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Care Setting of the Last Resort: Care Transitions for Nursing Home Residents Directly Admitted from the Community

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by

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DEDICATION

This dissertation is dedicated to my parents. They have been my inspiration and my rock. Through their struggles and sacrifices, I learned how to work hard and hopefully, play a little harder. Without my parents, this dissertation and more importantly, my dreams for tomorrow would never have been possible. Mom and Dad, there are no words to express how thankful I am for you and the *pumpkin rule*.

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ABSTRACT

Since the late 1980s, policymakers have attempted to reduce the institutional bias of their long-term services and supports by investing in more accessible home and community-based services for older adults with long-term care needs and adults with disabilities. To further advance rebalancing discussions, this study examined the resident, facility, and state characteristics associated with the admission of community-dwelling older adults to the nursing home and the subsequent discharge of this population back to community settings. Data from the Minimum Data Set (MDS) 2.0 were used to construct episodes of care for all newly-admitted residents aged 65 and older to any free-standing U.S. nursing home. Several secondary datasets including the Online Survey, Certification, and Reporting Database (OSCAR), LTCFocus.org website, Nursing Home Compare, Nursing Home Data Compendium, and U.S. census estimates were used in the study analyses.

On average, approximately 5.3% of all newly admitted nursing home residents were admitted directly from home with substantial variations across states. Most residents admitted directly from home had limited to extensive dependency in activities of daily living and moderate cognitive impairment. The most common diagnoses on admission included dementia and diabetes. While 31% of residents admitted from home remained in the facility at least 365 days after admission, 32% were discharged to the community, 15% were discharged to the hospital, and 21% died. Most residents admitted from assisted living communities, either remained in the facility or died by the end of the study. Findings from multivariate analyses suggest that resident-level factors, including demographics and health status, influenced the

community transition of nursing home residents. Facility characteristics, including ownership, deficiency scores, the ratio of Medicare and Medicaid residents, and urban location were associated with discharge to the community but the effect of these factors differed according to length of stay. The commitment of a state to home and community-based services was also predictive of community discharge. Collectively, findings suggest that resident, facility, and state characteristics influence the community discharge of residents admitted from home or assisted living communities. By understanding the reasons for admission to the nursing home and the factors influencing discharge from the facility, policymakers and administrators can better anticipate and care for community-dwelling older adults with long-term care needs.

CHAPTER ONE:

BACKGROUND

Long-term services and supports (LTSS), whether provided in a nursing home (NH) or community setting, encompass a broad range of medical and personal care services that are vital to the wellbeing of frail elders and adults with disabilities. With the need for LTSS expected to double by 2050 (United States Department of Health and Human Services, 2003), federal and state policies have attempted to rebalance public resources from an institutional to community-based delivery system designed to better address consumer preference and contain Medicaid spending growth (Kaye, LaPlante, & Harrington, 2009). Although the success of these efforts depend on whether states can prevent community-dwelling older adults from becoming long-stay NH residents or support NH residents who can successfully return to the community, recognizing the factors associated with the transition of NH residents to and from the community is a necessary first step in rebalancing.

Rebalancing Long-Term Services and Supports

For several decades, policymakers have acknowledged the need for home and community-based alternatives to institutionalized care. Because of this, many states have attempted to rebalance their LTSS by shifting a greater proportion of their Medicaid spending to home and community-based services (HCBS) instead of NH care. These rebalancing efforts have been driven by the combination of consumer preference (Shirk, 2006), judicial pressure through the *Olmstead* decision, and economic efficiency since the cost of providing HCBS is generally

less than the per capita cost of institutional care (Amaral, 2010; Kaye, Harrington, & LaPlante, 2010; Kaye et al., 2009).

Although, federal legislation has provided states with the opportunity to alleviate the institutional bias of Medicaid and address issues of beneficiary preference, the degree to which states have utilized the increased flexibility and resources provided by the federal government has varied tremendously (Crisp, Eiken, Gerst, & Justice, 2003a; Shirk, 2006). While some states have achieved an equitable balance between community and institutional care, others have been less proactive in their approach (Crisp et al., 2003a). Generally, rebalancing approaches are categorized as either upstream or downstream initiatives. Upstream approaches attempt to prevent unwanted long-term NH placement by *diverting* individuals away from the NH; whereas downstream initiatives interrupt unwanted long-term NH stays by *transitioning* residents from the NH back to the community. Oregon, Washington, and Vermont have been recognized as upstream leaders by creating Medicaid policies that equally balance institutional and HCBS care (Crisp, Eiken, Gerst, & Justice, 2003b; Reinhard, 2010) while downstream approaches include programs such as the Money Follows the Person Rebalancing Demonstration Program (Crisp et al., 2003b; Reinhard, 2010).

Conceptual Framework

Guided by the behavioral model of health service utilization (Andersen & Newman, 2005), this dissertation examines the determinants of NH placement and the discharge disposition of formerly community-dwelling older adults. As one of the most widely employed frameworks in health services research (Babitsch, Gohl, & von Lengerke, 2012), the model has been used to predict NH placement, hospitalization, functional impairment, and mortality (e.g., Andel, Hyer, & Slack, 2007; Miller & Weissert, 2000)

The behavioral model of health service utilization (Andersen & Newman, 1973) posits that both individual and contextual factors explain health service utilization. Most iterations of the model include three interdependent factors: predisposing characteristics, enabling resources, and need. Predisposing characteristics include demographics, social factors such as education and occupation, and attitudes toward health and health services that existed prior to the onset of an illness or disability. Enabling resources are factors that either enable or prohibit an individual from receiving health services including family support, health insurance, the availability of community resources, and per capita income. The final determinant of the model is need and refers to both the physical requirement for healthcare services and the perceived need for healthcare utilization. More recently, the model (Andersen & Newman, 2005) has been expanded to account for the effects of the larger external environment and healthcare system (e.g., reimbursement rates, NH bed moratorium) on service utilization.

Factors Affecting Nursing Home Admission

The behavioral model of health service use (Andersen & Newman, 2005) posits that NH placement is a function of predisposing characteristics, resources that enable or impede service utilization, and need. Several predisposing characteristics consistently predict NH placement including advanced age, White race, living alone, and female gender (Gaugler, Duval, Anderson, & Kane, 2007; Martikainen et al., 2009; Miller & Weissert, 2000). Enabling characteristics such as family support and community resources have a more moderate effect on NH placement with low levels of social support (Bharucha, Pandav, Shen, Dodge, & Ganguli, 2004), the absence of potential caregivers (Banaszak-Holl et al., 2004), and low socioeconomic status (Martikainen et al., 2009) increasing the risk of NH placement for older adults. As the behavioral model suggests, need is the most proximate cause of NH utilization and as a result, indicators of

functional and cognitive impairment are often the strongest predictors of NH admission (Gaugler et al., 2007). Studies predicting NH placement have consistently identified prior hospitalizations (Miller & Weissert, 2000) and the presence of physical or mental diseases including dementia, diabetes, behavioral problems, and dependency in instrumental activities of daily living (Andel et al., 2007; Banaszak-Holl et al., 2004; Bharucha et al., 2004; Gaugler et al., 2007; Gilley et al., 2004; Luppa et al., 2012) as risk factors for institutionalization.

Factors Affecting Nursing Home Discharge

Several studies have demonstrated the relationship between NH discharge and predisposing characteristics as younger (Arling, Kane, Cooke, & Lewis, 2010; Kasper & O'Malley, 2006; Mehr, Williams, & Fries, 1997; Murtaugh, 1994), married (Arling et al., 2010; Kasper, 2005), male (Engle & Graney, 1993; Murtaugh, 1994) residents were more likely to transition to the community. Studies have shown that residents who indicate a preference for community living or had support in the community were more likely to transition from the NH to the community (Arling et al., 2010; Gassoumis, Fike, Rahman, Enguidanos, & Wilber, 2013; Nishita, Wilber, Matsumoto, & Schnelle, 2008). Autonomous decision making also predicts NH discharge as Chapin and colleagues (1998) found that establishing goals and being legally responsible for one's medical decision were positively associated with community discharge.

