as determined via the PRA.

    3.3. Keep stays where at least one of the unplanned ACH or LTCH admissions is determined to be potentially preventable through the potentially preventable diagnoses and procedures list.[11]

4. **Determine the National Observed Rate.** Divide the number of eligible stays resulting in a within-stay PPR (Step 3) by the total number of all eligible stays (Step 2).

5. **Identify covariates.** Identify the following covariates associated with each SNF stay[12]:

    - Beneficiary age and sex categories.

    - Beneficiary is at least 65 years old and OREC is (2) disability.

    - CCS category of principal diagnosis from the prior proximal acute stay.

    - Surgical procedure categories (if present) from the procedure codes from the prior proximal acute care stay.

    - Indicator for a diagnosis of ESRD.

    - Length of prior proximal acute care hospital stay.

    - Indicator for any ICU or CCU utilization associated with the prior proximal acute care stay.

    - Comorbidities based on prior acute stay or based on 365-day lookback, depending on specific comorbidity, clustered into HCCs using principal and secondary ICD-10

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[11] This list is available in the supplemental workbook (see Section 2.2).
[12] A detailed list of individual covariates used in the model is available in the supplemental workbook (see Section 2.2).

diagnoses codes from claims. HCCs are constructed using secondary diagnoses from the prior proximal stay and all diagnoses from other stays in the 365-day lookback period.

- Number of ACH stays in the 365 days prior to SNF admission (excluding the prior proximal acute care admission).

6. **Calculate risk-adjustment coefficients.** Once covariates have been identified for each eligible stay included in measure calculation, calculate coefficient estimates for use in risk adjustment using the following hierarchical model:

6.1. Let Y_{ij} denote the outcome (equal to 1 if beneficiary i experiences a within-stay PPR, 0 otherwise) for a beneficiary i at facility j. Let $Z_{ij} = (Z_1, Z_2, ... Z_k)$ denote a set of k risk adjustment variables. Let α_j represent the facility-specific intercept, μ the adjusted average intercept across all facilities, and τ^2 the between-facility variance component.

6.2. The probability of the outcome occurring is assumed to relate to the covariates via a logit function:

$$\text{logit}\left(P\left(Y_{ij} = 1 | Z_{ij}, \alpha_j\right)\right) = \log\left(\frac{P\left(Y_{ij} = 1 | Z_{ij}, \alpha_j\right)}{1 - P\left(Y_{ij} = 1 | Z_{ij}, \alpha_j\right)}\right) = \alpha_j + \beta * Z_{ij}$$

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

7. **Calculate provider-level final scores.** Using the coefficients

$$\hat{\beta}, \hat{\mu}, \text{ and } \widehat{\alpha_j} = \hat{\mu} + \widehat{\omega_j}$$

determined in Step 6, calculate the following values for each provider:

7.1. Facility-level expected PPR number: the number of PPRs that would be expected if that facility's beneficiaries were treated at the average provider. This is defined as:

$$\text{Expected Value}_j = \sum \frac{\exp\left(\hat{\mu} + \hat{\beta} * Z_{ij}\right)}{\exp\left(\hat{\mu} + \hat{\beta} * Z_{ij}\right) + 1}$$

7.2. Facility-level predicted PPR number: the predicted number of PPRs that would occur from that facility assuming the estimated provider-specific effect in our model. This is defined as:

$$\text{Predicted Value}_j = \sum \frac{\exp\left(\widehat{\alpha_j} + \hat{\beta} * Z_{ij}\right)}{\exp\left(\widehat{\alpha_j} + \hat{\beta} * Z_{ij}\right) + 1}$$

7.3. Risk-Standardized Readmission Rate (RSRR): the final risk-adjusted facility-level PPR rate, used as the final publicly reported score. Let $\bar{Y}$ denote the national observed rate calculated in Step 4. The RSRR is then defined as:

$$\text{RSRR} = \left(\frac{\text{Predicted Value}_j}{\text{Expected Value}_j}\right) * \bar{Y}$$

