Variation in skilled nursing facility practice patterns: Opportunities exist for more efficient management

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There is significant variation in skilled nursing facility (SNF) average length of stay (ALOS) and readmission rates among Medicare fee-for-service (FFS) beneficiaries admitted to a SNF following an acute inpatient hospital stay. These variations are unexplained by differences in patient case mix and highlight the opportunity for more efficient management of SNF stays.

Skilled nursing facility services represent a significant proportion of Medicare FFS expenditures. A 2024 Medicare Payment Advisory Commission (MedPAC) report noted that, in 2022, about 14,700 SNFs furnished approximately 1.8 million Medicare-covered stays to 1.3 million FFS beneficiaries, which amounted to $29 billion in spending on SNF services.[1] This represents approximately 6.3% of total Medicare FFS spending based on our analysis of the Medicare 2022 100% FFS data.

Reducing medically unnecessary transfers to SNFs after acute inpatient stays, as well as reducing medically unnecessary days during a SNF stay and medically unnecessary readmissions from SNF back to hospital, can have a substantial impact on Medicare costs. Medicare Advantage (MA) plans, Medicare accountable care organizations (ACOs), and Medicare bundled payment participants can evaluate the efficiency of their SNF providers by comparing performance on risk-adjusted ALOS and readmission rates among SNFs. Findings can provide direction for effective SNF contracting strategies.

Do patterns in length of stay across all SNF cases suggest opportunity?

To establish whether opportunity exists for more efficient length of stay (LOS) management among SNF stays, we used the Medicare 100% Research Identifiable Files (RIF) FFS data to evaluate patterns in SNF LOS. We evaluated SNF stays that were admitted between September 22, 2022, and September 22, 2023. To allow for capture of SNF stays lasting up to 100 days we looked at data through December 31, 2023. We used Centers for Medicare and Medicaid Services (CMS) SNF Certification Numbers (CCNs) to identify SNFs and we excluded transitional care facilities, acute inpatient rehab facilities, and other non-SNF rehabilitation facilities. To minimize inclusion of facilities that may not be considered a SNF, we excluded SNFs where 75% or more of their total stays had a LOS less than or equal to 14 days. Our final sample included 627,095 SNF stays among 5,545 total SNFs.

In Figure 1, we plot the LOS of each individual SNF stay and identify a pattern for SNF LOS that correlates with Medicare's SNF benefit coverage policy. There is an observable spike in LOS at 20 days, which corresponds to beneficiary cost sharing starting at day 21. Medicare pays 100% of SNF stay costs for the first 20 days, and then beneficiaries pay $204 per day (the 2024 rate) for days 21 to 100.[2] There is another spike in LOS at 100 days, when beneficiaries become 100% responsible for SNF payment. We also observe spikes at 7 days, 14 days, and 28 days, corresponding to common SNF practice patterns that evaluate the need for continued stay on a weekly basis. These findings could indicate an opportunity for more efficient management of SNF LOS based on more frequent evaluation of the need for continued stay

1. MedPAC (March 2024). Report to the Congress: Medicare Payment Policy, Chapter 6: Skilled Nursing Facility Services. Retrieved September 5, 2024, from https://www.medpac.gov/wp-content/uploads/2024/03/Mar24_Ch6_MedPAC_Report_To_Congress_SEC.pdf.

2. Medicare.gov. Skilled Nursing Facility Care. Retrieved September 5, 2024, from https://www.medicare.gov/coverage/skilled-nursing-facility-snf-care.

FIGURE 1: DISTRIBUTION OF SNF ADMISSIONS BY LENGTH OF STAY (DAYS 1-100)
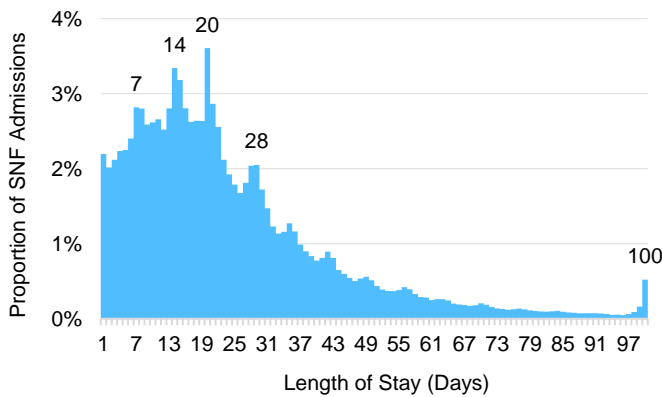
Source: Milliman analysis of 9/22/2022-9/22/2023 Medicare 100% RIF data.
Analysis based on 627,095 SNF stays among 5,545 total SNFs.

Is there variation in length of stay and readmission rates by unique SNF?

