Medicare Fee-For-Service Skilled Nursing Facility Utilization & Payment Public Use File: A Methodological Overview

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Prepared by:
The Centers for Medicare and Medicaid Services,
Office of Enterprise Data and Analytics

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1. Background

The Skilled Nursing Facility Utilization and Payment Public Use File (herein referred to as "Skilled Nursing Facility PUF") presents information on services provided to Medicare beneficiaries by skilled nursing facilities. The Skilled Nursing Facility PUF contains information on utilization, payment (allowed amount, Medicare payment and standardized payment), and submitted charges organized by 6-digit identification number, Resource Utilization Group (RUG), and state of service. This PUF is based on information from CMS's Chronic Conditions Data Warehouse (CCW) data files. The data in the Skilled Nursing Facility PUF covers calendar years 2013-2016 and contains 100% final-action (i.e., all claim adjustments have been resolved) skilled nursing facility Part A institutional claims for the Medicare fee-for-service (FFS) population.

2. Key Data Sources

The primary data source for these data is CMS's Chronic Conditions Data Warehouse (CCW). The CCW contains Medicare enrollment and eligibility information for all beneficiaries (whether they are in the fee-for-service program or a Medicare Advantage plan, and whether or not they have a chronic condition), complete data for Part A and Part B claims, and complete data for Part D prescription drug events, among other data. The CCW Part A and Part B data files contain 100 percent of Medicare final action claims for beneficiaries who are enrolled in the FFS program. The CCW Part A institutional claims and revenue center files, restricted to claims where the claim type code was "20" or "30" indicating that the claim was a Skilled Nursing Facility claim, were used to create the Skilled Nursing Facility PUF.

The Skilled Nursing Facility PUF also includes information on the amount of therapy provided to patients who are categorized into two specific RUGs, the RV (Very-high Rehab) and RU (Ultra-high Rehab) categories. The data source for this data is the Long-Term Care Minimum Data Set 3.0 (MDS). The MDS is a standardized, primary screening and assessment tool of health status which forms the foundation of the comprehensive assessment for all residents (regardless of payer) of long-term care facilities certified to participate in Medicare or Medicaid. The MDS contains items that measure physical, clinical, psychological, psycho-social functioning, and life care wishes.

Provider demographics are also incorporated into the Skilled Nursing Facility PUF including name and complete address from the CMS Provider of Services (POS) file. This file is created annually and contains dozens of variables that describe the characteristics of institutional Medicare providers. Additional information regarding the POS file is available on the CMS website at: http://www.cms.gov/Research-Statistics-Data-and-Systems/Files-for-Order/NonIdentifiableDataFiles/ProviderofServicesFile.html.

3. New for This Year

Several changes were made to the underlying CCW data files that were used to create this version of the Skilled Nursing Facility PUF. The changes, which are explained below, apply to all years of data in the PUF:

a) Timing of data release - Previous versions of the Skilled Nursing Facility PUF relied on data files that were produced after 24 months of maturity; that is, after a full 12 months of runout after the end of each calendar year. The new version of the Skilled Nursing Facility PUF is based on data files that are produced after 18 months of maturity (i.e., six months after the end of the calendar year).
b) Enrollment data source conversion - Historically, the Enrollment Database (EDB) has been the source for enrollment and demographic information in the Master Beneficiary Summary File (MBSF), which forms the basis for the hospice provider PUF enrollment data. However, as the Medicare benefit has become increasingly complex, the Medicare enrollment applications and data systems have evolved. CMS has designated the Common Medicare Environment (CME) database as the single, enterprise-wide authoritative source for Medicare beneficiary enrollment and demographic data. We have transitioned the source for enrollment and demographic information in the MBSF from the EDB to the CME database.

More information on these changes can be found on the CCW website at:
https://www.ccwdata.org/web/guest/ccw-medicare-data-white-papers

4. Population

The Skilled Nursing Facility PUF includes data for providers that had a valid identification number and submitted a Medicare Part A claim during the calendar year. To protect the privacy of Medicare beneficiaries, any aggregated records which are derived from 10 or fewer beneficiaries are excluded from the Skilled Nursing Facility PUF. Please note that each table is suppressed separately, meaning that there are more suppressed rows in the Provider by RUG table than the Provider table, and more suppressed rows in the RUG by State table than in the RUG table, as the cell sizes in the more detailed tables are smaller.

5. Aggregation

The spending and utilization data in the Skilled Nursing Facility PUF are aggregated to the following:

a) the identification number for the facility, and
b) the Resource Utilization Group (RUG).

Part A claims require providers to include their 6-digit identification number. The first two characters indicate the state where the provider is located, using the Social Security Administration's state codes; the middle two characters represent the type of provider; and the last two digits are used as a counter for the providers within a given provider type.