6 SPECIFICATIONS FOR SNF HEALTHCARE-ASSOCIATED INFECTIONS REQUIRING HOSPITALIZATION (SNF HAI) MEASURE

The SNF HAI measure is a facility-level, one-year outcome measure that estimates the risk-standardized rate of HAIs that are acquired during SNF care and result in hospitalization. The measure is designed to report a variety of healthcare-associated infections as a singular rate, and it incorporates an indicator of infection severity as it only assesses infections that require hospitalization. HAIs that are acquired during SNF care and result in hospitalization are identified using the principal diagnosis on beneficiaries' Medicare inpatient (IP) claims. Hospitalizations do not include emergency department visits or observation stays. The measure accounts for misattribution through use of an incubation window. As such, hospitalization resulting from an HAI must occur during the period beginning on day four after SNF admission and within three days after SNF discharge. The measure also applies a 14-day repeat infection timeframe to exclude infections that are preexisting to the SNF stay. The measure is risk-adjusted to allow for comparison based on beneficiaries with similar characteristics across SNFs. Since HAIs are not considered never-events, the measure's objective is to identify SNFs that have higher HAI rates than their peers.

The SNF HAI measure is calculated using the following steps:

1. **Select SNF and hospital stays for measure calculations.** Stays are constructed using final action Medicare Part A claims. Stay construction begins by linking claims that share the same beneficiary identifier, facility CCN, and admission date. To implement study restrictions and apply risk adjustment, stays created from SNF claims are linked to other Medicare claims and enrollment data using the beneficiary identifier.

2. **Identify eligible SNF stays.** Eligible stays for this measure include those that do not meet the measure's exclusion criteria during the measurement period. SNF stays are excluded from the measure denominator if one or more of the following criteria are met:

   - The beneficiary was under 18 years of age at the start of the stay.

   - SNF length of stay was shorter than four days.

   - The beneficiary was not continuously enrolled in Part A FFS Medicare during the SNF stay, 365 days prior to the measure period, and three days after the end of the SNF stay.

   - The beneficiary did not have a Part A short-term acute care hospital stay within 30 days prior to the SNF admission date. The short-term stay must have a positive payment and positive length of stay.

   - The beneficiary was transferred to a federal hospital from the SNF as determined by the discharge status code on the SNF claim.

- The beneficiary received care outside the United States, Puerto Rico, or a U.S. territory (determined via the CCN of the provider rendering care, using the SOM CCN to U.S. state mappings).

- Medicare did not pay for the SNF stay, resulting in a non-positive payment on the SNF claim.

- Data were missing on any variable used in measure construction or risk adjustment.

- The indexed SNF stay occurred in a CAH swing bed.

3. **Identify numerator events**. The numerator for this measure is the number of stays with an HAI acquired during SNF care that results in an IP hospitalization within the measure incubation window. Steps 3.1 through Steps 3.3 are used to construct the measure numerator:

   3.1. **Identify IP readmissions within the incubation window**. Identify IP readmissions that fall within the measure's incubation window, beginning on or after the fourth day of the SNF stay and within three days of SNF discharge.

   3.2. **Identify HAI diagnoses for numerator inclusion.** Search for HAI diagnoses in the principal diagnosis field of the readmitting IP claim. Only HAI diagnoses marked as present on admission (POA) within the IP claim are included in the measure numerator. See Table 1 in the *Skilled Nursing Facility Healthcare Associated Infections Requiring Hospitalization Supplemental Codes* workbook for a full list of ICD-10 codes included in the measure numerator for fiscal year (FY) 2022.[13]

      - If an HAI diagnosis is found, and is marked as POA, proceed to Step 3.3.

      - If no HAI diagnosis is found, or if the HAI diagnosis is not marked as POA, then the infection is not counted toward the measure numerator.

   3.3. **Apply the 14-day repeat infection timeframe (RIT) to exclude preexisting infections.** Calculate the number of days between IP stays, which is defined as the difference between the discharge date of the most proximal IP stay prior to SNF admission and the admission date of the readmitting IP stay.

      - If the number of days between IP stays is less than 14 days, then search for HAI-related conditions in all ICD-10 diagnosis codes of the prior IP stay. The preexisting infection recorded in the prior proximal hospitalization must be a diagnosis that is related to the HAI recorded in the rehospitalization. Related diagnoses include principal and comorbid ICD-10 diagnoses on the prior hospital claim. See Table 1 in

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[13] The ICD-10 list is available in the supplemental workbook (see Section 2.2). The following ICD-10 mappings only apply for FY2022 and are subject to change every year.

the *Skilled Nursing Facility Healthcare Associated Infections Requiring Hospitalization Supplemental Codes* workbook for a full list of principal and comorbid ICD-10 codes.[14]

   3.3.1. If a preexisting condition is found, then the HAI case should be excluded from the measure numerator. The HAI case is considered a repeated infection.

