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# Functional Status Is Associated With 30-Day Potentially Preventable Readmissions Following Home Health Care

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**Background:** Beginning in 2019, home health agencies' rates of potentially preventable hospital readmissions over the 30 days following discharge will be publicly reported.

**Objectives:** Our primary objective was to determine the association between patients' functional status at discharge from home health care and 30-day potentially preventable readmissions. A secondary objective was to identify the most common conditions resulting in potentially preventable readmissions.

Design: This was a retrospective cohort study.

**Participants:** A total of 1,510,297 Medicare fee-for-service beneficiaries discharged from home health care in 2013–2015. Average age was 75.9 (SD, 10.9) years, 60.0% were female, and 84.2% non-Hispanic white.

**Measurements:** Thirty-day potentially preventable readmissions following home health discharge. Functional status measures included mobility, self-care, and impaired cognition.

**Results:** The overall rate of 30-day potentially preventable readmissions was 2.6% (N = 39,452), which accounted for 40% of all 30-day readmissions. After adjusting for sociodemographic and clinical characteristics, the odds ratios for the most dependent score quartile versus the most independent was 1.58 [95% confidence interval (CI), 1.53–1.63] for mobility and 1.65 (95% CI, 1.59–1.69)

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for self-care. The odds ratios for impaired versus intact cognition was 1.21 (95% CI, 1.18–1.24). The 5 most common conditions resulting in a potentially preventable readmission were congestive heart failure (23.6%), septicemia (16.7%), bacterial pneumonia (9.8%), chronic obstructive pulmonary disease (9.4%), and renal failure (7.5%).

**Conclusions:** Functional limitations at discharge from home health are associated with increased risk for potentially preventable readmissions. Future research is needed to determine whether improving functional independence decreases the risk for potentially preventable readmissions following home health care.

Key Words: mobility, self-care, cognition, infection, chronic conditions

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**R** eturning home after a hospitalization is often preferable to discharge to institutional postacute care. For appropriate patients, home health agencies offer an in-home postacute option. These agencies provide skilled nursing, therapy, home health aid, and medical social work services.<sup>1,2</sup> To qualify for home health care, a physician has to certify that an individual is homebound and requires skilled services.<sup>2</sup>

Approximately 30% of Medicare beneficiaries who are discharged home following a hospitalization receive home health care.<sup>3</sup> The availability of agencies has increased over the past 15 years, and Medicare spending on home health has increased from 8.5 billion in 2000 to 18.1 billion in 2015.<sup>2,4</sup> Quality of care varies across agencies,<sup>5</sup> which can impact patients' postdischarge outcomes. Subsequently, home health agencies, along with the other postacute settings, are the focus of ongoing health care reforms. The Improving Medicare Post-Acute Care Transformation (IMPACT) Act passed in 2014 mandates the implementation of specific quality and resource use measures for all postacute settings.<sup>6,7</sup> Thirty-day potentially preventable rehospitalizations are one of the standardized measures included in the IMPACT Act.<sup>6</sup>

Beginning in 2019, home health agencies' rates of potentially preventable hospital readmissions over the 30 days following discharge will be publicly reported by the Centers for Medicare and Medicaid Services (CMS).<sup>8</sup> A specific list of conditions considered "potentially preventable" following postacute care was developed for the CMS measure.<sup>7</sup> These conditions reflect inadequate management of chronic conditions (eg, heart failure), inadequate management

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of infection (eg, septicemia), and inadequate management of other unplanned events (eg, kidney failure).<sup>7</sup> The conditions included are considered to be avoidable with appropriate discharge support and follow-up care.<sup>7</sup> In 2011–2013, the average agency-level rate of 30-day potentially preventable readmissions after postacute home health care was 4.1% and ranged from 0% to 34.5% across the > 12,000 agencies.<sup>7,9</sup>

Prior research indicates that limitations in self-care, mobility, and cognitive functioning are associated with increased risk for 30-day potentially preventable readmissions for Medicare beneficiaries discharged from inpatient postacute settings (ie, inpatient rehabilitation and skilled nursing facilities).<sup>10,11</sup> Therefore, we hypothesized that functional limitations may also be risk factors for potentially preventable readmissions following discharge from home health care. The primary objective of our study was to determine the association between patients' functional status at discharge from home health care and 30-day potentially preventable hospital readmissions. A secondary objective was to identify the most common conditions resulting in potentially preventable readmissions.

