Timing of Home Health Care Initiation and 30-Day Rehospitalizations Among Medicare Beneficiaries with Diabetes by Race and Ethnicity

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Abstract: Older adults with diabetes are at elevated risk of complications following hospitalization. Home health care services mitigate the risk of adverse events and facilitate a safe transition home. Building on prior findings of racial/ethnic disparities in post-acute referral and utilization of home health, this study examined timing of home health care initiation and 30-day rehospitalization outcomes. Using linked Medicare administrative, assessment, and claims datasets (2014-2016), we identified 209,150 Medicare beneficiaries, age 50 and older, who were referred to post-acute home health following a diabetes-related index hospitalization. Multivariate logistic regression models included patient demographics, neighborhood area deprivation, and rural/urban setting. Home health care initiated within one week was associated with lower risk of 30-day rehospitalization (days 0-2, OR=0.88, 95% CI 0.86-0.91; days 3-7, OR=0.87, CI 0.84-0.90). In contrast, a late start of services (days 8-14) was associated with a higher risk of 30-day rehospitalization (OR=2.2, CI 2.0-2.3). This pattern of results was observed across all racial/ethnic patient groups. However, racial/ethnic minority patients were less likely to receive timely home health care services compared to white patients. Timely initiation and coordination of home health care is one strategy to improve outcomes following diabetes-related hospitalizations that benefits older adults of all racial/ethnic groups.

Keywords: chronic conditions; diabetes; older adults; race or ethnicity; social determinants of health; inequalities or inequities; policy; health care access; home health care

1. Introduction

In the United States, nearly one in four older adults are living with diabetes, a condition associated with increased morbidity, mortality, and healthcare utilization [1-3]. Older adults with diabetes experience higher rehospitalization rates than patients without diabetes [2]. Increased rehospitalization risk may be due to more complicated transitions between hospital to home, a result of complex medication regimens and co-existing conditions that impact functional or cognitive status [4-6]. Effective discharge planning and care coordination involving skilled home health care services can reduce the risks of adverse events, including rehospitalization [4,7,8]. Skilled home health care services support patients with diabetes and their support systems through medication management, nutritional support, and glucose monitoring to prevent complications [4,9,10]. Hospital discharge planning involves both the identification of patients who might benefit from home health care and coordination of the referral to ensure timely initiation of

services, enabling timely assessments, care planning, and prevention of rehospitalization [11-14].

Hospital discharge planning is an important step in ensuring high-risk patients have the supports needed to safely return home and minimize potentially avoidable re-admissions. A recent study found that of all hospital patients discharged to home health care, only 54% received services within two weeks [15]. Prior researchs found that among patients with a diabetes-related hospitalization, racial/ethnic disparities in post-acute re-ferral and utilization of home health care exist for non-Hispanic Black, Asian Ameri-can/Pacific Islander (AAPI), American Indian/Alaska Native (AIAN), and Hispanic pa-tients compared to (non-Hispanic) white patients [15, 16]. The impact of incomplete home health care referrals (including refusal of care) and delayed initiation of home health care on 30-day rehospitalizations is an important and understudied topic.

This study examined the effect of post-acute home health care initiation and timing on 30-day rehospitalization outcomes for a cohort of Medicare beneficiaries with a dia-betes-related hospitalization. This paper is a continuation of the study reported in (IJERPH-under review) which found racial/ethnic disparities in post-acute home health care referral among older adults with a diabetes-related hospitalization [16]. We previ-ously examined the predictors of hospital discharge destination (referral to home health care vs. home with self-care) and subsequent utilization of home health care within 14-days of discharge [16]. In this paper, restricted to the patients with a hospital dis-charge destination of home health care, we first examine the timing of home health care initiation, categorized as prompt (within 2 days), delayed (on days 3-7), late (on days 8-14), or missed (not received within two weeks). We then examine the impact of home health care timing on 30-day rehospitalization outcomes in models stratified by race/ethnicity. Together, these analyses help to understand the potential value and im-pact of home health care as a strategy to reduce rehospitalizations, and impact of timely initiation of home health care on the outcomes and effectiveness of home health care.