   3.3.2. If a preexisting condition is not found, then the HAI case should be included in the HAI numerator.

- If the number of days between IP stays is 14 days or greater, the diagnosis information recorded in the prior IP stay does not need to be accounted for. The case should be counted as an HAI for numerator inclusion.

4. **Determine the national observed HAI rate.** The national observed rate is the average observed HAI rate across all SNF stays. To calculate the national observed rate, divide the total number of stays resulting in an HAI over the total number of SNF stays.

5. **Identify covariates**. Identify the following covariates associated with each SNF stay[15]:

- Beneficiary age and sex category.

- Original reason for Medicare entitlement.

- Prior proximal IP stay surgery category.[16]

- Prior proximal IP stay dialysis treatment (not including ESRD).

- Prior proximal IP stay principal diagnosis categories.

- HCC comorbidities, as described in Section 2.1.

- Length of the prior proximal IP stay.

- Utilization of the ICU or CCU during the prior proximal IP stay.

- Number of prior IP stays within a 365-day lookback the SNF admission date, excluding the most proximal hospitalization claim prior to the SNF admission.

6. **Calculate risk adjustment coefficients.** The measure utilizes a hierarchical logistic regression model to predict the probability of an HAI that is acquired during SNF care and results in hospitalization. The covariates listed in Step 5 and in Table 2 in the *Skilled Nursing*

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[14] The ICD-10 list is available in the supplemental workbook (see Section 2.2). The following ICD-10 mappings only apply for FY2022 and are subject to change every year.

[15] The risk adjustment covariates list is available in the supplemental workbook (see Section 2.2).

[16] Surgery categories were developed for the Hospital-Wide All-Cause Unplanned Readmission measure and are available in SAS programs that are maintained and available from Yale CORE upon request.

Facility Healthcare Associated Infections Requiring Hospitalization Supplemental Codes workbook are predictor variables in the model. The model estimates both the predictive effect of beneficiary characteristics across all SNFs, and the degree to which each SNF has an effect on the HAI outcome that differs from that of the average SNF. The measure utilizes the following model:

6.1. Let Y_{ij} denote the outcome (equal to 1 if the beneficiary i has an HAI that is acquired during SNF care and results in hospitalization) for a beneficiary i at SNF j; Z_{ij} denotes a set of risk factors. It is assumed that the outcome is related linearly to the covariates via a logit function with dispersion:

$$\text{logit}\left(P\left(Y_{ij} = 1 \middle| Z_{ij}, \alpha_j\right)\right) = \log\left(\frac{P\left(Y_{ij} = 1 \middle| Z_{ij}, \alpha_j\right)}{1 - P\left(Y_{ij} = 1 \middle| Z_{ij}, \alpha_j\right)}\right) = \alpha_j + \beta * Z_{ij}$$

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

where $Z_{ij} = (Z_{ij1}, Z_{ij2}, \ldots Z_{ijk})$ is a set of k beneficiary-level covariates. α_j represents the SNF-specific intercepts of the j-th SNF which is assumed to follow a normal distribution with mean μ and variance τ^2, independent of Z_{ij}. The estimated equation is used twice in the measure (see Step 6.2 and Step 6.3). The sum of the probabilities of HAIs, including both the effects of beneficiary characteristics and SNFs, is the "predicted number" of HAIs that are acquired during SNF care and result in hospitalization after adjusting for case mix. The same equation is used without the SNF effect to compute the "expected number" for the same beneficiaries at a SNF whose quality is at the national average level.