# **METHODS**

# **Data Sources**

We used the following 100% national CMS data files from 2012 to 2015: Home Health Outcome and Assessment Information Set (OASIS), Medicare Provider Analysis and Review (MedPAR), and Beneficiary Summary. The OASIS files were used to identify our cohort of interest and to extract information on patients' home health episodes, including functional status at discharge. The MedPAR files were used to gather information on patients' clinical characteristics and their index hospitalization. We also used these files to identify potentially preventable readmissions. Beneficiary Summary files were used to extract sociodemographic and Medicare enrollment information. We linked the CMS files using unique, encrypted beneficiary identification numbers. A data use agreement was completed meeting CMS requirements, and the study was approved by the University Institutional Review Board.

# **Patient Cohort**

We used the specifications for the Potentially Preventable 30-Day Post-Discharge Readmission Measure for the Home Health Quality Reporting Program to select our cohort from the 4,625,028 Medicare fee-for-service beneficiaries discharged from home health agency care between July 1, 2013 and June 1, 2015 (Fig. 1).<sup>7</sup> We excluded individuals under 18 years of age and those who did not have a short-term acute care stay over the 30 days before home health admission (index hospitalization). In order to gather information on comorbidities and prior hospitalizations, we excluded individuals who did not have continuous Medicare Part A coverage over the year before home health admission. Similarly, to identify 30-day postdischarge rehospitalizations, we excluded individuals who did not have continuous Part A coverage over the 31 days following home health discharge or until death or a rehospitalization. We also excluded individuals who died during the home health episode, transferred to an acute care hospital or another home health agency, discharged to any setting other than the community (eg, long-term care), or discharged against medical advice. In addition, we excluded individuals who received nonsurgical treatment for cancer during their index hospitalization and those who received home health agency care outside the United States, Puerto Rico, or a US territory. The only cohort selection criteria we applied that was not specified by the quality measure was the exclusion of individuals without complete discharge data on the functional items needed for analyses. The final cohort included 1,510,297 individuals discharged from home health agency care.

# Outcome

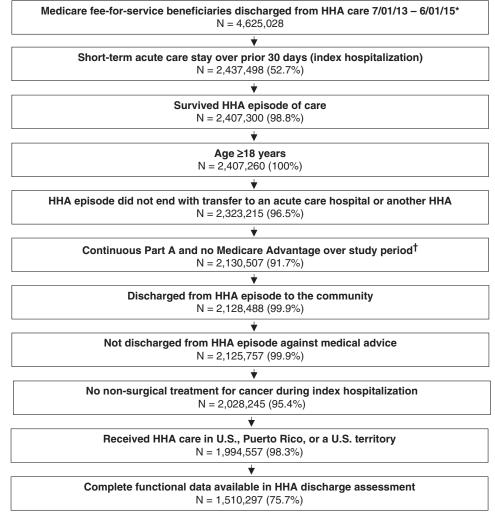
We used the specifications for the Potentially Preventable 30-Day Post-Discharge Readmission Measure for the Home Health Quality Reporting Program to identify the outcome.<sup>7</sup> Per specifications, the 30-day observation window started on the second day after home health discharge, as transfers to an acute care hospital do not count toward the outcome.<sup>7</sup> We reviewed claims to identify readmissions over the 30-day window and then compared the admitting diagnosis (ICD-9 codes) to the list developed for the quality measure to determine whether the readmission was considered potentially preventable.

# **Primary Predictors**

The predictor of interest was patients' functional status at discharge from home health agency care. We categorized functional status into self-care, mobility, and cognition domains using items from the OASIS.<sup>12</sup> The items from the OASIS used to create the self-care, mobility, and cognition domains are provided in Supplemental Digital Content 1 (http://links.lww.com/MLR/B656).