2. Materials and Methods

2.1 Study Design

This study used a cohort of Medicare beneficiaries with a diabetes-related hospital admission in 2015 that ended in discharge to home with self-care or home health care [16]. Linked datasets utilized for this project include 2014-2016 100% Medicare Benefi-ciary Summary File (MBSF), the inpatient Medicare Provider and Analysis Review (MedPAR) file, and home health Outcome and Assessment Information Set (OASIS). The study design, variable selection, and interpretation of results were guided by Andersen and Newman's Framework for Viewing Health Services Utilization (Figure 1) [17]. From this lens, societal determinants, including federal and state policy, neighborhood so-cio-economic and geographic factors, and structural racism exert direct and indirect ef-fects on individuals' access to and utilization of primary care. Examples of health system resources and services that vary by geography include availability of primary care by certified-diabetes educators and through skilled home health care, secondary care in-cluding endocrinologists and insulin-pump providers, and tertiary care including po-tentially avoidable hospital stays.
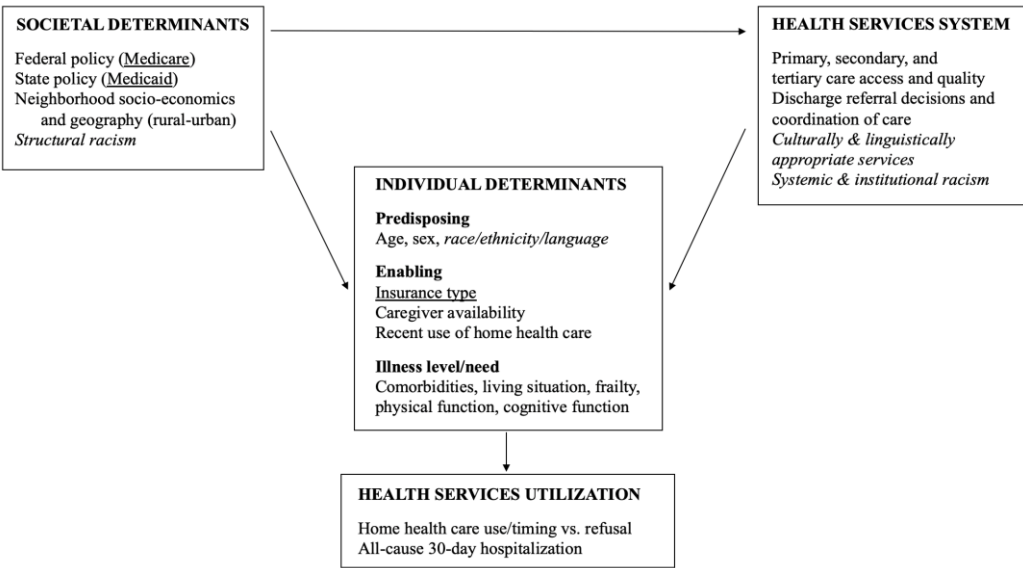
Figure 1. Conceptual model based on Andersen and Newman's Framework for Viewing Health Services Utilization.

2.2 Study Population

The study cohort was constructed by identifying all diabetes-related hospital admissions in 2015 among Medicare beneficiaries aged 50 and older (n = 1,270,929) [16]. Diabetes-related hospitalizations were defined by a primary admission diagnosis of diabetes or a secondary admission diagnosis of diabetes combined with a diabetes-related condition including cardiovascular, renal, lower extremity, or eye diseases [18]. The list of ICD-9 and ICD-10 used to identify diabetes-related hospitalizations is included in supplemental digital content Table S1 [16]. The sample was restricted to patients continuously enrolled in Medicare for at least 12 months prior to the diabetes-related index hospitalization, with a discharge destination of home health care [16]. The final sample consisted of 209,150 Medicare beneficiaries.