In order to investigate variation in performance by SNF, we used our sample of 627,095 SNF stays among 5,545 total SNFs and assigned each SNF admission to a unique SNF. We calculated ALOS across all stays for each SNF. Because some SNFs may have lower ALOS simply because they send patients back to hospital at a higher-than-average rate, we also calculated the average readmission rate back to hospital within one day of SNF discharge for each SNF. When comparing SNF performance, both metrics are essential data elements.

Identifying efficient SNF management by simply comparing raw ALOS and readmission rates among SNFs may not account for differences in the case mix of patients admitted to each SNF. In order to compare ALOS and readmission rates among SNFs, risk adjustment is necessary to control for relevant differences in the characteristics of a SNF's patient population. We developed separate risk adjustment models for LOS and readmissions to more credibly compare ALOS and readmission rates between SNFs. We constructed a multiple linear regression model to estimate the expected SNF LOS for a given SNF stay and a multiple logistic regression model to estimate the expected chance of a readmission following a given SNF stay based on the complexity of patients at the time of their SNF admission. The patient characteristics that were considered potentially influential on SNF ALOS and readmission rates were used as model inputs and are shown in the table in Figure 2.

FIGURE 2: MODEL INPUT SUMMARY

MODEL INPUT CATEGORY	MODEL INPUT
Patient Demographics	Sex
	Age at SNF Admission
	Dual Eligibility Status
	Race
	Institutional Status
Patient Health Status	Alzheimer's Status
	Cognitive Disabilities Indication
	CMS HCC Risk Score (V. 28)
	Charlson Comorbidity Categories
	Count of DME Claims in 360 Days Prior
	Count of Inpatient Admits in 90 Days Prior
	Count of Hospice Claims in 90 Days Prior
Preceding Inpatient Stay	Surgical Admission Indicator
	Hospital Teaching Status
	DRG
	Length of Stay
	Admission Type
	Number of Days in ICU

To balance model accuracy and simplicity, the final models were chosen using a backward stepwise regression procedure that selects the final model based on the lowest value of the Akaike information criterion (AIC). This procedure takes all model inputs and builds subsequent regression models by iteratively fitting models that remove the weakest model input, ultimately choosing a final set of model inputs that balances the risk of overfitting against the risk of underfitting.

Findings

In Figures 3 and 4 we examine variation in SNF risk-adjusted ALOS and readmission rates, respectively. In both figures we see a significant distribution of facilities below and above the most frequent finding, indicating wide variation in these metrics from facility to facility, even after accounting for case-mix differences with risk adjustment.

FIGURE 3: DISTRIBUTION OF RISK ADJUSTED AVERAGE LENGTH OF STAY BY SNF
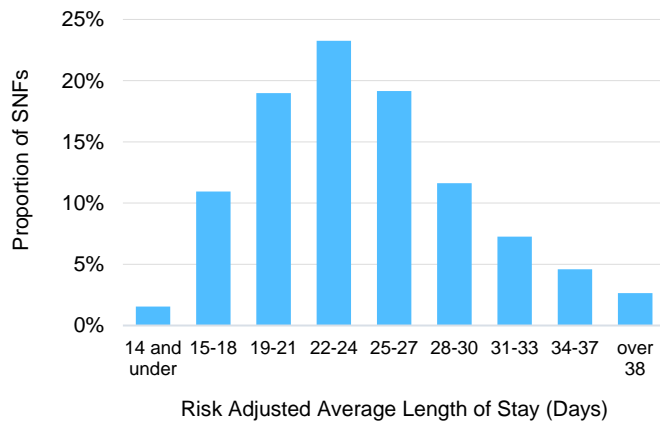
Source: Milliman analysis of 9/22/2022-9/22/2023 Medicare 100% RIF data.
Analysis based on 627,095 total SNF admissions among 5,545 total SNFs.

FIGURE 4: DISTRIBUTION OF RISK ADJUSTED READMISSION RATE BY SNF
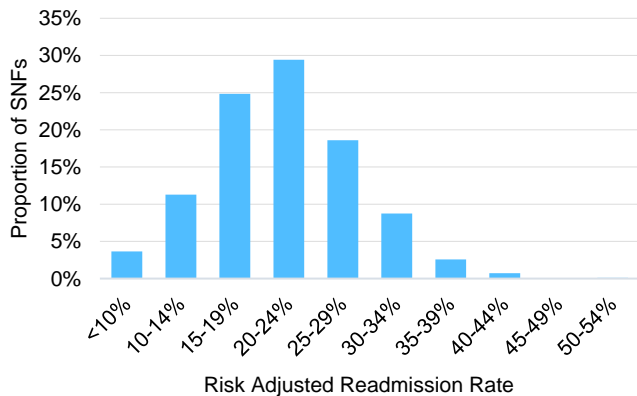
Source: Milliman analysis of 9/22/2022-9/22/2023 Medicare 100% RIF data.
Analysis based on 627,095 total SNF admissions among 5,545 total SNFs.