The mobility domain included 3 items related to transfers and ambulation/locomotion. The self-care domain included 7 items related to feeding, preparing light meals, grooming, dressing, bathing, and toilet hygiene. Items within the OASIS are not on a consistent scale. To account for the different scales, items in the self-care and mobility domains were rescaled to 0 (most independent) to 100 (least independent). This was accomplished by dividing the item score by its maximum value, then multiplying by 100. Summary scores were then calculated as the mean of the items in the domain. Mobility and self-care domain scores were categorized into quartiles for analyses.

The cognition domain included 2 items related to cognitive functioning and speech/oral expression of language. The cognitive functioning item in the OASIS rates a patient's current (ie, day in which assessment is being given) alertness, orientation, comprehension, concentration, and ability to remember simple commands. Patients are classified into one of 5 categories ranging from "alert/oriented, able to focus and shift attention, comprehends and recalls task directions independently" to "totally dependent due to disturbances such as constant disorientation, coma, persistent vegetative state, or delirium." The speech/oral expression item rates a patient's ability to verbally communicate and express ideas. This item was included in the cognition domain for this analysis because difficulty finding correct words, changes in speech, slow speech, and speaking errors are often early symptoms of



**FIGURE 1.** Flow chart presenting number of eligible cases remaining at each step as exclusion criteria applied. Percentages are percent remaining from the previous step. \*First discharge was selected if patient had > 1 between July 1, 2013, and June 6, 2015. ""Study period" refers to the 1 year before the index hospitalization through the 32 days postdischarge for each HHA stay. HHA indicates home health agency.

Alzheimer disease and related dementias.<sup>13,14</sup> The OASIS classifies patients into one of 6 possible categories ranging from "expresses complex ideas, feelings, and needs clearly, completely, and easily in all situations with no observable impairment" to "unresponsive or not able to speak." Preliminary analyses of the cohort indicated that for the cognitive functioning item 78.3% of patients were classified as "alert/oriented, able to focus and shift attention, comprehends and recalls task directions independently." Similarly, for the speech/oral expression item 81.4% of patients were able to express complex ideas, feelings, and needs clearly, completely, and easily in all situations with no observable impairment. The narrow distribution meant patients could not be grouped into quartiles as was done for the mobility and self-care domains. Performance on the cognition domain was dichotomized into "Intact" or "Impaired." Patients were categorized as "Intact" if they were scored as alert/oriented on the cognitive functioning item and as able to expresses complex ideas on the speech/oral

expression item. All other patients were classified as "Impaired." The items from the OASIS used to create the cognition domain are included in Supplemental Digital Content 1 (http://links.lww.com/MLR/B656).

## Covariates

Sociodemographic characteristics included age, sex, race/ ethnicity, original reason for Medicare entitlement (age, disability, end-stage renal disease), and dual eligibility (eligible for Medicare and Medicaid, yes/no). Clinical characteristics included comorbidities (CMS hierarchical condition categories),<sup>15,16</sup> acute care stays over the prior year (count), and the following information regarding the index hospitalization: primary diagnosis and/or procedure (multilevel Clinical Classification Software categories),<sup>17</sup> length of stay (d), receipt of dialysis, and intensive care or coronary care unit utilization (d).

## **Data Analysis**

We calculated 30-day potentially preventable readmission rates and corresponding 95% confidence intervals (CI) for the overall cohort and by patient characteristics. Multilevel logistic regression was used to examine the association between the functional domains and 30-day potentially preventable readmissions. We adjusted all models for patients' sociodemographic and clinical characteristics. For all 3 functional domains, we examined the association between discharge scores and 30-day potentially preventable readmissions with and without the other domains as additional risk adjustors. However, due to multicollinearity between mobility and self-care scores, they were never included in the same model. We also calculated frequencies of the potentially preventable conditions overall and stratified by level of independence (ie, score quartile) on the mobility and self-care domains and by cognitive status.