2.3 Data Sources and Variables

The primary outcome was all-cause rehospitalizations within 30-days of discharge from the index hospitalization, identified from the Medicare Provider and Analysis Review File (MedPAR). The intermediate outcome and primary predictor of 30-day rehospitalization was the timing of home health care service initiation following the index hospitalization. The timing of home health care initiation was calculated as the difference between index hospital discharge and the first post-acute home health care assessment: none, prompt (0-2 days), delayed (3-7 days), or late (8-14 days).

Demographic variables included age, sex, race/ethnicity, insurance, comorbidities, and use of home health care during the 4 months prior to index hospitalization [16]. To minimize the frequency of unknown/other race and misclassification error the imputed Research Triangle Institute (RTI) race variable contained in the Medicare Beneficiary Summary File (MBSF) was augmented with patients' self-reported race/ethnicity from home health care assessment (OASIS) data [19,20]. Comorbidities from the Elixhauser Index [21] were supplemented with flags for end-stage-renal-disease and dementia [16]. Geographic variables included patients' state of residence (summarized by census region). Additionally, we included a dummy variable for each state, to minimize error associated with between-state variation in Medicare Advantage and Medicaid programs. The neighborhood profile variable was created by combining socioeconomic disadvantage and urban-rural classification into a four-category variable: a) rural-advantaged, b) rural-disadvantaged, c) urban-advantaged, d) urban-disadvantaged [16]. Socioeconomic disadvantage was defined as living in a zip-code classified at the 85th percentile or above on the 2015 Area Deprivation Index 2.0 (ADI 2.0). The ADI 2.0 is a composite index

of 17 socioeconomic indicators from the 2011-2015 U.S. Census American Community Survey, linked to patients' 9-digit zip codes [22]. Zip-codes were classified as rural or urban using the 2013 Economic Research Service's Rural-Urban Continuum Codes (RUCC) [23].

2.4 Analytic Approach

Descriptive statistics were calculated for variables of interest including demographic and clinical characteristics of the sample. To examine the intermediate outcome, timing of home health care initiation, we estimated multinomial logistic regression models with three outcomes: home health care initiated on day 0-2 day, 3-7, or 8-14 vs. none. Next, the effect of home health care timing was estimated for the primary outcome of 30-day re-hospitalizations in models stratified by discharge destination and race/ethnicity. Andersen and Newman's Framework for Viewing Health Services Utilization was used to guide variable selection for model adjustment and included age, sex, insurance, RUCC-ADI, comorbidities from Elixhauser Index, and region. We considered a $P < .05$ to be statistical significance. All analyses were performed using SAS software, version (9.4) (SAS Institute, Inc., Cary, NC). These analyses are part of a larger study titled, The Comparative Effectiveness of Home Care for Diverse Elders' Outcomes, approved by the Institutional Review Board of Rutgers, The State University of New Jersey and the Centers for Medicare and Medicaid Services privacy review board.

3. Results

3.1. Patient Characteristics Overall and by Timing of First Home Health Care Visit

Table 1 includes selected demographic variables (race/ethnicity, insurance, and neighborhood profile) for the overall sample, stratified by timing of home health care (none, prompt, delayed, or late). All the patients were discharged from the hospital to home health care. Within two days of discharge, 57.5% of patients had begun home health care, and by the end of the first week a total of 70.9% had started services. In the second week, an additional 1.9% of patients started home health care, with the remainder (27.2%) not receiving services. Additional descriptive results are presented in Table 1.

Table 1. Sample description stratified by timing of first home health care visit (none, prompt, delayed, late).