To examine geographic variation in SNF performance, we assigned each SNF to its metropolitan statistical area (MSA) based on the SNF's physical location reported by CMS. The table in Figure 5 summarizes risk-adjusted (to represent a nationwide average mix of SNF patient severity) ALOS and readmission rates for the 15 highest-volume MSAs. Among these 15 MSAs, SNF ALOS ranges from 20.4 to 35.3 days, and readmission rates range from 14.1% to 35.3%.

FIGURE 5: SNF PEROFRMANCE FOR TOP 15 MSAS WITH HIGHEST ANNUAL SNF ADMITS

MSA	SNF ADMITS	RISK-ADJUSTED SNF ALOS	RISK-ADJUSTED READMIT RATE
New York-Jersey City-White Plains, NY-NJ	23,709	33.4	30.0%
Chicago-Naperville-Evanston, IL	21,557	24.6	23.3%
Nassau County-Suffolk County, NY	15,138	34.7	24.3%
Los Angeles-Long Beach-Glendale, CA	11,409	32.0	35.8%
New Brunswick-Lakewood, NJ	11,386	26.0	23.1%
Baltimore-Columbia-Towson, MD	11,182	26.2	20.0%
Cambridge-Newton-Framingham, MA	9,839	20.7	18.8%
Phoenix-Mesa-Chandler, AZ	9,483	20.9	13.4%
Washington-Arlington-Alexandria, DC-VA-MD-WV	9,052	25.3	21.7%
Tampa-St. Petersburg-Clearwater, FL	8,891	22.9	23.0%
Boston, MA	8,719	21.0	17.7%
Warren-Troy-Farmington Hills, MI	8,373	21.6	19.5%
Montgomery County-Bucks County-Chester County, PA	8,296	21.0	19.1%
Newark, NJ-PA	7,245	25.4	21.8%
West Palm Beach-Boca Raton-Boynton Beach, FL	6,824	22.6	21.3%

Source: Milliman analysis of 9/22/2022-9/22/2023 Medicare 100% RIF data.
Analysis based on 627,095 SNF stays among 5,545 total SNFs.

In the table in Figure 6, we summarize variation by facility within one MSA: Chicago-Naperville-Evanston, IL, a large MSA with roughly average LOS and readmission rates. We show risk-adjusted ALOS and readmission rates for the 25 highest-volume SNFs. These results show significant variation in performance among SNFs within the same MSA. ALOS ranges from 17.8 to 31.1 days, and readmission rates range from 8.6% to 29.7%.

FIGURE 6: PERFORMANCE FOR TOP 20 SNFS BY ADMITS IN CHICAGO-NAPERVILLE-EVANSTON, IL MSA

SNF #	# SNF ADMITS	RISK-ADJUSTED SNF ALOS	RISK-ADJUSTED READMISSION RATE
1	1,091	18.4	10.8%
2	564	25.9	11.7%
3	460	23.3	12.8%
4	460	28.2	20.1%
5	423	23.4	13.1%
6	387	18.8	14.9%
7	382	20.6	14.4%
8	380	22.8	30.0%
9	370	23.3	12.7%
10	359	31.9	27.0%
11	340	21.2	17.4%
12	336	21.3	12.6%
13	333	22.2	23.1%
14	311	21.1	16.4%
15	308	22.7	21.8%
16	307	22.0	18.8%
17	301	17.9	8.8%
18	293	21.5	14.4%
19	286	27.2	24.7%
20	279	26.0	15.4%
21	253	15.8	6.1%
22	253	22.9	15.7%
23	243	19.4	16.9%
24	238	25.4	21.1%
25	232	25.8	32.4%

Source: Milliman analysis of 9/22/2022-9/22/2023 Medicare 100% RIF data.
Analysis based on 627,095 SNF stays among 5,545 total SNFs.

Conclusion

This analysis suggests that significant variation exists in SNF performance for ALOS and readmission rates both among SNFs within a geographic region and among geographic regions, The variation is not explained by differences in patient case mix, which indicates the variation may be driven by differences in practice patterns among SNFs. In particular, the practice of evaluating the need for continued stay on a weekly basis instead of more frequently and the practice by some SNFs to send patients back to the hospital when their condition mildly worsens instead of stepping up care in the nursing home, can contribute to longer lengths of stay and higher readmission rates back to hospital. These findings highlight the opportunity for SNFs to more efficiently manage LOS and readmissions for Medicare beneficiaries during SNF stays, which can meaningfully reduce Medicare costs.

For MA plans, Medicare ACOs and Medicare bundled payment participants, it is essential to evaluate and profile performance for SNFs within their network and develop strategies for incentivizing more efficient performance. Contracting and referral strategies should incentivize SNFs with more efficient performance. For more information about evaluating the efficiency of SNF providers, contact your Milliman consultant.

As the overall rate of SNF admissions declines, and a larger proportion of Medicare beneficiaries are discharged from acute care hospital stays directly to the community, the remaining SNF stays may become more complex and may require longer lengths of stay.

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