As expected, most studies have focused on the need for health services and have found that previous institutionalizations (Arling et al., 2010; Engle & Graney, 1993; Mehr et al., 1997) and the presence of physical, cognitive, or mental diseases or dependencies (Arling, Abrahamson, Cooke, Kane, & Lewis, 2011; Arling et al., 2010; Arling, Williams, & Kopp, 2000; Coughlin, McBride, & Liu, 1990; Engle & Graney, 1993; Gassoumis et al., 2013; Mehr et al., 1997; Murtaugh, 1994) influences community discharge. Previous research has demonstrated

that persons entering a NH from an acute care facility (Arling et al., 2010) for the first time (Engle & Graney, 1993) or for rehabilitative purposes (Arling et al., 2000; Mehr et al., 1997) were more likely to be discharged to the community; whereas those with a primary diagnosis of malignancy (Arling et al., 2011; Arling et al., 2010; Engle & Graney, 1993; Mehr et al., 1997; Murtaugh, 1994), dementia or other significant cognitive impairment (Arling et al., 2011; Arling et al., 2010; Engle & Graney, 1993; Mehr et al., 1997; Murtaugh, 1994), and mental disorders (Engle & Graney, 1993) were associated with a decreased probability of transitioning from the NH to the community.

New Contribution

This study makes several new contributions to the literature by investigating the care trajectories and discharge outcomes of NH residents admitted from the community. Through the use of national data, this dissertation advances the literature as most studies have limited their sample to one or several states. Further, most studies have focused on discharges occurring within the first 90 days of a NH stay, with few examining community discharge outside the short-stay window. Again, this dissertation advances discussions on transitions by including long-stay residents in the analyses. Methodologically, this dissertation includes an examination of community discharge while jointly accounting for the competing risks of death and hospitalization as many studies do not recognize mortality as a censored event with an associated loss of information (Berry, Ngo, Samelson, & Kiel, 2010; Murphy et al., 2011).

Importance of the Community Population

Although community-dwelling older adults requiring LTSS consistently express a preference to receive services in their homes or the community (Eckert, Morgan, & Swamy, 2004; R. L. Kane & Kane, 2001), little is known about the care trajectories and discharge

outcomes of this population following admission to a NH. With studies suggesting that use of HCBS may delay (Young, Kalamaras, Kelly, Hornick, & Yucel, 2015) or prevent hospitalizations (Xu et al., 2010) and institutionalizations (Chapin, Baca, Macmillan, Rachlin, & Zimmerman, 2009; Pande, Laditka, Laditka, & Davis, 2007), it is quite possible that a significant number of older adults will be admitted directly from the community to NHs as the use of HCBS continues to expand.

Currently, few studies have provided an analysis of entry into and subsequent exit from institutional care. As part of a 6-year study, Martikainen and colleagues (2009) surveyed a sample of older Finns living in private households through their first entry into a NH and their subsequent exit from the facility. Findings (Martikainen et al., 2009) suggest that similar factors affect the entrance and exit of frail elders into institutional care including age, gender, and living arrangements. Similar studies on populations of US community-dwelling frail elders have not yet been conducted.

Several factors speak to the importance of this study population. First, studies have shown that community-dwelling older adults and their caregivers may have unmet care needs (Cohen-Mansfield & Frank, 2008; Gaugler, Kane, Kane, & Newcomer, 2005) or experience caregiver burden (Cohen et al., 1993; Retsinas, 1991) while they attempt to delay NH admission. Additionally, many policy initiatives have been developed to control the costs of NH care, which may necessitate a growing number of NH admissions directly from the community. Moreover, with most healthcare professionals agreeing that NHs should be used for individuals with complex care needs and not low-care residents, understanding the characteristics of those admitted from the community and the discharge dispositions of this resident population will

further discussions about those who are best served with HBCS and those appropriately placed in institutional care.

Organization

This dissertation is divided into three separate papers with each paper building on the findings from the earlier studies. The first study presented in chapter two examines the admission profile of NH residents admitted directly from home and is currently under review with *Journal of American Medical Directors Association*. Chapter three aims to understand the care trajectories and discharge outcomes of those admitted directly from the community and has been submitted to *Health Services Research*. Chapter four examines the varying role of facility characteristics and state support on the community discharge of NH residents. Lastly, chapter five presents a discussion related to the findings, limitations, and policy implications of the studies documented in the previous chapters.

CHAPTER TWO:

PROFILE OF NURSING HOME RESIDENTS ADMITTED DIRECTLY FROM HOME

Introduction

In recent decades, federal and state policies have attempted to reduce the institutional bias of their LTSS by directing a greater proportion of their Medicaid spending toward HCBS for frail elders and adults with disabilities (Shirk, 2006). Although funding for HCBS varies greatly between states (Kaye et al., 2009), most older adults fear the loss of autonomy associated with entering a NH and express a strong desire to remain in the community (Barrett, 2014; Eckert et al., 2004; R. L. Kane & Kane, 2001; Shirk, 2006). Consequently, both frail older adults and their informal caregivers often refuse to consider the possibility of NH placement until the needs of the older adult exceed the emotional and financial resources of the caregiver (Afram et al., 2014; Buhr, Kuchibhatla, & Clipp, 2006; Stone, Cafferata, & Sangl, 1987).

Lately, several studies have addressed the transition of older adults from hospitals to NHs and the subsequent effect of HCBS waivers on delaying institutionalizations (Chapin et al., 2009; Pande et al., 2007; Young et al., 2015). However, as more individuals are served in the community with the use of HCBS post-hospital discharge, the number of frail elders admitted directly from home to the NH may increase. Recognizing this, Chapin and colleagues (2009) found that approximately 43% of older adults that were originally diverted from institutional care eventually lost their community tenure and became permanent NH residents. More recently, Young and colleagues (2015) found that the use of home health services delayed NH entry for older adults by 8 months. These and other studies (Chen & Berkowitz, 2012; Tang & Lee, 2010)

suggest that the use of HCBS may delay NH entry until the needs of older adults exceed the level of care available in the community.

Although few researchers have examined this path toward NH dependency, the rare confluence of unmet care needs (Cohen-Mansfield & Frank, 2008; Gaugler et al., 2005), caregiver burden (Afram et al., 2014; Buhr et al., 2006; Cohen et al., 1993; Retsinas, 1991), and federal and state initiatives to rein in the rising costs of NH care, may increase the number of NH admissions directly from home. Understanding the characteristics of those admitted directly from the home allows healthcare professionals and policymakers to properly distinguish between elders with "low-care" needs who are best served in the community through HBCS and those with complex care needs or significant cognitive impairment who are appropriately placed in a NH.

The current study examines the profile of NH residents admitted directly from home—an understudied, yet important population in the U.S. We expect that a combination of state HCBS policies and individual characteristics including deteriorating health and changing caregiver resources may result in a unique subpopulation of NH residents.

Methods

Study Design

This study was approved by the University of South Florida's Institutional Review Board. National data were obtained from the Minimum Data Set (MDS) 2.0 for all certified NHs in the United States from 2007 to 2009. The MDS 2.0 is a federally mandated clinical assessment of all residents in Medicare or Medicaid certified NHs and contains over 400 resident-level data elements related to the physical, mental, and psychosocial health of the residents(Institute of Medicine, 1986). The MDS 2.0 includes items that reflect the acuity level

of the resident and provides a comprehensive assessment of each resident's functional capabilities within 14 days of admission, annually, or after a significant change in status.

Episodes of care were constructed for residents aged 65 and older who were admitted between July 1, 2007 and July 30, 2008 to a NH. Unlike stays which tend to overinflate discharge rates (Gassoumis et al., 2013; Thomas, Gassoumis, & Wilber, 2010) episodes of care represent a NH stay without an intervening discharge period of more than 30 days and were used as the unit of analysis in this study (Thomas, Gassoumis, & Wilber, 2009). An episode began when the resident was admitted to the NH as identified on the MDS full admission assessment and ended when the resident either died or was discharged from the NH and did not reenter the same facility within 30 days (Thomas et al., 2009). To ensure that the admission represented a novel episode, data was left-censored 30 days and right-censored 395 days to assess the episode's outcome disposition. In an attempt to limit the sample to older adults admitted from the home, admissions were excluded if they were a post-acute admission (identified by either an admission directly from the hospital or an admission with Medicare Part A or per diem as the payment source); not a new admission; or admitted from another NH, assisted living, psychiatric, rehabilitation, or otherwise unknown facility.