### RESULTS

The average age of the cohort was 75.9 (SD, 10.9) years, 60.0% were female, and 84.2% were non-Hispanic white. Cohort characteristics are presented in Table 1. The overall rate of any 30-day readmission was 6.5% (N=97,597), and the overall rate of 30-day potentially preventable readmissions was 2.6% (N=39,452). Potentially preventable readmission rates varied across patient characteristics (Table 1).

## **Functional Status**

Across all 3 domains, functional status at discharge from home health care was associated with 30-day potentially preventable readmissions. Odds ratios (OR) for the functional domains are presented in Table 2, and a complete listing of all OR from the multilevel models are presented in Supplemental Digital Content 2 (http://links.lww.com/MLR/B657). Odds of a potentially preventable readmission increased as functional independence decreased. After adjusting for patients' sociodemographic and clinical characteristics, the OR for the most dependent score quartile versus the most independent quartile was 1.58 (95% CI, 1.53–1.63) for mobility and 1.65 (95% CI, 1.59–1.69) for self-care. Adjusting for cognition had minimal impact (mobility: OR, 1.53; 95% CI, 1.48–1.58 and self-care: OR, 1.61; 95% CI, 1.56–1.66).

After adjusting for sociodemographic and clinical characteristics, the OR for impaired versus intact cognition was 1.21 (95% CI, 1.18–1.24). The association decreased after adjusting for the other functional domains. When adjusted for mobility the OR for impaired versus intact cognition was 1.08 (95% CI, 1.05–1.11). Similarly, when adjusted for self-care, the OR decreased to 1.04 (95% CI, 1.01–1.06).

## **Potentially Preventable Conditions**

The 5 most common conditions resulting in potentially preventable readmissions were congestive heart failure (23.6%), septicemia (16.7%), bacterial pneumonia (9.8%), chronic obstructive pulmonary disease (9.4%), and renal failure (7.5%) (Table 3). Conditions were fairly consistent across levels of independence on the functional domains (Supplemental Digital Content 3, http://links.lww. com/MLR/B658). Congestive heart failure was the most

<b>TABLE 1.</b> Cohort Characteristics and Observed Rates
of Potentially Preventable 30-Day Readmissions Following
Home Health Agency Discharge