		Timing of First Home Health Care Visit (row %)			
	Total (n = 209,150)	None 56,949 (27.2)	Day 0-2 120,193 (57.5)	Day 3-7 27,979 (13.4)	Day 8-14 4,029 (1.9)
Race/Ethnicity					
White	144,261	35,524 (24.6)	88,102 (61.1)	29,450 (12.6)	8,806 (1.7)
Black	38,082	11,098 (29.1)	19,646 (51.6)	6,309 (16.6)	1,029 (2.7)
Hispanic	19,835	7,641 (38.5)	9,232 (46.5)	2,529 (12.8)	433 (2.2)
AAPI	5,298	1,857 (35.1)	2,576 (48.6)	747 (14.1)	118 (2.2)
AIAN	1,177	342 (29.1)	627 (53.3)	183 (15.6)	25 (2.1)
Unknown	497	497 (100)	-	-	-
Insurance					
Fee-for-service (FFS)	90,145	19,272 (21.4)	57,402 (63.7)	11,914 (13.2)	1,557 (1.7)
FFS + Medicaid	43,731	9,602 (22.0)	27,114 (62.0)	6,086 (13.9)	929 (2.1)
Medicare Advantage (MA)	48,140	17,645 (36.7)	23,219 (48.2)	6,368 (13.2)	908 (1.9)
MA + Medicaid	27,134	10,430 (38.4)	12,458 (45.9)	3,611 (13.3)	635 (2.3)
RUCC-ADI 2.0					
Urban, Advantaged	149,653	42,039 (28.1)	84,761 (56.6)	19,967 (13.3)	2,886 (1.9)

Urban, Disadvantaged	26,602	7,913 (29.8)	14,149 (53.2)	3,397 (14.8)	603 (2.3)
Rural, Advantaged	25,044	5,409 (21.6)	16,236 (64.8)	3,021 (12.1)	378 (1.5)
Rural, Disadvantaged	7,851	1,588 (20.2)	5,047 (64.3)	1,054 (13.4)	162 (4.0)
Sex					
Female	112,350	29,677 (26.4)	64,394 (57.3)	15,943 (14.2)	2,336 (2.1)
Male	96,800	27,272 (28.2)	55,799 (57.6)	12,036 (12.4)	1,693 (1.8)
Age ($\bar{x}$, SD)	75.3 (10.0)	74.4 (10.0)	75.6 (10.1)	75.3 (10.1)	74.8 (10.2)
Elixhauser CI ($\bar{x}$, SD)	31.8 (16.6)	31.3 (16.8)	31.8 (16.5)	32.9 (16.7)	34.0 (16.8)
Dementia flag	49,447	11,138 (22.5)	30,030 (60.7)	7,144 (14.5)	1,135 (2.3)
ESRD flag	15,900	4,500 (28.3)	8,282 (52.1)	2,696 (17.0)	422 (2.7)
Prior HHC use	61,904	9,422 (15.2)	42,396 (68.5)	8,756 (14.1)	1,330 (2.2)
LoS ($\bar{x}$, SD)	5.2 (4.2)	5.0 (4.2)	5.3 (4.2)	4.8 (4.2)	5.2 (4.1)

Abbreviations: White, Non-Hispanic white, Black, non-Hispanic Black; AAPI, non-Hispanic Asian American/Pacific Islander; AIAN, non-Hispanic American Indian/Alaska Native; FFS, Medicare fee-for-service; FFS + Medicaid, Medicaid dual eligible; MA = Medicare Advantage; MA + Medicaid, Medicaid dual eligible; Urban/Rural Advantage, socioeconomically advantaged neighborhood; Urban/Rural Disadvantage, socioeconomically disadvantaged neighborhood. Elixhauser CI, Elixhauser comorbidity index score with hospital readmission weights; Dementia and end-stage renal disease (ESRD) flags from Medicare Chronic Conditions Warehouse; Prior HHC, any utilization of home health care during 120-days prior to index hospital admission (2014-2015 OASIS data); LoS, index hospitalization length of stay in days.

3.2 Predictors of Home Health Care Initiation Timing (Intermediate Outcome)

Table 2 displays multinomial logistic regression results predicting timing of home health care initiation for patients discharged to home health care. All racial/ethnic minority subgroups were less likely to receive prompt home health care compared to their white counterparts: Hispanic (OR 0.6, CI 0.6-0.7); American Indian/Alaska Native (AIAN) OR (0.7, CI 0.6-0.8); Asian American/Pacific Islander (AAPI) (OR 0.8, CI 0.7-0.8); and Black OR (0.8, CI 0.8-0.8). Compared to white patients, Black patients were also the most likely to receive a late start of services (on days 8-14) (OR 1.3, CI 1.2-1.4). Additionally, Medicare Advantage insurance was associated with lower odds of receiving home health care in the first week after discharge (days 0-2, OR 0.5, CI 0.5-0.5; days 3-8, OR 0.6, CI 0.6-0.6) compared to fee-for-service Medicare.