Study Variables

Variables associated with the risk for NH placement (Andel et al., 2007; Banaszak-Holl et al., 2004; Bharucha et al., 2004; Gaugler et al., 2007; Martikainen et al., 2009; Miller & Weissert, 2000) and conversion to long stay (Miller & Weissert, 2000) were used to construct a profile of NH residents admitted directly from home. These variables included age at admission, ethnicity, gender, marital status, living arrangement at the time of admission (living alone versus living with others), prior hospitalization, responsibility for one's own decisions, the use of home

health services, primary payer of services on admission, and several diagnoses and problem conditions (e.g., dementia, cancer). Functional dependency in eating, locomotion, hygiene, and toileting was measured via the Activities of Daily Living (ADL) short-form hierarchy scale (Morris, Fries, & Morris, 1999), ranging from 0 (independent in all ADLs) to 6 (totally dependent). Cognitive impairment was measured using the Cognitive Performance Scale (Morris et al., 1994), with scores of 0-1 representing intact cognitive function, scores of 2-4 representing mild/moderate cognitive impairments, and scores of 5-6 indicating severe cognitive impairment. Residents were classified as low-care if they required no assistance in any of the four late-loss ADLs (toileting, transferring, eating, and bed mobility) and were not identified as "special care" or "clinically complex" according to Resource Utilization Group (RUG-III) classifications (Mor et al., 2007). Health instability was evaluated using the 6-point Changes in Health, End-Stage disease and Symptoms and Signs (CHESS) score where higher score represent increasing levels of instability, physician involvement, and medical treatments (Hirdes, Frijters, & Teare, 2003). Depression was defined as a score of 3 or higher on the MDS Depression Rating Scale (Burrows, Morris, Simon, Hirdes, & Phillips, 2000).

Analysis

Descriptive and bivariate statistics were used to examine the profile of NH residents admitted directly from home. Differences in admission characteristics for four subgroups were examined: (a) short stay, discharged to the community, (b) short-stay, discharged to the hospital, (c) died during a short stay episode; and (d) converted to long-stay. For continuous variables, *p*-values were based an analysis of variance (ANOVA) with a Tukey-Kramer post-hoc test while chi-squares assessed differences for categorical variables. All analyses were completed with SAS (Version 9.2, SAS Institute, Cary NC)

Results

Between July 1, 2007 and July 30, 2008, a total of 71,669 NH residents were admitted directly from home (5.31% of the total admissions). Nationally, there was wide variation in the percent of residents admitted directly from home with rates ranging from 2.8% (Florida) to approximately 17% (Iowa) of NH admissions (Figure 1).

Admission Profile of Residents Admitted from Home

Residents admitted from home were primarily Caucasian, female, widowed, and averaged 83.88 years of age (Table 1). Prior to NH entry, approximately 32% of those admitted from home were receiving formal health services and 29.41% lived alone. Less than one third of residents admitted directly from home were responsible for their own decision (29.84%). At admission, 44.9% of those admitted from home relied on self or family payment, 35.31% had Medicaid coverage, 8.78% were receiving Medicare Part B benefits, and 13.11% had private insurance that paid for their care. Residents admitted from home showed limited to extensive ADL dependency (*M*=2.89, 6-point scale) and moderate cognitive impairment. Dementia (34.39%) and diabetes (24.68%) were the most common diagnoses on admission. A large proportion of residents admitted from home experienced urinary incontinence (42.33%), fecal incontinence (26.31%), or a fall within 180 days of admission (36.03%). On average, approximately 4% of residents admitted from home met the criteria for low-care.

Differences in Admissions Characteristics Based on Discharge Disposition

While most residents admitted from home converted to long stay, 20% were discharged to the community within 90 days, 9% died within 90 days of admission, and 6% were discharged to the hospital. Figure 2 illustrates that for residents admitted directly from home, the proportion of those discharged to the community (9-40%), hospital (2.5-10%), converting to long stay (40-

80%), and dying within 90 days of admission (5-17%) varied widely by state. Nationally, the percent of low-care residents admitted directly from home that converted to long-stay varied from less than 10% (e.g., WA, OR) to 88% (Mississippi; Figure 3).

Comparing across discharge dispositions (Table 1), residents admitted from home and converted to long stay were often female (85.04%), widowed (55.49%), had moderate cognitive impairment, and approximately 5% met the criteria for low-care. Few (12.12%) experienced a hospitalization in the 90 days before their admission to the NH. Residents who were discharged to the community following a short stay were responsible for their own decision making (44.17%), experienced an in-patient hospitalization within the last 90 days (23.23%), relied on self or family payment (45.26%) or private insurance (22.22%), and had mild cognitive impairment (41.94%). Among those who died within 90 days of admission, 44.7% were receiving hospice services at admission and 37% were diagnosed with cancer.

Discussion

While individuals admitted to NHs from home represent a relatively small proportion of all admissions, the profile of these residents warrants additional research as admissions from home may signal individual care needs beyond the level of HCBS support or may not represent the profile of residents appropriately cared for in a NH. Since this subpopulation experienced extensive ADL dependency and moderate cognitive impairment, chronic conditions rather than acute health crises may have initiated the decision to transition to the NH. Additionally, since less than one third of these residents were responsible for their own healthcare decisions and lived alone prior to their NH admission, it appears that most of these residents may be involved in a caregiving relationship. Since previous research has shown that caregivers may incur significant emotional, physical, and financial costs in their attempts to avoid institutionalization

(Covinsky et al., 2001; Reinhard, Feinberg, Choula, & Houser, 2015; Reinhard, Levine, & Samis, 2012), these findings may imply that this population was admitted to the NH because of unmet care needs or increasing caregiver burden.

Concerns regarding the underutilization of HCBS and the appropriateness of NH placement for low-care residents are further intensified by the study findings. On average, roughly 4% of former community-dwelling older adults who were subsequently admitted to the NH satisfied the criteria for low care. States varied dramatically in the percentage of low-care residents that remained in the NH despite functional and clinical characteristics that were consistent with being able to remain in the community with the appropriate levels of supports. These findings support a broader understanding of how states such as Washington and Oregon, recognized leaders in HCBS utilization, both admitted relatively few residents from home and discharged a larger proportion of these residents back to the community compared to other states. In fact, states with limited investments in HCBS saw long-stay conversion rates of more than eighty percent. The degree of variation between states raises troubling questions regarding the utilization of HCBS and whether residents and their caregivers have equity in access, quality, and delivery of services across geographical areas (Kaye & Harrington, 2015). Our work suggests that improved education for caregivers on the availability of community resources could further delay older adults from being admitted to the NH. If services are not currently available, additional information is needed on the policies and infrastructure inhibiting HCBS delivery in the area.

Another possible explanation for home admission is that NHs are being used as a setting to provide end-of-life care due to insufficient capacity in HCBS. With end-of-life care moving away from hospitals and towards NH or private homes (Flory et al., 2004), the Institute of

Medicine (Institute of Medicine, 2015) recently reported that transfers to and from the NH are an important component to understanding end-of-life care. Moreover, palliative care experts(Wang et al., 2016) recommend fewer transitions near the end-of-life to ensure continuity care and ease anxiety for patients and their families. The finding that 9% of NH residents admitted directly from home die within 90 days of admission suggests that a small subpopulation of residents are using NH supports for their end-of-life care. Moreover, questions arise regarding the quality of end-of-life services within the community provided by hospices since more than 40% of these residents received hospice services based on their admission assessment. For some, the NH admission may have been caused by care needs that far exceed the resources of the caregiver and require continuous nursing support. However, for other residents the lack of appropriate community supports such as a fulltime caregiver may necessitate a NH admission which seems to run counter to efforts to maintain people in the community.

Despite the strength of having national data which enable us to generate population estimates of the issue, the current study design has several limitations. First, data regarding the discharge disposition of our sample was characterized according to the MDS assessment data. Because we were unable to match residents to either Medicare claims data or death records, we may have underestimated death rates and hospitalizations. Second, community discharge was defined as discharge to any of the following sites including home, home with health services, or an assisted living community. As a result, residents discharged to the community may have returned to their homes or entered an assisted living community for the first time. Third, study findings are based on individual-level data and do not control for facility, market, or state characteristics. Future work is needed to examine whether the availability of HCBS affects this resident population. Despite these caveats, this study serves as an essential step for

understanding differences in community admission characteristics to NH throughout the United States.

Conclusion

Understanding the different pathways of NH admission is important for administrators, researchers, and policymakers in the process of allocating limited LTSS resources. To our knowledge, this is the first paper examining the profile of NH residents admitted directly from home and the findings discussed here serve as a preliminary guide for understanding the care requirements of this population. For those residents admitted directly from home because of unmet care needs, further evaluation is needed to assess whether community services are adequately supporting frail elders as many lessons can be learned from states like Washington and Oregon on delivering and accessing HCBS. However, for those appropriately admitted to the NH, there is a portrait of residents with high ADL need which suggests that NH will continue to provide care for frail elders who are not able to remain in the community.

Table 1.