	Overall Sample	Observed Rate (95% CI)
	[n (%)]	(9370 CI)
Overall	1,510,297	2.6%
Age (y)		
18–65	175,878 (11.6)	3.0% (2.9-3.1)
66–70	252,256 (16.7)	1.9% (1.8-1.9)
71–75	268,884 (17.8)	2.1% (2.1-2.2)
76–80	266,458 (17.6)	2.5% (2.4–2.6)
81+	546,821 (36.2)	3.1% (3.1-3.2)
Sex		
Male	604,342 (40.0)	2.8% (2.7-2.8)
Female	905,955 (60.0)	2.5% (2.5–2.5)
Race/ethnicity		
White	1,271,523 (84.2)	2.5% (2.5-2.5)
Black	132,755 (8.8)	3.3% (3.2–3.4)
Hispanic	64,829 (4.3)	3.0% (2.9-3.1)
Other	41,190 (2.7)	2.7% (2.5-2.8)
Medicare original entitlement*		
Age (y)	1,178,770 (78.0)	2.4% (2.4-2.5)
Disability	312,056 (20.7)	3.1% (3.0-3.1)
ESRD	6,646 (0.4)	5.7% (5.1-6.3)
ESRD and disability	12,825 (0.8)	5.3% (5.0-5.7)
Dual eligibility <sup>†</sup>		
No	1,242,331 (82.3)	2.4% (2.4-2.4)
Yes	267,966 (17.7)	3.6% (3.6-3.7)
Dialysis during index hospitalizati		
No	1,509,602 (100.0)	2.6% (2.6-2.6)
Yes	695 (0.0)	6.2% (4.4-8.0)
Index hospitalization length of sta		
1–2	319,165 (21.1)	1.9% (1.8-1.9)
3	385,059 (25.5)	1.8% (1.8–1.9)
4	215,043 (14.2)	2.8% (2.7–2.8)
5	148,584 (9.8)	3.1% (3.0–3.2)
6–7	192,239 (12.7)	3.4% (3.3–3.4)
8+	250,207 (16.6)	3.7% (3.6–3.8)
Index hospitalization ICU/CCU ut		5.770 (5.0-5.8)
0	997,480 (66.0)	2.2% (2.2-2.2)
1-2	169,220 (11.2)	3.0% (2.9–3.1)
3-4		
	146,658 (9.7)	3.5% (3.4–3.6)
5+	196,939 (13.0)	3.7% (3.6-3.8)
Acute stays over prior year (count		1.07 (1.6.1.6)
0	965,722 (63.9)	1.6% (1.6–1.6)
1	328,838 (21.8)	3.2% (3.1–3.2)
2	121,818 (8.1)	4.9% (4.8-5.0)
3	49,344 (3.3)	6.4% (6.2–6.7)
4+ *	44,575 (3.0)	9.8% (9.5-10.0)
Mobility score <sup>‡</sup>		
Quartile 1	435,701 (28.8)	2.1% (2.0-2.1)
(most independent)		
Quartile 2	295,948 (19.6)	1.7% (1.67)
Quartile 3	495,341 (32.8)	2.8% (2.7-2.8)
Quartile 4	283,307 (18.8)	4.2% (4.1-4.3)
(most dependent)		
Self-care score <sup>‡</sup>		
Quartile 1	418,819 (27.7)	1.7% (1.7-1.8)
(most independent)		
Quartile 2	313,223 (20.7)	1.9% (1.8-1.9)
Quartile 3	393,584 (26.1)	2.7% (2.7-2.8)
Quartile 4	384,671 (25.5)	4.1% (4.0-4.2)
(most dependent)		
Cognitive function Status <sup>§</sup>		
Intact	1,142,804 (75.7)	2.3% (2.3-2.3)

\*Original reason for Medicare enrollment.

<sup>†</sup>Eligible for Medicare and Medicaid.

<sup>\*</sup>Mobility and self-care domains created using items from Home Health Outcome and Assessment Information Set (OASIS). The mobility domain included 3 items related to transfers and ambulation/locomotion. The self-care domain included 7 items related to feeding, preparing light meals, grooming, dressing, bathing, and toilet hygiene.

<sup>§</sup>Cognitive categories created using 2 items from the OASIS. Patients were categorized as "Intact" if they were scored as "alert/oriented, able to focus and shift attention, comprehends and recalls task directions independently" on the cognitive functioning item and as "expresses complex ideas, feelings, and needs clearly, completely, and easily in all situations with no observable impairment" on the speech/oral expression item.

CI indicates confidence interval; ESRD, end-stage renal disease; ICU/CCU, intensive care unit or critical care unit.

**TABLE 2.** Odds Ratios From Adjusted Multilevel Logistic Regression Models Estimating the Association Between Discharge Functional Scores and Potentially Preventable 30-Day Readmissions Following Home Health Care

	Odds Ratio* (95% CI)		
Functional Domain	Not Adjusted for Cognition	Adjusted for Cognition	
Mobility <sup>†</sup>			
Quartile 1 (most independent)	Reference	Reference	
Quartile 2	1.04 (1.00-1.07)	1.03 (0.99–1.07)	
Quartile 3	1.30 (1.27–1.34)	1.29 (1.25–1.33)	
Quartile 4 (most dependent)	1.58 (1.53–1.63)	1.53 (1.48–1.58)	
Self-care <sup>†</sup>			
Quartile 1 (most independent)	Reference	Reference	
Quartile 2	1.09 (1.05–1.13)	1.09 (1.05–1.12)	
Quartile 3	1.34 (1.30–1.38)	1.33 (1.29–1.37)	
Quartile 4 (most dependent)	1.65 (1.59–1.69)	1.61 (1.56–1.66)	
Cognitive status <sup>‡</sup>	Not adjusted for self-care or mobility	Adjusted for self-care	Adjusted for mobility
Intact	Reference	Reference	Reference
Impaired	1.21 (1.18–1.24)	1.04 (1.01–1.06)	1.08 (1.05-1.10)