Table 2. Results of multinomial logistic regression predicting timing of first home health care (HHC) visit among patients discharged from index hospitalization to home health care.

	Day 0-2	Day 3-7	Day 8-14
	n = 120,183	n = 27,979	n = 4,028
	OR, 95% CI	OR, 95% CI	OR, 95% CI
Race/ethnicity (ref = white)			
Black	0.8, 0.8-0.8	1.1, 1.1-1.2	1.3, 1.2-1.4
Hispanic	0.6, 0.6-0.7	0.7, 0.7-0.8	0.9, 0.8-1.0
Asian American/Pacific Islander	0.8, 0.7-0.8	0.9, 0.8-0.9	0.9, 0.8-1.1
American Indian/ Alaska Native	0.7, 0.6-0.8	1.0, 0.9-1.3	1.0, 0.7-1.6
Insurance (ref = Medicare FFS)			
FFS/Medicaid	1.0, 1.0-1.0	1.0, 0.9-1.0	1.0, 0.9-1.1
Medicare Advantage (MA)	0.5, 0.5-0.5	0.6, 0.6-0.6	0.7, 0.6-0.8

MA/Medicaid	0.5, 0.5-0.5	0.6, 0.6-0.6	0.7, 0.7-0.8
RUCC-ADI (ref = Urban, Advantaged)			
Urban, Disadvantaged	1.1, 1.0-1.1	1.1, 1.0-1.2	1.3, 1.0-1.5
Rural, Advantaged	0.9, 0.8-0.9	1.0, 0.9-1.0	1.1, 1.0-1.2
Rural, Disadvantaged	0.8, 0.8-0.9	1.0, 0.9-1.1	1.1, 0.9-1.2

Note: Model additionally adjusted for patient demographics (sex, age), Elixhauser index comorbidities, dementia and ESRD flags, index hospitalization length of stay and utilization of home health care during preceding 120-days, and state of residence at the end of calendar year 2015. Abbreviations: FFS, Fee-for-services; RUCC-ADI refers to neighborhood profile combining dichotomized rural-urban continuum codes and national version of the Area Deprivation Index 2.0.

3.3 Home Health Care Timing and Rehospitalization

Among patients discharged from the index hospital stay to home health care, initiation of home health care services within one-week was associated with lower risk of rehospitalization compared to not receiving services (days 0-2, OR 0.9, CI 0.9-0.9; days 3-7, OR 0.9, CI 0.8-0.9). Additionally, starting home health care late (days 8-14) was associated with higher risk of 30-hospitalization (OR 2.1, 95% CI 2.0-2.3). See Table 3 for additional logistic results for the overall sample. In sub-analyses stratified by race/ethnicity, the results were similar for white, Black, and Hispanic patients (Table 4). The impact of home health care use in the first week was not statistically significant for AAPI patients and use of home health care beginning in the second week was not statistically significant for AIAN patients either (O.R. 1.1, CI 0.4-2.9).

Table 3. Results of logistic regression predicting 30-day all-cause rehospitalization.

Events (30-day Rehospitalization)	40,705
Total observations used	203,503
	OR, 95% CI
Timing of home health care (ref = none)	
Prompt (within 2 days)	0.9, 0.9-0.9
Delayed (day 3-7)	0.9, 0.8-0.9
Late (day 8-14)	2.1, 2.0-2.3
Use of HHC in past 120 days	1.4, 1.3-1.4
Hospital length of stay	1.0, 1.0-1.0
Male (ref = female)	1.0, 1.0-1.0
Age (ref = 50-65 years)	
66-75	1.0, 0.9-1.0
76-85	1.0, 1.0-1.1
86+	1.0, 1.0-1.1
Insurance (ref = Medicare FFS)	
FFS + Medicaid	1.1, 1.1-1.1
Medicare Advantage (MA)	0.9, 0.9-1.0
MA + Medicaid	1.1, 1.0-1.1
Neighborhood Profile (ref = Urban, Adv.)	
Urban, Disadvantaged	1.1, 1.0-1.1
Rural, Advantaged	1.1, 1.0-1.1
Rural, Disadvantaged	1.0, 1.0-1.0