Admission Characteristics of Nursing Home Residents Admitted from Home between 2007-2008

	M(SD) or %					
	Home n=71,699	*Short Stay, Discharged to Community n=14,008*	*Short Stay, Discharged to Hospital n=4,482*	*Short Stay, Died n=6,483*	*Converted to Long-Stay n=46,695*	*p-value*
Age at admission	*83.9 (7.7)*	*83.3 (7.8)*	*83.4 (7.9)*	*84.4 (8.1)*	*84.0 (8.0)*	< .001
Race						< .001
White	85.8	86.2	83.7	90.3	85.1	
Black	7.8	7.9	8.8	4.8	8.1	
Hispanic	4.4	3.8	5.3	2.9	4.4	
Other	2.2	2.0	2.2	1.9	2.3	
Sex-Female	67.6	66.7	57.7	57.8	70.2	< .001
Marital Status						< .001
Never Married	6.2	6.6	5.2	6.1	6.2	
Married	33.2	37.4	38.1	37.6	30.8	
Widowed	53.3	49.4	48.9	48.9	55.5	
Divorced	8.3	7.9	7.9	8.2	8.4	
Lived Alone Before Entry	29.4	31.8	27.2	28.5	29.0	< .001
Primary Payer on Admission						< .001
Medicaid	35.3	22.9	35.1	26.2	40.3	
Medicare (Part B)	8.8	9.3	8.3	6.4	9.0	
Self or Family Pay	44.9	45.3	40.2	49.4	44.7	
Private Insurance	13.1	22.2	16.8	13.8	9.9	
VA Payment	1.9	2.6	2.2	1.9	1.6	
Other	7.4	9.3	7.5	14.7	5.8	
Responsible for Own Decision Making	29.9	46.2	29.8	27.0	25.4	< .001
Receiving Home Health Services	31.6	30.6	30.7	48.6	29.6	< .001
Prior Hospitalization (last 90 days)	15.7	23.2	22.7	20.2	12.1	< .001
Low Care	4.4	3.6	4.2	3.9	4.7	< .001
CHESS Score (Range: 0-6)	*0.84 (0.9)*	*0.77 (0.81)*	*0.94 (0.89)*	*1.66 (1.11)*	*0.75 (0.81)*	< .001

Table 1 (Continued)

	M(SD) or %					
	Home n=71,699	*Short Stay, Discharged to Community n=14,008*	*Short Stay, Discharged to Hospital n=4,482*	*Short Stay, Died n=6,483*	*Converted to Long-Stay n=46,695*	*p-value*
Receiving Hospice Services	9.3	6.1	7.4	44.7	5.6	< .001
Cognitive Performance Score (Range: 0-6)	*2.3 (1.5)*	*1.7 (1.6)*	*2.4 (1.6)*	*2.6 (1.7)*	*2.4 (1.5)*	< .001
Mild (0-1)	31.3	48.3	30.4	28.5	26.6	< .001
Moderate (2-4)	52.7	41.9	51.1	46.4	56.9	< .001
Severe (5-6)	16.1	9.8	18.5	25.1	16.4	< .001
ADL Dependency (Range: 0-6)	*2.89 (1.57)*	*2.83 (1.58)*	*3.16 (1.55)*	*3.92 (1.44)*	*2.74 (1.54)*	< .001
Depression	11.6	8.9	14.5	13.7	11.8	< .001
Mental Health Diagnosis	1.6	1.8	1.8	0.9	1.7	< .001
Behavioral Problem(s)	16.4	9.5	22.1	20.0	17.4	< .001
Incontinence-Urinary	42.3	33.5	45.3	53.3	43.2	< .001
Incontinence-Fecal	26.3	20.4	31.9	43.5	25.2	< .001
Fall within 180 days	36.0	38.3	37.8	41.6	34.4	< .001
Fracture within 180 days	5.2	10.6	5.2	3.7	3.8	< .001
Visual Impairment	30.3	25.0	31.6	35.4	31.1	< .001
Hearing Impairment	31.9	27.2	31.8	36.8	32.8	< .001
Diseases						
Dementia	34.4	24.5	33.5	27.1	38.5	< .001
Diabetes	24.7	26.7	26.9	21.3	24.3	< .001
CHF	16.1	17.4	19.7	21.9	14.9	< .001
COPD	14.4	14.9	17.6	19.9	13.1	< .001
Cancer	11.3	9.3	11.7	36.9	8.2	< .001
Parkinson's Disease	6.4	6.3	6.7	4.9	6.5	< .001
Renal Failure	4.4	4.8	6.3	6.6	3.8	< .001
Stroke	12.2	13.9	12.6	8.7	12.2	< .001

Notes. ADL, activities of daily living; CHF, congestive heart failure; COPD, chronic obstructive pulmonary disease. Data derived from the MDS 2.0 for all newly admitted NH residents aged 65 and older in the United States between July 1, 2007 and July 30, 2008.

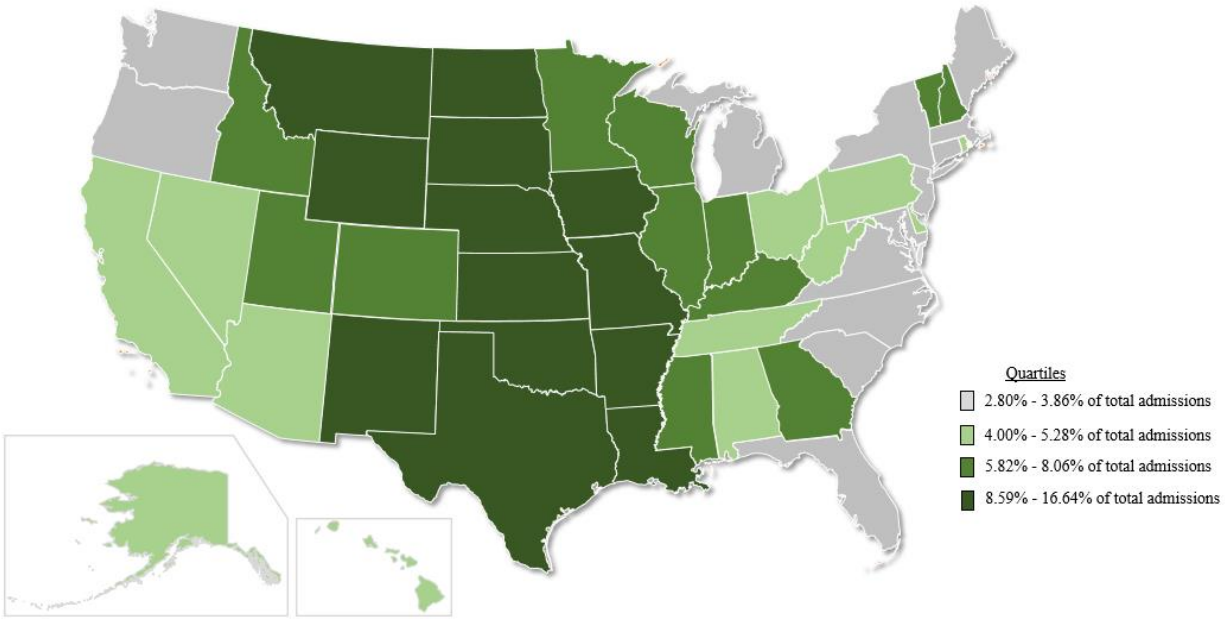

Figure 1.

Percentage of Nursing Home Residents Admitted Directly from Home

Notes. Data derived from the MDS 2.0 for all newly admitted nursing home residents aged 65 and older in the United States between July 1, 2007 and July 30, 2008. States in the lowest quartile include CT, FL, MA, MD, ME, MI, NC, NJ, NY, OR, SC, VA, and WA. States with admissions from home between 4.00 – 5.28% include AK, AL, AZ, CA, DE, HI, NV, OH, PA, RI, TN and WV. States with admissions from home between 5.82 – 8.06% include CO, GA, ID, IL, IN, KY, MN, MS, NH, UT, VT, and WI. States in the highest quartile include AR, IA, KS, LA, MO, MT, ND, NE, NM, OK, SD, TX, and WY.

