Updated Case-Mix Adjustment Methodology for Staffing Level Measures (Effective July 2024)

CMS adjusts the reported staffing ratios for case-mix, using the nursing Case-mix Groups (CMGs) and corresponding nursing Case-mix Indexes (CMIs) from the Patient-Driven Payment Model (PDPM) [1]. There are 25 nursing CMGs under the PDPM. The nursing CMIs [2] are shown in Table A4. CMS calculates "case-mix hours" [3] based on the distribution of nursing CMGs within each facility, PDPM nursing CMIs, and the reported national average staffing level.

CMS calculates case-mix adjusted hours per resident day for each facility for each staff type using this formula:

$$\text{Hours}_{\text{Adjusted}} = (\text{Hours}_{\text{Reported}}/\text{Hours}_{\text{Case-Mix}}) * \text{Hours}_{\text{National Average}}$$

The reported hours are those reported by the facility through PBJ as described above. National average hours for a given staff type represent the national mean of case-mix hours across all facilities active on the last day of the quarter that submitted valid nurse staffing data for the quarter. The National Average Hours are updated every quarter and will be available in the State US Averages table in the Provider Data Catalog on CMS.gov (https://data.cms.gov/provider-data/).

The case-mix values for each nursing home are based on the daily distribution of residents by PDPM nursing CMG in the quarter covered by the PBJ reported staffing and CMIs for the corresponding nursing CMGs. Specifically, case-mix nurse staffing hours per resident day for a given nursing home are calculated as follows:

1) The MDS is used to assign a PDPM nursing CMG to each resident for each day in the quarter. The method is similar to that used for calculating the daily MDS census and is described below.

2) This information is aggregated to generate a count of residents in each of the 25 PDPM nursing CMGs in the nursing home for each day in the quarter. Nursing CMGs that are not represented on a given day are assigned a count of zero. Residents for whom there is insufficient MDS information to assign a nursing CMG are not included.

3) Weighted by the number of resident-days in each nursing CMG, the average Nursing CMI in the quarter is calculated for each nursing home. More specifically, it is calculated by dividing a nursing home's aggregate nursing CMIs across nursing CMGs by the number of resident-days in the quarter.

4) Similarly, a national weighted-average nursing CMI is calculated using data from all nursing homes.

5) For each nursing home, a relative nursing CMI ratio is calculated as the ratio of its weighted-average nursing CMI to the national weighted-average nursing CMI.

6) For each nursing home, its case-mix staffing hours per resident day is calculated as:

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[1] https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/SNFPPS/PDPM

[2] These CMI values are based on the Fiscal Year 2024 Skilled Nursing Facility Prospective Payment System Final Rule (CMS – 1779-F, available at: https://www.federalregister.gov/documents/2023/08/07/2023-16249/medicare-program-prospective-payment-system-and-consolidated-billing-for-skilled-nursing-facilities)

[3] Note that the term "case-mix hours" replaces the term "expected hours" that was used prior to April 2019.

Case-mix hours (total nursing, RN, or weekend) per resident day = facility nursing CMI ratio × national mean of reported hours per resident day

To determine the number of residents in each PDPM Nursing CMG for each day of the quarter for each nursing home, the same algorithm is used as that is used to generate the daily MDS census (with slight adjustment to count PDPM nursing CMGs specifically, instead of just counting residents):

1) Identify the reporting period (quarter) for which the PDPM groupings will be collected (e.g., CY 2023 Q4: October 1–December 31, 2023).

2) Extract MDS assessment data (including PDPM Nursing CMGs) for all residents of a facility beginning one year prior to the reporting period to identify all residents that may reside in the nursing home (i.e., any resident with an MDS assessment may still reside in the nursing home). For example, for the CY 2023 Q4 reporting period, MDS data from October 1, 2022 through December 31, 2023 were extracted.

3) Identify discharged/deceased residents using the following criteria:

   a) If a resident has an MDS Discharge assessment or Death in Facility tracking record, use the date reported on that assessment and assume that the resident no longer resides in the nursing home as of the date of discharge/death on the last assessment. In the case of discharges, if there is a subsequent admission assessment, then assume that the resident re-entered the nursing home on the entry date indicated on the admission assessment.

   b) For any resident with an interval of 150 days or more with no MDS assessments, assume the resident no longer resides in the nursing home as of the 150th day from the last assessment. (This assumption is based on the requirement for facilities to complete MDS assessments on all residents at least quarterly). If no assessment is present, it is assumed the resident was discharged, but the nursing home did not transmit a Discharge assessment.

For any particular date, residents whose assessments do not meet the criteria in #3 above prior to that date are assumed to reside in the nursing home. The PDPM nursing CMG assigned to those residents on their most recent assessments as of that date are used to determine the PDPM nursing CMG distribution for that nursing home on that date. The calculations of "case-mix", "reported", and "national average" hours are made separately for RNs and for all nursing staff (both for the full week and for weekends). Adjusted hours are also calculated for both groups using the formula provided earlier in this section.

A downloadable file that contains the "case-mix", "reported" and "adjusted" hours used in the staffing calculations is included in the nursing home provider information data table available in the Provider Data Catalog on CMS.gov (https://data.cms.gov/provider-data/).

**Table A4
PDPM Nursing Case-Mix Indexes by Nursing CMG**

Nursing CMG	Nursing CMI
ES3	3.84
ES2	2.90
ES1	2.77
HDE2	2.27
HDE1	1.88

HBC2	2.12
HBC1	1.76
LDE2	1.97
LDE1	1.64
LBC2	1.63
LBC1	1.35
CDE2	1.77
CDE1	1.53
CBC2	1.47
CA2	1.03
CBC1	1.27
CA1	0.89
BAB2	0.98
BAB1	0.94
PDE2	1.48
PDE1	1.39
PBC2	1.15
PA2	0.67
PBC1	1.07
PA1	0.62

Source: Fiscal Year 2024 SNF PPS Final Rule (https://www.federalregister.gov/documents/2023/08/07/2023-16249/medicare-program-prospective-payment-system-and-consolidated-billing-for-skilled-nursing-facilities)