Comorbidities	
Chronic pulmonary disease	1.2, 1.1-1.2
Congestive heart failure	1.3, 1.2-1.3
Dementia	1.4, 1.3-1.4
Depression	1.0, 1.0-1.0
Diabetes with complications	1.0, 1.0-1.0
End-stage renal disease	1.4, 1.4-1.5
Fluid and electrolyte disorders	1.1, 1.1-1.2
Hypertension	1.0, 0.9-1.0
Liver disease	1.3, 1.2-1.4
Obesity	1.0, 0.9-1.0
Peripheral vascular disease	1.2, 1.1-1.2
Pulmonary circulation disorders	1.1, 1.0-1.1
Renal failure	1.2, 1.1-1.2
Rheumatoid arthritis	1.1, 1.1-1.2
Solid tumor without metastasis	1.4, 1.3-1.5
Valvular disease	1.1, 1.1-1.1

Note: Model adjusted for additional Elixhauser comorbidities and state, but not race/ethnicity

Table 4. Results of logistic regression predicting 30-day all-cause rehospitalization stratified by race/ethnicity.

	White	Black	Hispanic	AAPI	AIAN
Events (30-day rehosp.)	28,160	7,542	3,713	966	263
Observations Used	140,229	37,162	19,285	5,210	1,139
HHC Timing (ref = none)	OR, 95% CI	OR, 95% CI	OR, 95% CI	OR, 95% CI	OR, 95% CI
Prompt (day 0-2)	0.9, 0.8-0.9	0.9, 0.8-0.9	1.0, 0.9-1.0	1.1, 0.9-1.3	1.0, 0.7-1.5
Delayed (day 3-7)	0.9, 0.8-0.9	0.8, 0.7-0.9	0.9, 0.8-1.0	1.0, 0.8-1.2	0.7, 0.4-1.2
Late (day 8-14)	2.4, 2.2-2.6	1.8, 1.5-2.0	2.1, 1.7-2.6	1.8, 1.2-2.8	1.1, 0.4-2.9

Notes: Models adjusted for age, gender, insurance type, comorbidities, length of stay, use of home health in prior 120 days, neighborhood profile, and state. Abbreviations: AAPI, Asian American/Pacific Islander; AIAN, American Indian/ Alaska Native; HHC, home health care

4. Discussion

Results indicate that racial/ethnic inequities exist among patients with a diabetes-related hospitalization in timely access to post-acute home health care that exist among. Successful transitions are multidimensional and influenced by societal, health systems, and individual determinants [24]. Consistent with our conceptual model, we evaluated racial/ethnic differences in timely utilization of home health care and subsequent associations with 30-day outcomes but did not consider a patient's race/ethnicity as an independent risk-factor for hospitalization [25]. The racial/ethnic and insurance plan differences observed in home health care utilization and timing suggest structural and systemic barriers are driving disparities in timely receipt of home health care services ordered as part of the hospital discharge plan.

The overall rehospitalization rate observed in this study was comparable to prior studies of post-acute home health care, [26-28] and adults with diabetes [1,2,29]. Home health agencies are encouraged to make an initial home-visit including a comprehensive

assessment and development of a care plan within 48 hours of a referral as a best practice, however evidence that this prevents avoidable hospitalizations has been mixed [11,14,30,31]. However, risk of rehospitalization was lower among patients receiving home health care within the first week after index hospitalization discharge. Late initiation of home health care was associated with double the risk of rehospitalization compared to when services were refused (not received) or received during the first week. The findings of this study support the need for early identification of patients who may require home health care as part of their discharge plan and timely coordination of referral to home health care and activation of family/informal caregivers to support a safe transition home from the hospital.