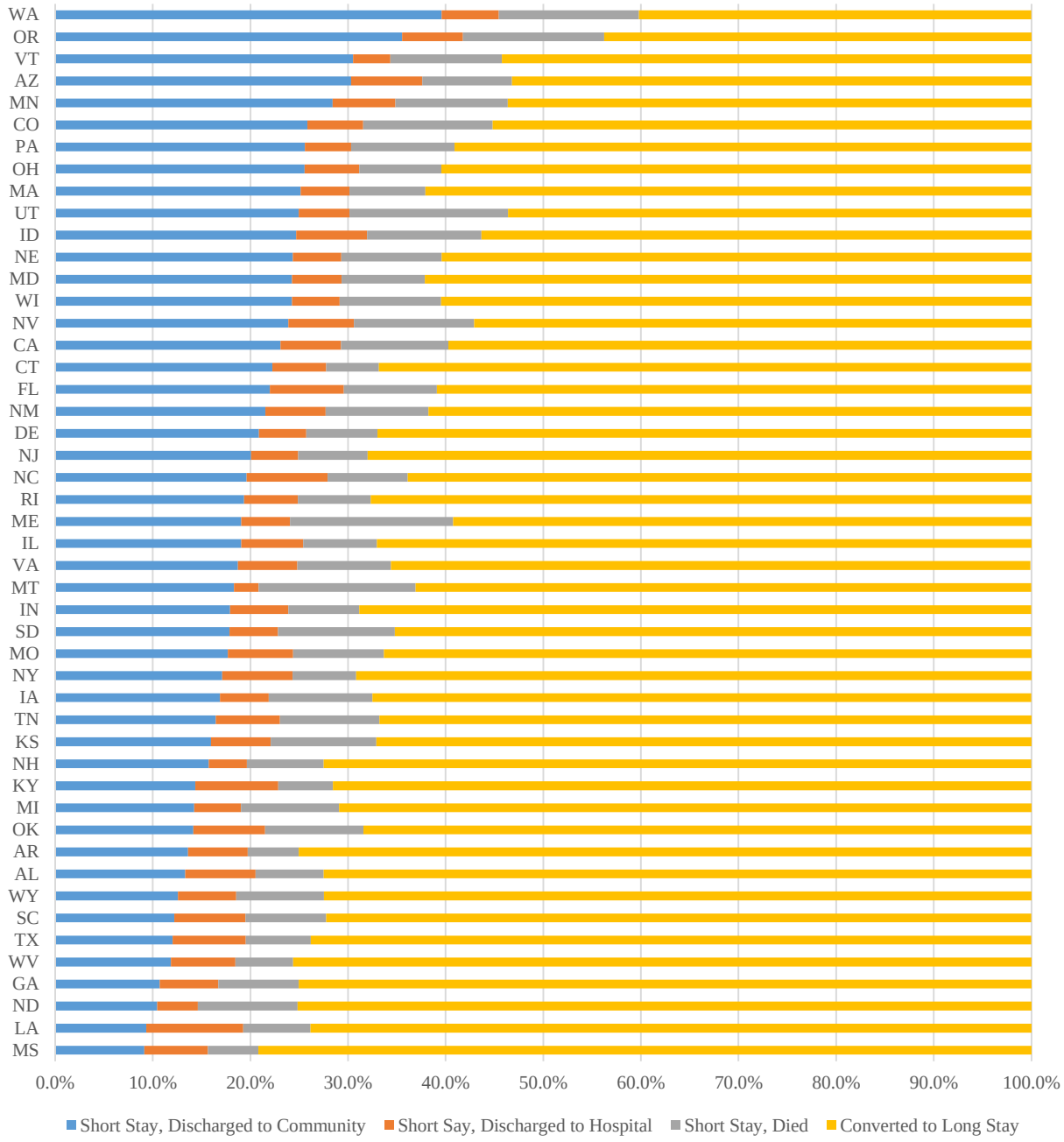

Figure 2.

90-Day Discharge Outcomes by State for Residents Admitted Directly from Home

Notes. Data derived from the MDS 2.0 for all newly admitted nursing home residents aged 65 and older in the United States between July 1, 2007 and July 30, 2008 that were admitted directly from home (n=71,699). For privacy reasons, results are suppressed for states with less than 10 residents meeting inclusion criteria.

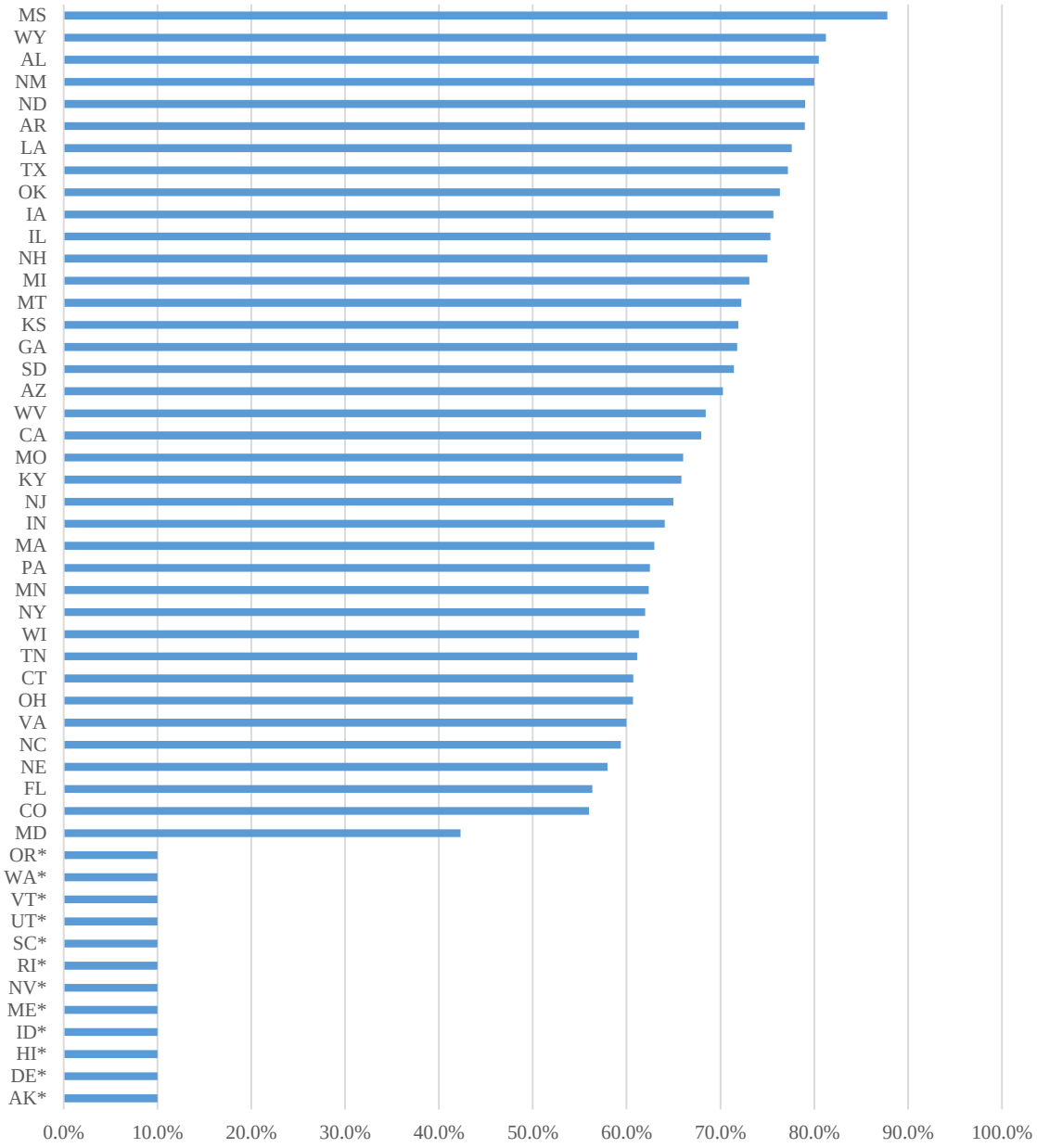

Figure 3.

Percent of Low-Care Nursing Homes Resident admitted Directly from Home that Converted to Long-Stay by State

Notes. * For privacy reasons, results are suppressed for states with less than 10 residents meeting inclusion criteria. Data derived from the MDS 2.0 for all newly admitted nursing home residents aged 65 and older in the United States between July 1, 2007 and July 30, 2008 that were admitted directly from home and satisfied the low-care criteria.

CHAPTER THREE:

GOING HOME? PREDICTORS OF COMMUNITY DISCHARGE FOR NURSING HOME RESIDENTS ADMITTED FROM THE COMMUNITY

Introduction

As demand for less restrictive care options has grown, state and federal initiatives have developed approaches that either divert older adults from untimely NH admissions or support NH residents that can effectively transition from NH care to the community (e.g., Money Follows the Person, Real Choice System Grants; Irvin et al., 2015; Reinhard, 2010; Wysocki et al., 2015). While it is clear that most community-dwelling older adults express a strong preference to receive HCBS and avoid permanent NH placement (Barrett, 2014; Eckert et al., 2004; R. L. Kane & Kane, 2001), little is known about the care trajectories of frail elders admitted to the NH directly from the community.

Several studies have suggested that the use of home health services may delay NH entry for older adults (Chen & Berkowitz, 2012; Young et al., 2015). However, many older adults that were originally diverted from institutional care eventually transitioned from the community and become permanent NH residents (Chapin et al., 2009). In a large population-based sample of Finns aged 65 and older living in the community, Martikainen and colleagues (2009) found that NH entry and subsequent discharge were influenced by similar factors including age, gender, and living arrangements. While informative, the findings may not be representative of older community-dwelling Americans and similar studies examining NH entry and exit among former community-dwelling populations are sparse. Moreover, it remains unclear whether HCBS can

fully substitute for NH care (R. L. Kane et al., 2013) and allow older adults to age in place through the time of their death.

