Relationship Between Post-Acute Care Setting, Social Determinants of Health, and Hospital Readmission Rates

Background

Much of the literature on the link between social determinants of health (SDOH) and unplanned 30-day hospital focuses on characteristics of index hospitalization and examines readmissions from all hospital discharges regardless of discharge setting. As a result, less is known about readmission patterns and risk factors by specific post-acute care (PAC) discharge setting

This study seeks to address these gaps in order to inform efforts to alleviate disparities in hospital readmissions; it contributes to the current body of CMS readmissions research in two novel ways:

1. Examining readmission rates and how they vary by PAC setting; and
2. Assessing how PAC readmission rates vary by individual demographics, clinical condition, and care utilization history, and by community-level SDOH.

Results

Inpatient Rehabilitation Facilities (IRFs) and Skilled Nursing Facilities (SNFs) Have the Highest Readmission Rates, but are Less Common Discharge Settings

Table 1: Readmission Rates Across Discharge Settings

Study Population	# of Patients	% of Patients	# of Readmissions	Readmission Rate (%)
Total	***1,842,888***	***100.00%***	***224,654***	***12.19%***
Home/Self-Care	*867,446*	*47.07%*	*88,820*	*10.24%*
Home Health Agency (HHA)	*524,021*	*28.43%*	*70,682*	*13.49%*
Skilled Nursing Facility (SNF)	*313,859*	*17.03%*	*47,718*	*15.20%*
Inpatient Rehabilitation Facility (IRF)	*68,907*	*3.74%*	*10,817*	*15.70%*
Hospice	*29,327*	*1.59%*	*1159*	*3.95%*
Intermediate Care Facility (ICF)	*20,822*	*1.13%*	*2,946*	*14.15%*
Long-Term Care Hospital (LTCH)	*11,821*	*0.64%*	*1,523*	*12.88%*

* Psychiatric, Medicaid Nursing, Other, Federal Hospital, and Other Inpatient categories are not shown as they make up <0.5% of the total study population

- The type of PAC setting to which patients were discharged was associated with variation in readmission patterns in ways that varied between population groups. Of the four PAC settings examined in this study (Home, HHA, SNF, IRF), patients discharged to IRFs had the highest readmission rate (15.7%) following Hospital Readmissions Reduction Program (HRRP)-qualifying index stays, followed by those discharged into the care at SNFs (15.2%).
- Of the patients discharged to the PAC settings studied (SNFs, HHAs, IRFs, and home/self-care), those individuals with dual Medicare and Medicaid coverage have a higher readmission rate than those who do not have dual coverage (15.9% vs. 11.5%).
- When examining discharge by race/ethnicity, Black patients had the highest readmission rates across all PAC settings except IRFs. American Indian and Alaskan Native (AI/AN) patients had the highest readmission rates for IRFs (18.8%). SNFs had the widest disparity in readmissions, with Black patients experiencing readmission rates nearly 6% higher than White patients, while IRFs had the lowest disparity, with Black patients experiencing readmission rates 2% higher than White patients.
- When examining by rurality, patients from metropolitan (urban) areas had a higher rate of readmission than those from non-metropolitan (rural) areas across all PAC settings, a difference of 0.6-3.8%.

Individuals Discharged to a SNF are Clinically Complex and Have High Health Burdens

Table 2: Rates of Clinical Factors by PAC Setting

Variable	Home	HHA	SNF	IRF
>9 Chronic Conditions	*6.1%*	*10.5%*	*16.4%*	*12.8%*
History of Asthma or COPD	*57.3%*	*59.6%*	*65.0%*	*58.7%*
Disabled	*15.3%*	*15.0%*	*18.6%*	*15.2%*
History of Mental Health Conditions	*56.0%*	*64.2%*	*79.1%*	*71.7%*
History of COVID-19 Infection	*28.5%*	*29.1%*	*41.0%*	*31.8%*