Medicare covers services provided in a skilled nursing facility (SNF) for qualifying patients for up to 100 days per benefit period (also called spell of illness). Generally, Medicare makes payment under the SNF prospective payment system (SNF PPS) for the 100 days on a per diem basis that is adjusted for case-mix

and wage index. These payments cover all routine, ancillary and capital-related costs related to providing benefits and services. Beneficiaries who receive SNF services for longer than 20 days are required to pay a daily copayment for the remainder of their stay ($161.00 in 2016).

To adjust for case-mix, patients are assigned to one of 66 resource utilization groups (RUGs). Certain characteristics such as therapy and service use are used to place the patient in a particular RUG, and each RUG has associated weights which are applied to the base per diem rates. For additional information on RUGs, visit https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/SNFPPS/index.html.

The Skilled Nursing Facility PUF includes more detailed information on the amount of therapy provided to patients in RV and RU RUGs, aggregated by provider number. In order to qualify for an RV RUG, a resident must receive at least 500 minutes of therapy each week, among other criteria. In the case of the RU RUGs, the resident must receive at least 720 minutes of therapy each week.

6. Data Tables

The Skilled Nursing Facility PUF contains five tables: 1) aggregated information by provider, 2) aggregated information by provider and RUG, 3) aggregated information by RUG, 4) aggregated information by RUG and state, and 5) aggregated information on therapy minutes.

Provider Aggregate Table

The "Provider Aggregate Table" contains information on utilization and payment (provider charges, allowed amount, Medicare payment, and standard payment), organized by SNF.

Provider by RUG Aggregate Table

The "Provider by RUG Aggregate Table" contains information on utilization and payment (provider charges, allowed amount, Medicare payment, and standard payment), organized by SNF and RUG.

RUG and RUG/State Aggregate Table

The "RUG Aggregate Table" and "RUG by State Aggregate Table" contain information on utilization, Medicare payment, and submitted charges organized by RUG and RUG by state respectively.

Therapy Minutes Aggregate Table

The "Therapy Minutes Aggregate Table" contains information on the number of RV and RU assessments submitted by a SNF, and the percent of RV and RU assessments where the number of therapy minutes falls within 10 minutes of the minimum therapy minute threshold necessary to qualify for that RUG category.

7. Data Contents

The Provider Aggregate, Provider by RUG Aggregate, RUG Aggregate, and RUG by State Aggregate tables include the following variables, as appropriate:

Provider ID – The 6-digit identification number for the SNF on the claim.

Facility name – The SNF name, as reported in the POS file.

Street address – The SNF address, as reported in the POS file.

City – The city where the SNF is located, as reported in the POS file.

State – The state where the SNF is located, as reported in POS file. The fifty U.S. states and the District of Columbia are reported by the state postal abbreviation.

Zip – The SNF's zip code, as reported in the POS file.

RUG – RUG category code.

RUG description – Description of the RUG category.

Total stays – Total count of stays provided by a SNF in the calendar year.

Total days – Total count of days provided by a SNF or in a unique RUG category in the calendar year. Beneficiaries are only be counted once per row in this field, but may be counted across multiple RUGs.

Distinct beneficiaries – Number of distinct Medicare beneficiaries with a least one SNF stay or SNF day in the calendar year. Beneficiaries may have more than one SNF stay or day per year but are only counted once in this field per row, however they may be double-counted across providers or RUGs. Therefore, this column will not sum to a total count of unique beneficiaries.

Average Length of Stay – Average length of stay, in days.

Total SNF Charge Amount - Total charges that the SNF submitted for stays.

Average SNF Charge Amount, Per Day – Average of the charges that the SNF submitted per day.

Average SNF Charge Amount, Per Beneficiary – Average of the charges that the SNF submitted per distinct beneficiary.

Total SNF Allowed Amount – Total of the Medicare allowed amount for stays; this figure is the sum of the amount Medicare pays, the deductible and coinsurance amounts that the beneficiary is responsible for paying, and any amounts that a third party is responsible for paying.

Average SNF Allowed Amount, Per Day – Average of the Medicare allowed amount per day; this figure is the sum of the amount Medicare pays, the deductible and coinsurance amounts that the beneficiary is responsible for paying, and any amounts that a third party is responsible for paying.

Average SNF Allowed Amount, Per Beneficiary – Average of the Medicare allowed amount per distinct beneficiary; this figure is the sum of the amount Medicare pays, the deductible and coinsurance amounts that the beneficiary is responsible for paying, and any amounts that a third party is responsible for paying.

Total SNF Medicare Payment Amount - Total amount that Medicare paid for the SNF stays after deductible and coinsurance amounts have been deducted.