Timely referral and coordination of home health care are important strategies to prevent 30-day rehospitalizations among older adults with diabetes and may especially benefit racial/ethnic minority patients who disproportionately receive delayed, late, or refused services. Black, Hispanic, AAPI, and AIAN patients were less likely to receive their first home care visit in the two days following hospital discharge, compared to white patients. Hispanic patients continue to have lower odds of home health care visits throughout the post-acute period. Black patients are more likely to received delayed or late home health care compared to white patients. While prior studies have uncovered racial/ethnic disparities in home care referrals, [15,32,33] this study extends the literature by examining not only if, but when, home health care services were received. Initiation of home health care within 48-hours of referral is a publicly-reported quality indicator for home health care agencies, suggesting societal determinants may be driving the racial and ethnic disparities observed in utilization and timing of home health care. Since timely transitional care is associated with improved outcomes, these differences deserve further evaluation. It is possible that unmeasured home health care agency differences may contribute to the findings, as prior research has found patient who are Black, dual-eligible, and had low incomes were more likely to receive home care by lower-performing agencies [34]. However, it is also possible that societal determinants and larger health system factors are contributing to lower quality rankings for agencies that serve patients who experience racial/ethnic disparities in timely and appropriate home health care referrals.

Structural racism is embedded in society, encompassing societal and institutional systems that foster discrimination and reinforce unequal resource distribution [35,36]. In the case of successful post-acute transitions home following diabetes-related hospitalizations, de facto discrimination may contribute to the racial/ethnic disparities observed in the study. Prior research found racial residential segregation [37] and residence in food swamps [38] contribute to increased rehospitalization risk among patients with diabetes. Unmeasured institutional policies, procedures, and workforce resources impacting culturally and linguistically appropriate care may also contribute to the inequities observed in this study. Community demographics, healthcare workforce diversity, and workload are factors that may contribute to the quality and effectiveness of discharge planning and care coordination [39]. Additionally, patients' prior experiences with inpatient and community care may positively or negatively impact acceptance of a discharge plan that includes home health care [40,41]. Since diabetes disproportionally burdens racial/ethnic minority groups, it is particularly important that a culturally and linguistically appropriate assessment of transitional care needs and discharge plan is developed early to ensure referral and initiation of home health care when needed [42-46].

There are a few limitations in our study. First, given the observational cohort study design using data available from the CMS Chronic Conditions Warehouse, we do not know the reasons why some patients received services late or not at all, and do not have information about patient's preferences, home environment, marital status, or caregiver availability [47]. Second, we did not utilize outpatient claims data, and thus did not account for outpatient follow-up visits, which may have delayed the initial home health visit [29]. Third, it is possible that there are unmeasured individual, health care system, or geographic factors that we did not control for including severity of illness. Fourth, we did

not account for differences between Medicare Advantage plans, some of which charge a small co-pay for home health care services, in contrast to fee-for-service (traditional) Medicare and Medicaid which have no co-pay for home health care or limits on medically necessary services.

5. Conclusions

Within the United States, diabetes prevalence among older adults and the associated economic costs continue to rise [48], identifying opportunities for targeted interventions to improve care for in this population is a priority. Patients who receive home health care within 7-days of diabetes-related hospitalization discharge have a lower risk of 30-day rehospitalization. This finding supports efforts of health care providers and discharge planners to identify patients early who may need home health services and whose discharge plan and referral may require extra time including patients who have recently utilized home health care, or who may need insurance pre-authorization. Future work is needed to address societal determinants (i.e., health policy in Figure 1) and systemic inequities in the health care system to ensure timely referral and use of home health care services among racial and ethnic minority high-risk patients with diabetes.

Supplementary Materials: The following are available online at www.mdpi.com/xxx/s1, Table S1. International Classification of Diseases Codes (ICD-9 and ICD-10) used to identify diabetes-related index hospitalizations.

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Informed Consent Statement: Patient consent was waived due to no more than minimal risk and the research could not practically be carried out without the waiver, and the waiver does not adversely affect the rights or welfare of the subjects.

Data Availability Statement: Restrictions apply to the availability of these data. Data were obtained from CMS/ResDAC and are available from the authors with the permission of CMS/ResDAC.

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