Conceptual Framework and Purpose

Grounded in Andersen's behavioral model of health service utilization (Andersen, 1995; Andersen & Newman, 1973), this study investigates the factors that influence the community discharge of NH residents admitted from home or assisted living communities (ALC). Andersen's framework posits that health service utilization is a function of predisposing characteristics, enabling resources, and need. As the most distal cause of health service utilization, predisposing characteristics often include demographics and social support; whereas enabling resources permit health service use. Need is the most proximal determinant of service utilization and refers to both the physical requirement and perceived need for healthcare.

In the context of NH transitions, several predisposing characteristics consistently emerge as predictors of community discharge including those who are younger (Arling et al., 2010; Kasper & O'Malley, 2006; Mehr et al., 1997; Murtaugh, 1994), married (Arling et al., 2010; Kasper, 2005), male (Engle & Graney, 1993; Murtaugh, 1994) and residents with either a preference for community living or a supportive community caregiver (Arling et al., 2010; Gassoumis et al., 2013; Nishita et al., 2008). Other studies suggest that residents with certain physical, cognitive, or mental disease or dependencies (Arling et al., 2011; Arling et al., 2010; Arling et al., 2000; Coughlin et al., 1990; Engle & Graney, 1993; Gassoumis et al., 2013; Mehr et al., 1997; Murtaugh, 1994) including a primary diagnosis of malignancy (Arling et al., 2011; Arling et al., 2010; Engle & Graney, 1993; Mehr et al., 1997; Murtaugh, 1994) and dementia (Arling et al., 2011; Arling et al., 2010; Engle & Graney, 1993; Mehr et al., 1997; Murtaugh, 1994) were less likely to transition to the community.

Although these studies facilitate valid discussions on the determinants of NH transitions, there are questions about the characteristics, timing, and discharge outcomes of residents admitted directly from the community as distinct factors in their care trajectories are often dwarfed by the population of post-acute residents. Additional research on this population is warranted as policymakers and healthcare providers attempt to understand the characteristics of those who are best cared for in NHs and those who can be appropriately served in the community through HCBS. Therefore, this study makes a specific contribution to the ongoing discussions regarding NH transitions by examining the predisposing, enabling, and need characteristics that influence the community transitions of short- and long- stay NH residents admitted directly from home or ALCs. Additionally, by jointly accounting for the competing risks of death and hospitalizations among NH residents, this study methodologically recognizes the relationship between mortality and functional disability (Berry et al., 2010; Murphy et al., 2011)

Methods

Research Design

This study was approved by the University of South Florida's Institutional Review Board. Resident assessment data were obtained from the MDS 2.0 for all NH residents aged sixty-five and older admitted to any certified NH in the United States between July 1, 2007 and July 30, 2008. The MDS 2.0 is a federally mandated clinical assessment that contains over 400 items that reflect the physical, mental, and psychosocial health of all residents in Medicare- or Medicaid-certified NHs (Institute of Medicine, 1986). Administered within 14 days of admission and at prescribed intervals thereafter, the MDS 2.0 provides a comprehensive assessment of each resident's functional capabilities.

Data from the MDS 2.0 were used to construct episodes of care for the cohort of residents. Unlike stays which tend to overinflate discharge rates (Gassoumis et al., 2013; Thomas et al., 2009), episodes of care were defined as a single NH stay without an intervening discharge of more than 30 days. An episode began when the resident was admitted to the NH and ended when the resident either died or was discharged from the facility and did not reenter the same NH within 30 days. Stays separated by less than 30 days were concatenated to create a single episode of care. To ensure that each admission represented an independent episode, data was left-censored 30 days and right-censored 395 days.

The study targeted NH residents admitted from the community including those admitted from home or ALCs. Episodes were excluded if they were not a new admission or admitted from a hospital, another NH, psychiatric, rehabilitation, or otherwise unknown facility. NH residents without a full MDS admission assessment were also excluded from this study.

Study Variables

Dependent Variable. Consistent with previous studies (Arling et al., 2010; Gassoumis et al., 2013; Holup, Gassoumis, Wilber, & Hyer, 2015), the primary outcome of interest was community discharge defined as discharge to home, group homes, board-and-care homes, or ALCs within 365 days of admission. Discharge was treated as both a continuous (measured in days) and dichotomous variable.

Independent Variables. Selection of the independent variables was guided by the behavioral model of health service utilization (Andersen, 1995; Andersen & Newman, 1973) and were derived from the MDS admission assessment. Consistent with Miller and Weissert (2000) predisposing characteristics included age at admission, race, gender, marital status, whether the resident lived alone prior to NH entry, and responsibility for one's own decisions.

Enabling characteristics included primary payer on admission and whether the NH resident was receiving home health service prior to institutionalization.

Measures of evaluated need were based on cognitive impairment, dependency in activities of daily living (ADL), health instability, and conditions that have been associated with risk of NH placement or conversion to long-stay including previous hospitalization in the last 30 days, depression; falls or fractures within the last 180 days; bowel and bladder incontinence; vision and hearing impairments; hospice utilization; and a diagnosis of diabetes, depression, cancer, Parkinson's Disease, stroke, COPD, congestive heart failure, renal failure, or a mental disorder (Arling et al., 2010; Gassoumis et al., 2013; Miller & Weissert, 2000). Cognitive impairment was scored on a 7-point ordinal scale (Morris et al., 1994) with higher scores representing more significant levels of cognitive impairment. Dependency in eating, locomotion, hygiene, and toileting was measured via the ADL long-form index (Morris et al., 1999) with scores ranging from 0 (independent) to 6 (totally dependent). Health instability was measured using the 6-point Changes in Health, End-Stage disease and Symptoms and Signs (CHESS) score where higher score represent increasing levels of instability, physician involvement, and medical treatments (Hirdes et al., 2003). Residents were classified as low-care if they required no assistance in any of the four late loss ADLs including toileting, transferring, eating, and bed mobility and were not identified as "special care" or "clinically complex" according to the Resource Utilization Group (RUG-III) classification (Mor et al., 2007). Further details of the predisposing, enabling, and need variables are provided in Table 2.

Analysis

Since previous research has shown that ALCs enable community-dwelling older adults to remain in the setting longer compared to those dwelling at home (Temple, Andel, & Dobbs,

2010), the study sample was divided into two subgroups: a) residents admitted from home and b) residents admitted from ALCs. Descriptive statistics were then calculated for the sample and Kaplan-Meier survival curves were constructed to examine the distribution of time to community discharge stratified by admission source. A traditional Cox proportional hazard model predicting time to community discharge was first estimated with death and hospitalization as non-informative censored events. Because traditional Cox proportional hazard models do not account for competing risk events (Berry et al., 2010) and have been shown to underestimate outcomes in elderly populations with high mortality (Castora-Binkley, Meng, & Hyer, 2014; Porell & Carter, 2012), we estimated the cause-specific relative hazards with the competing risks of mortality and hospitalization on community discharge for each admission source. All analyses were completed with SAS (Version 9.4, SAS Institute, Cary NC).

Results

Between July 1, 2007 and July 30, 2008, a total of 139,262 NH residents were admitted from the community with 75% admitted directly from home and 25% admitted from ALCs. Approximately 30% of residents admitted from the community experienced a Medicare-qualifying hospitalization in the 30 days prior to their NH admission.

Admission Characteristics

Baseline characteristics for the sample are reported in Table 2. Residents admitted from home were mostly female and averaged 83.5 years of age. Approximately, 30% were receiving formal health services and 33% lived alone prior to NH entry. Most experienced mild (7.3%) or moderate (48.7%) cognitive impairment. At admission, 32% relied on self or family payment, 26% had Medicaid coverage, 31.5% were receiving Medicare benefits, and 12% had private insurance that paid for their care. Approximately 7% were receiving hospice services on

admission. Dementia (30.8%) and diabetes (26.6%) were the most common diagnoses on admission.

Residents admitted from ALCs were overwhelmingly white (approximately 95%) and averaged 86.1 years of age. Over 46% relied on self or family payment on admission, 23% had Medicaid coverage, and 21.5% experienced a hospitalization in the last 30 days. Incontinence was prevalent with over 57% of residents admitted from an ALC experiencing urinary incontinence and 21% experiencing fecal incontinence. Approximately 7.5% of these residents were receiving hospice services on admission. Most had either moderate (56%) or severe (21.5%) cognitive impairment with dementia being the most common diagnosis.