Average SNF Medicare Payment Amount, Per Day – Average amount that Medicare paid per day after deductible and coinsurance amounts have been deducted.

Average SNF Medicare Payment Amount, Per Beneficiary – Average amount that Medicare paid per distinct beneficiary after deductible and coinsurance amounts have been deducted.

Total SNF Medicare Standard Payment Amount - Total amount that Medicare paid for SNF stays adjusted for geographic differences in payment rates.

Average SNF Medicare Standard Payment Amount, Per Day – Average amount that Medicare paid per day after deductible and coinsurance amounts have been deducted, adjusted for geographic differences in payment rates.

Average SNF Medicare Standard Payment Amount, Per Beneficiary – Average amount that Medicare paid per distinct beneficiary after deductible and coinsurance amounts have been deducted, adjusted for geographic differences in payment rates.

The Provider Aggregate table also includes the following beneficiary demographic information and chronic condition indicators:

Average Age – Average age of beneficiaries. Beneficiary age is calculated at the end of the calendar year or at the time of death.

Male Beneficiaries – Number of male beneficiaries.

Female Beneficiaries – Number of female beneficiaries.

Nondual Beneficiaries – Number of Medicare beneficiaries qualified to receive Medicare only benefits. Beneficiaries are classified as Medicare only entitlement if they received zero months of any Medicaid benefits (full or partial) in the given calendar year.

Dual Beneficiaries – Number of Medicare beneficiaries qualified to receive Medicare and Medicaid benefits. Beneficiaries are classified as Medicare and Medicaid entitlement if in any month in the given calendar year they were receiving full or partial Medicaid benefits.

White Beneficiaries – Number of non-Hispanic white beneficiaries.

Black Beneficiaries – Number of non-Hispanic black or African American beneficiaries.

Asian Pacific Islander Beneficiaries – Number of Asian Pacific Islander beneficiaries.

Hispanic Beneficiaries – Number of Hispanic beneficiaries.

American Indian or Alaska Native Beneficiaries – Number of American Indian or Alaska Native beneficiaries.

Other/ Unknown Beneficiaries – Number of beneficiaries with race not elsewhere classified.

Average HCC Score – Average Hierarchical Condition Category (HCC) risk score of beneficiaries. Please refer to the "Additional Information" section of this document for more details on HCC risk scores.

Percent of Beneficiaries with Atrial Fibrillation[1] – Percent of beneficiaries meeting the CCW chronic condition algorithm for atrial fibrillation.

Percent of Beneficiaries with Alzheimer's[1] – Percent of beneficiaries meeting the CCW chronic condition algorithm for Alzheimer's, related disorders, or dementia.

Percent of Beneficiaries with Asthma[1] – Percent of beneficiaries meeting the CCW chronic condition algorithm for Asthma.

Percent of Beneficiaries with Cancer[1] – Percent of beneficiaries meeting the CCW chronic condition algorithms for cancer. Includes breast cancer, colorectal cancer, lung cancer and prostate cancer.

Percent of Beneficiaries with CHF[1] – Percent of beneficiaries meeting the CCW chronic condition algorithm for heart failure.

Percent of Beneficiaries with Chronic Kidney Disease[1] – Percent of beneficiaries meeting the CCW chronic condition algorithm for chronic kidney disease.

Percent of Beneficiaries with COPD[1] – Percent of beneficiaries meeting the CCW chronic condition algorithm for chronic obstructive pulmonary disease.

Percent of Beneficiaries with Depression[1] – Percent of beneficiaries meeting the CCW chronic condition algorithm for depression.

Percent of Beneficiaries with Diabetes[1] – Percent of beneficiaries meeting the CCW chronic condition algorithm for diabetes.

Percent of Beneficiaries with Hyperlipidemia[1] – Percent of beneficiaries meeting the CCW chronic condition algorithm for hyperlipidemia.

Percent of Beneficiaries with Hypertension[1] – Percent of beneficiaries meeting the CCW chronic condition algorithm for hypertension.

[1] To protect the privacy of Medicare beneficiaries, the percent of beneficiaries between 75% and 100% have been top-coded at 75%. Information on source data is available from the CMS Chronic Conditions Warehouse (CCW), https://www.ccwdata.org/web/guest/condition-categories.

Percent of Beneficiaries with IHD[1] – Percent of beneficiaries meeting the CCW chronic condition algorithm for ischemic heart disease.

Percent of Beneficiaries with Osteoperosis[1] – Percent of beneficiaries meeting the CCW chronic condition algorithm for osteoporosis.

Percent of Beneficiaries with RA/OA[1] – Percent of beneficiaries meeting the CCW chronic condition algorithm for rheumatoid arthritis/osteoarthritis.

Percent of Beneficiaries with Schizophrenia[1] – Percent of beneficiaries meeting the CCW chronic condition algorithm for schizophrenia and other psychotic disorders.