\*Odds ratios from multilevel models adjusted for patients' age; sex; race/ethnicity; dual eligibility; Medicare original reason for entitlement; number of hospitalizations over the prior year; comorbidities (hierarchical condition categories); and index hospitalization diagnostic category, primary procedure category (if applicable), length of stay, receipt of dialysis, and intensive or coronary care unit utilization. Complete listings of the odds ratios from the multilevel models presented are available in Supplemental Digital Content 2 (http://links. lww.com/MLR/B657).

<sup>†</sup>Mobility and self-care domains created using items from Home Health Outcome and Assessment Information Set (OASIS). The mobility domain included 3 items related to transfers and ambulation/locomotion. The self-care domain included 7 items related to feeding, preparing light meals, grooming, dressing, bathing, and toilet hygiene. <sup>‡</sup>Cognitive categories created using 2 items from the OASIS. Patients were categorized as "Intact" if they were scored as "alert/oriented, able to focus and shift attention,

<sup>3</sup>Cognitive categories created using 2 items from the OASIS. Patients were categorized as "Intact" if they were scored as "alert/oriented, able to focus and shift attention, comprehends and recalls task directions independently" on the cognitive functioning item and as "expresses complex ideas, feelings, and needs clearly, completely, and easily in all situations with no observable impairment" on the speech/oral expression item.

CI indicates confidence interval.

common condition and septicemia the second most common condition across all levels of independence (ie, score quartile or intact/impaired) on the self-care, mobility, and cognition domains.

### DISCUSSION

Functional status at discharge from postacute home health care was associated with 30-day potentially preventable readmissions in this national cohort of Medicare fee-forservice beneficiaries. While the overall rate of potentially

**TABLE 3.** Frequencies of 30-Day Potentially Preventable Readmissions Following Home Health Discharge by Condition Category

Condition Category	N (%)
Overall	39,452 (100)
Congestive heart failure	9305 (23.6)
Septicemia	6608 (16.7)
Bacterial pneumonia	3865 (9.8)
Chronic obstructive pulmonary disease	3699 (9.4)
Renal failure	2967 (7.5)
Urinary tract infection/kidney infection	2793 (7.1)
Arrhythmia	1989 (5.0)
Dehydration/electrolyte imbalance	1831 (4.6)
Skin and subcutaneous tissue infections	1724 (4.4)
Hypertension/hypotension	1013 (2.6)
Clostridium difficile infection	924 (2.3)
Aspiration pneumonitis; food/vomitus	840 (2.1)
Adult asthma	752 (1.9)
Diabetes short-term complication	684 (1.7)
Influenza	310 (0.8)
Pressure ulcers	80 (0.2)
Intestinal impaction	68 (0.2)

preventable readmissions was relatively low (2.6%), this represents readmissions for 39,452 individuals that are considered avoidable. In our cohort, 40% of all 30-day readmissions were for a potentially preventable condition. Our findings provide preliminary insight into understanding the clinical and functional characteristics of home health care patients who are high-risk for experiencing a potentially preventable hospital readmission.

Patients who were more functionally dependent at discharge had higher odds of a potentially preventable readmission. This was observed across the self-care, mobility, and cognition domains. However, impaired cognition was not associated with significantly higher odds for potentially preventable readmission after controlling for self-care and mobility. This suggests that limitations in self-care and mobility may contribute to the increased odds for potentially preventable readmissions among patients with impaired cognition. Similar findings regarding the association between functional status and potentially preventable readmissions have been reported for the inpatient rehabilitation and skilled nursing facility postacute settings.<sup>11,18</sup> The consistency across settings highlights the important role functional status may play in potentially preventable readmissions. Further research is needed to determine whether improving functional independence decreases the risk for potentially preventable readmissions. However, the association between functional status and potentially preventable readmissions is helpful for identifying individuals who may be more vulnerable to readmission.