Discharge Disposition and Time to Community Discharge

Figure 4 summarizes the discharge dispositions of residents admitted from the community. While 31% of residents admitted from home remained in the facility 365 days following admission, 32% were discharged to the community, 15% were discharged to the hospital, and 21% died. Most residents admitted from ALCs either remained in the facility (40%) or died (30%) by the end of the study. Only 16% of residents admitted from ALCs were discharged to the community.

Among episodes that resulted in a transition to the community, discharge was more likely to occur within 90 days of admission for all admission sources (Figure 5). For residents admitted directly from home, approximately 50% of all community discharges occurred by day 30 with the majority (85%) transitioning within the 90-day short stay window. Although fewer residents admitted from an ALC transitioned to the community, most (80%) transitioned during the short-stay window. Between 16-19% of episodes resulted in community discharge between 91 and 365 days following admission.

Predictors of Community Discharge

Results from the Cox proportional hazard models are found in Table 3. Across both admission sources, residents that were married, were responsible for their own decision making, and experienced a recent hospitalization or fracture had the greatest probability of transitioning to the community. Reliance on Medicaid as the primary payment source on admission as well as the presence of cognitive impairment, behavioral problems, urinary or fecal incontinence, and visual impairments decreased the likelihood for community transitioning with 365 days of admission. A diagnosis of dementia and the utilization of hospice services also resulted in a decreased probability of transitioning to the community.

Several predictors varied according to admission source. Unique to home admissions, residents who were considered low-care (HR=0.93 95% CI 0.88-0.98) or experienced depression (HR=0.86, 95% CI 0.83-0.90) had a decreased probability of transitioning to the community. For residents admitted from an ALC, experiencing a fall within the last 180 days increased the probability of transitioning to the community (HR=1.16 95% CI 1.09-1.24).

Although there was little change in the intensity of most predictor variables between the traditional Cox model and the cause-specific model, several need factors including the effect of cancer, hospice utilization, and health instability appear to be underestimated before considering the risk of mortality and hospitalization (Table 4). In the traditional Cox model, residents receiving hospice care were between 23-31% less likely to be discharged to community; whereas after accounting for the risks of death and hospitalization, residents receiving hospice services were between 40-56% less likely to be discharged to the community. Cancer shows a similar degree of underestimation with the traditional model suggesting that a diagnosis of cancer decreased the likelihood of a community transition between 4-11% depending on admission

source compared to a 22% reduction in the likelihood to transition after simultaneously accounting for mortality and hospitalization. Before accounting for the competing risks of mortality and hospitalization, health instability was insignificant. However, in the competing risk model, greater health instability reduced the likelihood of community transition for residents admitted from home or ALCs.

Discussion

Largely consistent with other research on the determinants of NH transition (e.g., Arling et al., 2010), predisposing, enabling, and need characteristics influenced the likelihood of community discharge for residents admitted from home and ALCs. Not surprisingly, older, white residents with a primary diagnosis of dementia or cancer who were living alone prior to NH residents were less likely to transition to the community. Considering the degree of cognitive impairment in this population, two related hypotheses are possible. First, since previous research has shown that more than 85% of caregivers for community-dwelling older adults with dementia have unmet needs for referrals to community resources (Black et al., 2013), current HCBS may be insufficient in preventing admission to and subsequently, enabling discharges from NHs for individuals with varying levels of cognitive impairment. Alternatively, these residents may be appropriately cared for in a NH since their cognitive impairment and health needs exceed the current level of HCBS support and instead, requires a higher level of skilled nursing support.

Reliance on Medicaid as the primary payer for long-term services and supports clearly affects the ability of residents to transition back to the community. Consistent with earlier findings (Chapin et al., 1998), residents that relied on Medicaid funding were between 55% (home) and 65% (ALC) less likely to transition to the community depending on referral source. Although a thorough discussion regarding state policies falls outside the scope of this study, it is

possible that states with limited HCBS investments discharge fewer residents from NHs since they lack the appropriate community supports to care for such residents. Since HCBS are not a mandatory Medicaid benefit and only optional in some states, study findings echo the concerns of Kaye and Harrington (2015) as to whether these NH residents and their caregivers have equity in access quality, and delivery of services across geographical areas. Additional research should explore the relationship between HCBS funding at the state level and the transition of NH residents admitted directly from home.

Interestingly, NH residents who recently experienced a Medicare-qualifying hospitalization or fracture had the greatest probability of returning to the community. Since previous research has found that older adults with complex care needs are vulnerable to fragmented delivery of care (Coleman, 2003; Institute of Medicine, 2001), medication errors (Boockvar et al., 2004; Coleman, Smith, Raha, & Min, 2005), and unnecessary hospitalizations (Coleman, 2003), study findings imply that this population may have experienced a subpar hospital discharge resulting in additional long-term care needs that could not be met with the resources available at home. Since the current design of HCBS program may not provide the required level of clinical support available in institutional settings post-hospital discharge, these residents may have been admitted to the NH and then subsequently discharged to the community once their long-term care needs stabilized.

Prior research (Arling et al., 2010; Gassoumis et al., 2013) has demonstrated that long-stay residents rarely transition to the community with only 5-10% of community discharges occurring between 91-365 days following admission. Many have hypothesized that long-stay residents may be difficult to transition since they may have already exhausted their personal assets to meet Medicaid eligibility requirements. Studies have also suggested that long-stay

residents may present with acuity levels that cannot be properly cared for in the community or are familiar with their current living environment and prefer to avoid an additional transitions (Nishita et al., 2008). However, with up to one-fifth of community discharges occurring among long-stay residents depending on admission source, it is possible that NH residents admitted from community have yet to sever their community ties and may have the resources required for transitioning. As a result, such residents may be appropriate targets for transition programs as rebalancing initiatives continue to expand.

The use of hospice services upon admission to the NH raises questions about the potential for residents admitted from home and ALCs to receive appropriate end-of-life care in the community and subsequently, remain in their homes until death. At admission, approximately 7% of residents admitted from home or ALCs received hospice services. Because the hospice benefit is designed to support individuals with complex medical needs near the end-of-life, it is surprising that older adults are transitioning from the community to NHs for end-of-life care. Expanding the findings of Wang and colleagues (2016), it appears that community-dwelling hospice recipients are experiencing care transitions near the end-of-life. Since hospice services rely heavily on the support of family members and informal caregivers, it is possible that those admitted directly from home had care needs that required continuous support and exceeded the resources of informal caregivers in combination with hospice services. Alternatively, since it is unknown how long the older adult was receiving hospice prior to the NH admission, it is possible that the need for hospice services and the subsequent, enrollment into hospice may have initiated the decision to admit the older adult to the NH.

Consistent with Hawes, Phillips, and Rose (2000), however, study findings suggest that ALC residents may not be able to age in place if it requires end-of-life care. Although fewer

transitions at the end of life can ensure continuity of care and reduce anxiety for older adults and their caregivers (Institute of Medicine, 2015; Wang et al., 2016), study findings imply that ALC residents experience care transitions near the end-of-life. ALCs face several unique challenges in caring for dying residents as staff often report difficulties and little experience in providing end-of-life care(Cartwright & Kayser-Jones, 2003; S. Zimmerman, Sloane, Hanson, Mitchell, & Shy, 2003), while hospice providers cite communication issues with ALC leadership (Dixon, Fortner, & Travis, 2002). However, since the most recent federal report on residential care and assisted living policies indicates that many states have regulations encouraging hospice use and preventing discharges to NHs near the end-of-life (Carder, 2015), additional research is needed to understand why ALCs residents are transferred near the end of life.

Several caveats should be noted regarding the analysis. First, data related to the discharge disposition of the sample were based on the MDS assessment data and not matched to subsequent admissions in other NHs or hospitals. Although, residents may cycle between NHs, hospitals, and the community, the limitations of our data prevented us from drawing any conclusions about these patterns. Additionally, since the data were not matched against Medicare claims data or death records, we may have underestimated death rates. Similar to other studies examining the transition of NH residents (Arling et al., 2011; Arling et al., 2010; Holup et al., 2015), all independent variables were based on the MDS admission assessment and subsequently inherit the limitations associated with MDS data including the predictor variable lived alone prior to NH entry, which is ambiguous in the ALC population. Finally, the timeframe of the study may not account for policy changes related to the Affordable Care Act or the implementation of Medicaid Managed Care systems in many states over the last few years.

Despite these limitations, this study serves as an essential step for understanding the discharge outcomes of NH residents admitted from the community. Moreover, this study provides evidence of the need to account for competing risk when examining the determinants of NH exit. After controlling for death and hospitalizations, the effects of cancer, hospice services, and health instability appear to be more potent as residents admitted with these characterize may require continuous supervision and nursing support.