6.2. **Calculate the predicted value.** To calculate the predicted number of HAIs (*pred$_j$*) for provider j, sum the predicted probabilities of HAI for all stays at provider j:

$$\text{Predicted Value}_j = \sum \frac{\exp\left(\widehat{\alpha_j} + \hat{\beta} * Z_{ij}\right)}{\exp\left(\widehat{\alpha_j} + \hat{\beta} * Z_{ij}\right) + 1}$$

6.3. **Calculate the expected value.** To calculate the expected number (*exp$_j$*) for provider j, sum the predicted probabilities for HAI for all stays at provider j:

$$\text{Expected Value}_j = \sum \frac{\exp\left(\hat{\mu} + \hat{\beta} * Z_{ij}\right)}{\exp\left(\hat{\mu} + \hat{\beta} * Z_{ij}\right) + 1}$$

7. **Calculate the standardized risk ratio (SRR).** Calculate the (*SRR$_j$*) for each SNF as the ratio of the predicted to expected number of HAIs that are acquired during SNF care and result in

hospitalization using the following formula:

$$SRR_j = \frac{\text{Predicted Value}_j}{\text{Expected Value}_j} = \frac{\sum logit^{-1}\left(\widehat{\alpha_j} + \hat{\beta} * Z_{ij}\right)}{\sum logit^{-1}\left(\hat{\mu} + \hat{\beta} * Z_{ij}\right)}$$

8. **Multiply the SRR by the national average to produce the final risk-adjusted measure score**. Calculate the risk-standardized rate of HAIs that are acquired during SNF care and result in hospitalization for each SNF by multiplying the SRR_j (calculated in Step 7) by the overall national observed rate of HAIs, $\bar{Y}$ (calculated in Step 4).

$$Risk\ adjusted\ HAI\ Rate\ =\ SRRj * \bar{Y}$$

7 SPECIFICATIONS FOR SNF MEDICARE SPENDING PER BENEFICIARY – POST-ACUTE CARE (MSPB-PAC) MEASURE

The SNF MSPB-PAC measure assesses a SNF's resource use relative to the resource use of the national median SNF. The measure is reported as the ratio of the price-standardized, risk-adjusted MSPB amount for each SNF divided by the episode-weighted median MSPB amount across all SNFs. Specifically, the SNF MSPB-PAC measure assesses the cost to Medicare for services performed by SNFs and other healthcare providers during an MSPB episode of care (episode), which is composed of the periods during and following a beneficiary's SNF stay. The SNF that triggers the episode is the provider to whom the episode is attributed for the purpose of calculating the MSPB-PAC measures.

The episode window is the time period during which Medicare FFS Part A and Part B services are counted toward the SNF MSPB-PAC episode. The episode window is comprised of a treatment period and an associated services period. The treatment period of a SNF MSPB-PAC episode begins at SNF admission and ends at SNF discharge. The associated services period begins at SNF admission and ends 30 days after the end of the treatment period (or 30 days post-SNF discharge). The definition of MSPB-PAC episodes allows episodes to overlap with the MSPB hospital measure and with other MSPB-PAC episodes to create continuous accountability and align incentives to improve care planning and coordination across IP and PAC settings.

The SNF MSPB-PAC measure is calculated using the following steps:

1. **Select SNF episodes for the measure period.** SNF MSPB-PAC episodes are constructed using final action Medicare FFS Parts A and B claims data. Episode construction begins by linking claims that share the same beneficiary identifier, SNF CCN, and admission date. The episode trigger is the beneficiary's admission to the provider, and the episode is attributed to the SNF at which the beneficiary triggers the episode, meaning that the episode is counted toward that provider's SNF MSPB-PAC measure.[17] To implement measure calculation restrictions and apply risk adjustment, episodes are linked to other Medicare claims and enrollment data using the beneficiary identifier.

   1.1. Episodes are created by collapsing adjacent stays into a single stay if the discharge date of the stay and the admission date of the subsequent stay occur within zero to seven days.

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[17] Only SNF episodes that are preceded by a qualifying IP stay are included in MSPB-PAC SNF measure calculation. More information about qualifying for Medicare SNF coverage can be found here: https://www.cms.gov/regulations-and-guidance/guidance/manuals/downloads/bp102c08pdf.pdf.

    1.2. Readmissions of the same beneficiary to the same provider within seven days of discharge do not trigger a new episode. Readmissions after eight or more days trigger a new episode.[18]

2. **Define the episode window.** The episode window of a SNF MSPB-PAC episode begins at SNF admission and ends 30 days after SNF discharge.