Percent of Beneficiaries with Stroke[1] – Percent of beneficiaries meeting the CCW chronic condition algorithm for stroke.

In addition to the provider id, name, and address as discussed above, the Therapy Minutes Aggregate table includes the following variables:

RV Assessment Denominator - Total number of assessments per SNF that were billed under the "RV" RUG category.

Percentage of RV Assessments within 10 minutes of Threshold – Percent of "RV" assessments with total therapy minutes in the 500-510 range. "Total therapy minutes" includes speech, OT and PT types and all individual, half of concurrent, and one fourth of group minutes.

RU Assessment Denominator - Total number of assessments per SNF that were billed under the "RU" RUG category.

Percentage of RU Assessments within 10 minutes of Threshold – Percent of "RU" assessments with total therapy minutes in the 720-730 range. "Total therapy minutes" includes speech, OT and PT types and all individual, half of concurrent, and one fourth of group minutes.

For the Therapy Minutes Aggregate table, only PPS assessments from RUG IV were included in this analysis.

8. Data Limitations and Notations

Although the Skilled Nursing Facility PUF has a wealth of payment and utilization information about SNF utilization and payment, the dataset also has a number of limitations that are worth noting.

Patients may be classified into multiple RUGs over the course of their SNF stay if their medical needs change. When claims are submitted by a SNF for a beneficiary's stay, the claim includes information on how many total days the patient received care in the SNF and which RUGs they were classified into for how many days. Total payment is then calculated by one of the Medicare Administrative Contractors

(MACs). However, total payment information is only available on the claim at the stay level, and is not delineated by RUG. In order to include spending data at the RUG level in the Skilled Nursing Facility PUF, we needed to attribute total spending to each RUG in a stay. We used the RUG codes, units of service (days), and the revenue center payment amounts from the revenue center files to allocate total spending across each RUG for the Provider by RUG, RUG and RUG by State tables. As coinsurance details are also only included at the stay level, and not the RUG level, we were unable to determine which RUG the coinsurance would apply to. We assumed an even split across all RUGs in a stay, regardless of the amount of coinsurance.

There are two notable exclusions from this dataset: first, we excluded any days that were categorized under the "AAA" RUGs, as they are used only in certain special circumstances. These RUGs do not provide any detail regarding the type of care received or the costliness of the resident's care. Second, we excluded all critical access hospitals (CAHs) that are considered "swing bed" facilities, as they are not paid under the SNF PPS. We did include non-CAH swing bed facilities, as they are paid under the SNF PPS.

There are multiple utilization metrics included in these tables, including stays, days, and distinct beneficiaries. Counts of "stays" and "days" are unique counts per provider or per RUG, and can be summed across providers or RUGs. However, "distinct beneficiaries" counts are only unique for each row (provider or RUG), but may be listed in more than one row per table. Therefore, "distinct beneficiaries" cannot be summed across rows in a given table.

The Skilled Nursing Facility PUF does not have any information on patients who are not covered by Medicare, such as those with coverage from other federal programs (like the Federal Employees Health Benefits Program or Tricare), those with private health insurance (such as an individual policy or employer-sponsored coverage), or those who are uninsured. Even within Medicare, the Skilled Nursing Facility PUF does not include information for patients who are enrolled in any form of Medicare Advantage plan.

The information presented in this file also does not indicate the quality of care provided by individual SNFs. The file only contains cost and utilization information. Additionally, the data are not risk adjusted and thus do not account for difference in the underlying severity of disease of patient populations treated by providers.

9. Additional Information

Medicare Standardized Spending: Users can find more information on Medicare payment standardization by referring to the "Geographic Variation Public Use File: Technical Supplement on Standardization" available within the "Related Links" section of the following web page: https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/MedicareGeographic-Variation/GV_PUF.html

HCCs (hierarchical condition categories): CMS developed a risk-adjustment model that uses HCCs (hierarchical condition categories) to assign risk scores. Those scores estimate how beneficiaries' FFS spending will compare to the overall average for the entire Medicare population. The average risk score is set at 1.08; beneficiaries with scores greater than that are expected to have above-average spending, and vice versa. Risk scores are based on a beneficiary's age and sex; whether the beneficiary is eligible for Medicaid, first qualified for Medicare on the basis of disability, or lives in an institution (usually a nursing home); and the beneficiary's diagnoses from the previous year.

The HCC model was designed for risk adjustment on larger populations, such as the enrollees in an MA plan, and generates more accurate results when used to compare groups of beneficiaries rather than individuals. For more information on the HCC risk score, see: https://www.cms.gov/Medicare/Health-Plans/MedicareAdvtgSpecRateStats/Risk-Adjustors.html