- Patients with a history of one or more mental health conditions had greater rate of readmission compared to those without a history of mental health conditions across all PAC settings, a difference of 3-5.5%.
- When examining by chronic conditions, the readmission rate increases with an increasing number of conditions, regardless of PAC. Those with 0 chronic conditions have a 2.4% readmission rate overall, while those with 10+ chronic conditions have a 20.0% readmission rate overall. When comparing across PACs, IRFs have the highest readmission rates for a given number of chronic conditions.
- Varied relationships were found with community-level SDOH and their effects on readmissions across populations. For example, communities with the most disadvantage (using the Area Deprivation Index) had higher readmission rates across all PAC settings when compared to those from less disadvantaged communities.
- Individuals from communities with low food accessibility experienced slightly higher readmission rates than those without low food accessibility across all PAC settings.

Study Population Definition

This study focused on Medicare enrollees who had inpatient hospitalizations for HRRP-qualifying conditions between March 2020 and October 2022, using the eligibility criteria for the CMS Hospital-Wide All-Cause Unplanned Readmission Measure (National Quality Forum #1789).

Accordingly, hospitalizations for Medicare enrollees had to meet the following criteria to be included in the analysis:

- 65 or older at the time of the index hospitalization;
- Continuously enrolled in Medicare Part A for one year prior and 30 days after the index hospitalization; and
- Alive 30 days after discharge and had a length of stay no greater than 365 days.

Hospitalizations for non-qualifying services (e.g., psychiatric services, rehabilitation services, and cancer treatment) were excluded. This study also excluded federal, emergency, children's, and Veterans Health Administration hospitals. Medicare enrollment, inpatient claims, and SNF claims data were used to identify qualifying hospitalizations and readmissions.

A total of 1,842,888 Medicare enrollees fit the criteria for the study and had complete data.

Conclusion

- This study provides unique and timely insight on how readmission rates vary by PAC setting, by individual characteristics, and by SDOH.
- The results underscore the importance of addressing social and environmental factors within each PAC setting to reduce inequities in diagnosis, quality of care, and readmissions. Ensuring that all patients have access to high quality post-acute care and connecting patients to key resources like food, employment, and community supports should be considered as a key strategies to advance health equity through health care.
- As CMS seeks to address the root causes of disparities across the populations it serves, it can continue to consider a multi-level approach that not only promotes high quality of care across PAC settings but addresses social determinants of health that contribute to the disproportionate risk of readmission among the Medicare population.

Future Research Opportunities

- Expand upon questions raised by this analysis, including understanding how individual-level SDOH impact readmission risk and how these drivers may have been impacted pre- and post-COVID-19.
- Continue to identify contextual barriers to accessing high-quality PAC settings for racial and ethnic minorities and other underserved populations.
- Continue to examine how systemic bias influences access to different PAC settings, including how it may affect treatment options, care decisions, and the potential challenges it presents for unique cultural contexts.

About CMS OMH

The CMS Office of Minority Health (CMS OMH) offers a variety of resources to help increase awareness about health disparities and improve the health of people with disabilities; members of the lesbian, gay, bisexual, and transgender community; individuals with limited English proficiency; and rural communities. CMS OMH is dedicated to working on behalf of all CMS enrollees, while strategically focusing on CMS's priority populations (i.e., historically underserved populations, including racial and ethnic minorities, individuals with disabilities, sexual and gender minorities, individuals with limited English proficiency, and individuals who live in rural areas). This work was performed under CMS OMH's Health Equity Accelerator (contract number 47QRAA18D001P-75FCMC21F0086). The Health Equity Accelerator performs both quantitative and qualitative research to generate insights that can inform action to support CMS OMH's vision that all individuals who are served by CMS's programs – Medicare, Medicaid, the Children's Health Insurance Program (CHIP), and the Health Insurance Marketplaces – have achieved their highest level of health and well-being possible, and that all disparities in health, health care access, and health care quality have been eliminated.

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