3. **Apply price standardization.** The SNF MSPB-PAC measure uses a detailed price standardization methodology to exclude geographic payment rate differences. In other words, the measure adjusts observed payments for Medicare geographic adjustment factors, such as the hospital wage index and geographic practice cost index (GPCI). Full details of the price standardization methodology for the SNF MSPB-PAC measure are available from the Research Data Assistance Center (ResDAC).[19]

4. **Exclude clinically unrelated services.** Services and related costs are subject to exclusions to ensure providers are not disincentivized from treating beneficiaries with certain conditions or complex care needs. This full list of excluded services is summarized in the supplementary materials (see Section 2.2), but broadly includes the following categories:

- Planned hospital admissions.

- Routine management of certain preexisting chronic conditions (e.g., dialysis for ESRD, enzyme treatments for genetic conditions, treatment for preexisting cancers, and treatment for organ transplants).

- Some routine screening and healthcare maintenance (e.g., colonoscopies and mammograms).

- Immune-modulating medications (e.g., immunosuppressants for organ transplant or rheumatoid arthritis).

5. **Exclude first-day services**. 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 Durable Medical Equipment, Prosthetics, Orthotics, and Supplies (DMEPOS) orders preceding the beneficiary's admission to the PAC provider. The supplementary materials include a detailed description of the rules pertaining to first-day services (see Section 2.2).

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[18] By collapsing closely adjacent stays in this way, the length of the treatment period is extended (i.e., it begins on the day of the beneficiary's first admission and ends at the beneficiary's latest discharge). Given the way that the associated services period is constructed, it too is extended when adjacent stays are collapsed (i.e., it begins on the day of the beneficiary's first admission and ends 30 days after the end of the treatment period).
[19] https://resdac.org/articles/cms-price-payment-standardization-overview.

6. **Calculate standardized episode spending.** For each SNF MSPB-PAC episode, sum all standardized Medicare FFS Part A and Part B claims payments for services in the episode window, other than services excluded in Steps 4 and 5 above.

7. **Identify eligible SNF episodes.** For each episode ending within the measure period, episodes are excluded based on the criteria listed below. All remaining episodes are eligible for measure calculations.

   - Any episode that is triggered by a SNF claim outside the 50 states, DC, Puerto Rico, and U.S. Territories.

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

   - Any episode in which a beneficiary is not enrolled in Medicare FFS for the entirety of a 90-day lookback period (that is, 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.

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

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

   - Any episode that is associated with problematic or incomplete data. This includes anomalous records for episodes that overlap wholly or in part, or are otherwise erroneous or contradictory.

8. **Calculate expected episode cost.** The MSPB-PAC methodology uses an ordinary least squares (OLS) regression to estimate the relationship between the independent variables described below and standardized episode payment. All covariates are defined using a 90-day lookback period unless otherwise noted. The predicted values from this regression represent the expected spending for each episode. The following covariates are included in the risk-adjustment model[20]:

   - Beneficiary's age categories.

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[20] A detailed list of individual covariates used in the model is available in the supplemental workbook (see Section 2.1). The covariate list may be subject to non-substantive updates and changes.

- HCCs, including HCC interaction terms,[21] as described in Section 2.1.

- OREC of either ESRD or disability.

- Long-term care institutionalization at start of episode.[22]

- Six clinical case mix categories reflecting recent prior care, using a 60-day lookback period, as described in Appendix B.

- Hospice utilization during the episode.

- Prior acute ICU utilization days categories.

- Prior acute length-of-stay categories.

9. **Winsorize predicted values.** To prevent creating extreme predicted values, this step Winsorizes (i.e., "bottom-codes") predicted values at the 0.5th percentile.[23] The resultant values are renormalized to maintain a consistent average episode payment. This renormalization multiplies the Winsorized predicted values by the ratio of the average original predicted payment and the average Winsorized predicted payment and ensures that the average of the resulting Winsorized predicted values is equal to the average of the original predicted values.

10. **Exclude outliers.** This step excludes outliers from the calculation and renormalizes the resultant predicted values to maintain a consistent average episode payment level. MSPB-PAC episodes whose residuals fall above the 99th percentile or below the 1st percentile of the distribution of residuals across all SNF MSPB-PAC episodes are excluded from the SNF MSPB-PAC calculation to eliminate the episodes that deviate most from their predicted values in absolute terms. This step also renormalizes the predicted values to ensure that the average expected episode spending levels are the same as average standardized spending levels after outlier exclusions. This renormalization multiplies the predicted values after excluding outliers by the ratio of the average standardized spending level and the average Winsorized predicted spending level after excluding outliers.