Identification of at-risk individuals allows for targeted, efficient prevention efforts. For example, rather than follow-up programs for all patients discharging from home health care, programs can be directed to those at increased risk. We hypothesize that targeting individuals at increased risk may be an effective strategy; however, future research is needed to determine whether interventions focused on these individuals lowers their risk of 30-day potentially preventable readmissions. This targeted approach aligns with current efforts to improve the quality and reduce the costs of health care.<sup>6,19</sup> In the home health setting, patients' functional status is reassessed at the end of the episode of care; therefore, individuals who continue to experience limitations in self-care, mobility, and/or cognition can be identified without additional resource utilization. These patients may benefit from follow-up services or surveillance. In addition to targeting individuals at increased risk, the efficiency of prevention efforts may also be improved by concentrating on the common potentially preventable conditions experienced by patients following home health discharge.

Congestive heart failure was the most common reason for 30-day potentially preventable readmissions. This diagnosis reflects inadequate management of chronic conditions.<sup>7</sup> Readmissions for heart failure are not unique to the home health setting.<sup>20</sup> Heart failure is one of the conditions included in CMS' Hospital Readmission Reduction Program,<sup>21</sup> and interventions have been developed to try to reduce readmissions for heart failure after hospital discharge.<sup>22-24</sup> The second most common condition resulting in potentially preventable readmissions was septicemia, which reflects inadequate management of infection. Septicemia is a common reason for hospital readmissions across settings,<sup>11,20</sup> and our findings suggest infection prevention may be important following home health care, as well. Interventions to prevent postdischarge readmissions may benefit from strategies found to be effective in other settings, such as telephone or clinic follow-up.<sup>23,24</sup> However, future research is needed to determine the specific strategies that effectively reduce readmissions following home health care.

Further research is also needed to better understand what may be an "optimal" rate of 30-day potentially preventable readmissions following home health care. Not all readmissions will be preventable, but it is currently unknown what rates could be achieved under the best possible conditions (eg, high-quality transitional and follow-up care). This information will provide a target for measuring improvements and allow more definitive identification of populations that are at increased risk due to personal characteristics and/or access issues. Moving forward it will also be important to examine the variation in 30-day potentially preventable readmission rates across home health agencies. Variation suggests room for improvement, and studying high and low performing agencies may provide insight into how rates of 30-day potentially preventable readmission rates can be further improved.

## LIMITATIONS

We used administrative and assessment datasets to address the study objectives. These data are not collected for research purposes, and the accuracy of data entry is not known. The CMS files used also do not contain extensive sociodemographic information. For example, we do not have information on level of caregiver support following home health discharge, which could play a role in hospital readmissions. Our findings are only generalizable to Medicare fee-for-service beneficiaries who match our cohort selection criteria. Findings may differ for individuals with different payers or characteristics. We used items from the OASIS to determine functional status. We categorized these items into self-care, mobility, and cognition domains using clinical judgment; there is no established methodology. Results may be different for other measures of functional status. Because our primary objective was to determine the association between patients' functional status at discharge from home health care and 30-day potentially preventable readmissions, we excluded individuals who did not have complete functional data at discharge. This exclusion may have biased our findings, as individuals without functional data may have had different postdischarge outcomes than those with complete functional data. However, our findings indicate that for patients whose functional status is assessed and recorded at discharge, functional limitations are associated with 30-day potentially preventable readmissions.

#### CONCLUSIONS

In our national cohort, 40% of 30-day readmissions following home health discharge were for conditions considered potentially preventable. This suggests there is an opportunity to further reduce rates. Functional limitations at discharge from home health care may be a red flag indicating the patient is at increased risk for a potentially preventable readmission. Targeted prevention efforts may want to focus on at-risk individuals and common conditions resulting in readmission, such as congestive heart failure and septicemia. Future research is needed to determine whether improving functional independence decreases the risk for potentially preventable readmissions following home health care.

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