The residuals for each episode are calculated as the difference between standardized episode spending and standardized predicted spending for episode i and provider j:

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

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[21] CMS Risk Adjustment model software can be found here: https://www.cms.gov/Medicare/Health-Plans/MedicareAdvtgSpecRateStats/Risk-Adjustors.
[22] 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 MDS and is calculated based on CMS's definition of institutionalized individuals.
[23] Winsorization is a statistical transformation that limits extreme values in data to reduce the effect of possibly spurious outliers. Thus, all predicted values below the 0.5th percentile are assigned the value of the 0.5th percentile.

where:

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

$\hat{Y}_{ij}$ is the standardized predicted spending for episode i and provider j, from Step 9 above.

11. **Calculate SNF MSPB-PAC measure.** The measure is calculated for individual SNFs, allowing them to be compared to other SNFs. The MSPB-PAC measure for individual provider j is calculated as the following ratio:

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

The numerator is the MSPB-PAC amount, or the average risk-adjusted episode spending across all episodes for the attributed SNF. To calculate the MSPB-PAC amount for each SNF, the average ratio of standardized episode spending over expected episode spending across all episodes for the SNF is found and then this ratio is multiplied by the average episode spending level across all SNFs. The MSPB-PAC amount numerator is calculated as:

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

where:

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

$\hat{Y}_{ij}$ is the expected standardized spending for episode i and provider j, as predicted from risk adjustment, and resulting from Step 9 above

n_j is the number of episodes for provider j

n is the total number of episodes nationally

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

The denominator is the episode-weighted national median of the SNF MSPB-PAC amounts for all SNFs.

Appendix A – ACRONYMS USED

Appendix A lists all acronyms utilized in this manual.

ACH: acute care hospital

AHRQ: Agency for Healthcare Research and Quality

CAH: Critical Access Hospital

CBM: claims-based measure

CCN: CMS Certification Number

CCS: Clinical Classification Software

CCU: cardiac care unit

CM: Clinical Modification

CMS: Centers for Medicare & Medicaid Services

DMEPOS: Durable Medical Equipment, Prosthetics, Orthotics, and Supplies

DTC: Discharge to Community

ESRD: end-stage renal disease

FFS: fee-for-service

GPCI: geographic practice cost index

HCC: Hierarchical Condition Category

HCUP: Healthcare Cost and Utilization Project

HHA: home health agency

HWR: Hospital-Wide Readmission

ICD-10: International Classification of Diseases, Tenth Revision

ICU: intensive care unit

IMPACT: Improving Medicare Post-Acute Care Transformation

IOM: Internet-Only Manual

IP: inpatient

IRF: Inpatient Rehabilitation Facility

LTCH: Long-Term Care Hospital

MBSF: Master Beneficiary Summary File

MDS: Minimum Data Set

MSPB: Medicare Spending per Beneficiary

NH: Nursing Home

OBRA: Omnibus Budget Reconciliation Act

OLS: ordinary least squares

OREC: Original Reason for Entitlement Code

PAC: post-acute care

PCS: Procedure Coding System

PD: post-discharge

PDC: Provider Data Catalog

POA: present on admission

PPR: potentially preventable readmission

PRA: Planned Readmission Algorithm

QRP: Quality Reporting Program

ResDAC: Research Data Assistance Center

RIT: repeat infection timeframe

RSDTCR: Risk-Standardized Discharge to Community Rate

RSRR: Risk-Standardized Readmission Rate

SNF: Skilled Nursing Facility

SOM: State Operations Manual

SRR: standardized risk ratio

WS: within-stay

Appendix B – MSPB-PAC CLINICAL CASE MIX RISK ADJUSTMENT METHODOLOGY

The clinical case mix category variables used in the MSPB-PAC risk-adjustment models are included to account for differences in intensity and type of care received by beneficiaries prior to the start of an MSPB-PAC episode. Taking the most recent institutional claim (by end date) in the 60 days prior to the start of an MSPB-PAC 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 IP hospital

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

(3) **Prior Acute Medical IP with ICU** – beneficiaries who have most recently stayed in an acute IP 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 IP 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 an HHA

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

If 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.