NH residents admitted directly from the community appear to be a dynamic population with various discharge outcomes. Clearly, some residents are admitted to support their delayed post-acute care needs and then successfully transition to the community while others may be appropriately placed in institutional care until their death. Understanding the care trajectories of this population can help inform intervention programs as many of these residents may be appropriate targets for transition programs and HCBS.

Table 2.

Definition of Predisposing, Enabling, and Need Variables

Variable	Variable Construction
Predisposing Characteristics	
Age at admission	Continuous; calculated from birth date and date of admission
Race	Four Dummy Variables: White, non-Hispanic (reference) Hispanic Black, non-Hispanic Other
Gender	Dichotomized; 0=Male, 1=Female
Marital Status	Four Dummy Variables: Never married Married Widowed Divorced or Separated
Lived Alone Before Entry	Dichotomous; resident lived alone prior to nursing home admission
Responsible for Decision Making	Dichotomous; 0=resident is considered legally responsible for own decisions 1=someone else is responsible for making decisions
Enabling Resources	
Primary Payer on Admission	Dummy Variables: Medicaid Per Diem Medicare Part B Self or Family Pay Private Insurance VA Per Diem Other
Receiving Home Health Services	Dichotomous; 0=not receiving services at home; 1=receiving health services at home
Need	
Prior Hospitalization	Dichotomous; 0=Did not require a Medicare-qualifying hospital stay in the 30 days prior to NH admission; 1=Experienced a Medicare-qualifying hospital stay in the 30 days prior to NH admission
Low Care	Dichotomous; 0=Not Low Care; 1=Considered Low Care. Residents were classified as low-care if they required no physical assistance in any of the four late-loss ADLs (toileting, transferring, eating, and bed mobility) and were not identified as “special care” or “clinically complex” according to Resource Utilization Group (RUG-III) classifications (Mor et al., 2007) .

Table 2 (Continued)

Variable	Variable Construction
CHESS Score	Changes in Health, End-Stage disease and Symptoms and Signs (CHESS) score
Cognitive Performance	Cognitive Performance Scale ranging from 0-6
ADL Dependency	Continuous; Activities of Daily Living (ADL) Self Performance Scale (Short-Form), range: 0-6
Depression	MDS Depression rating scale. Depression was defined as a score of 3 or higher on the scale. Scores then dichotomized into: 0= No depression; 1= Depression present
Mental Health Diagnosis	Dichotomous; 0 = No mental health diagnosis; 1 = Diagnosis of schizophrenia or bipolar disorder
Behavioral Problem(s)	0 = No behavioral problems 1 = Exhibited at least one of the following within the last seven days: wandering, resisting care, verbally abusive, physically abusive, or socially inappropriate/disruptive behavioral symptoms
Incontinence-Urinary	Displayed urinary incontinence at least twice per week
Incontinence-Fecal	Displayed fecal incontinence at least once per week
Fall within 180 days	0=No fall; 1=Fall within the past 180 days
Fracture within 180 days	0=No fracture; 1=Fracture within the past 180 days
Visual Impairment	Ability to see in adequate light and with glasses if needed: 0=adequate; 1=impaired
Hearing Impairment	Ability to hear adequately: 0=adequate; 1=impaired
Diseases	
Dementia	Dichotomous; 0=No; 1=Disease present
Diabetes	Dichotomous; 0=No; 1=Disease present
Congestive Heart Failure	Dichotomous; 0=No; 1=Disease present
COPD	Dichotomous; 0=No; 1=Disease present
Cancer	Dichotomous; 0=No; 1=Disease present
Parkinson's Disease	Dichotomous; 0=No; 1=Disease present
Renal Failure	Dichotomous; 0=No; 1=Disease present
Stroke	Dichotomous; 0=No; 1=Disease present

Notes. ADL, activities of daily living, CHF, congestive heart failure; COPD, chronic obstructive pulmonary disease. Data derived from the MDS 2.0 for all new nursing home residents admitted directly from the community aged 65 and older in the United States between July 1, 2007 and July 30, 2008.

Table 3.

Baseline Admission Characteristics of Nursing Home Residents Admitted Directly from the Community

	Total Sample N=139,262	Admission Source		*p-value*
		Home n=104,637	Assisted Living Communities n=34,625	
	M(SD) or %			
Predisposing Characteristics				
Age at admission	*84.1 (7.8)*	*83.5 (7.8)*	*86.1 (7.4)*	< 0.001
Race				< 0.001
White	88.2	86.0	94.8	
Black	6.8	7.9	3.1	
Hispanic	3.3	3.9	1.2	
Other	1.7	1.9	0.9	
Sex-Female	69.0	67.3	74.2	< 0.001
Marital Status				< 0.001
Never Married	6.9	6.2	8.8	
Married	29.0	32.7	17.9	
Widowed	56.6	53.4	66.2	
Divorced	8.2	8.3	8.2	
Lived Alone Before Entry	27.5	32.8	11.6	< 0.001
Responsible for Own Decision Making	32.2	34.6	24.8	< 0.001
Enabling Resources				
Primary Payer on Admission				
Medicaid	25.5	26.2	23.3	< 0.001
Medicare (Part B)	8.8	8.5	9.7	< 0.001
Self or Family Pay	35.7	32.1	46.4	< 0.001
Private Insurance	12.3	12.1	13.0	< 0.001
VA Payment	1.3	1.4	0.8	< 0.001
Other	5.3	5.4	4.8	< 0.001
Receiving Home Health Services	23.7	31.5	-	
Need				
Prior Hospitalization (last 30 days)	29.0	31.5	21.6	< 0.001
Low Care	4.0	4.2	3.3	< 0.001
CHESS Score (Range: 0-6)	*0.91 (0.89)*	*0.88 (0.87)*	*1.00 (0.90)*	< 0.001
Receiving Hospice Services	7.2	7.0	7.5	0.002
CPS (Range: 0-6)	*2.2 (1.6)*	*2.1 (1.6)*	*2.6 (1.5)*	< 0.001
Mild (0-1)	33.6	37.3	22.2	
Moderate (2-4)	50.6	48.7	56.3	
Severe (5-6)	15.8	14.0	21.5	
ADL Dependency (Range: 0-6)	*3.1 (1.5)*	*3.0 (1.5)*	*3.3 (1.4)*	< 0.001
Depression	11.2	10.6	13.1	< 0.001

Table 3 (Continued)

	Total Sample N=139,262	Admission Source		*p-value*
		Home n=104,637	Assisted Living Communities n=34,625	
	M(SD) or %			
Mental Health Diagnosis	2.1	1.6	3.6	< 0.001
Behavioral Problem(s)	16.1	14.6	20.6	< 0.001
Incontinence-Urinary	44.6	40.4	57.2	< 0.001
Incontinence-Fecal	28.6	26.2	35.8	< 0.001
Fall within 180 days	39.6	38.4	43.3	< 0.001
Fracture within 180 days	7.8	7.8	7.9	0.21
Visual Impairment	29.6	28.8	31.9	< 0.001
Hearing Impairment	31.5	30.5	34.5	< 0.001
Diseases				< 0.001
Dementia	33.8	30.8	42.8	< 0.001
Diabetes	25.3	26.6	21.5	< 0.001
CHF	18.7	18.5	19.1	0.01
COPD	15.9	16.5	14.0	< 0.001
Cancer	10.6	11.3	8.5	< 0.001
Parkinson's Disease	6.2	5.9	7.2	< 0.001
Renal Failure	5.4	5.6	4.7	< 0.001
Stroke	12.4	12.9	11.0	< 0.001

Notes. CPS, cognitive performance score; ADL, activities of daily living; CHF, congestive heart failure; COPD, chronic obstructive pulmonary disease. Data derived from the MDS 2.0 for all new nursing home residents admitted from the community aged 65 and older in the United States between July 1, 2007 and July 30, 2008.

Table 4.

Resident-Level Predictors of Transition Back to the Community from the Nursing Home

	Traditional Cox Model		**Competing Risk**	
	Home	Assisted Living Communities	Home	Assisted Living Communities
	Hazard Ratio (95% Confidence Interval)			
Predisposing Characteristics				
Age at admission	0.99 (0.98-0.99)***	0.99 (0.98-0.99)***	0.99 (0.99-0.99)***	0.99 (0.98-0.99)***
Race				
White	0.99 (0.91-1.07)	1.03 (0.75-1.42)	0.99 (0.90-1.07)	1.02 (0.71-1.41)
Black	1.15 (1.05-1.26)**	1.15 (0.81-1.64)	1.17 (1.07-1.29)***	1.14 (0.79-1.41)
Hispanic	1.14 (1.03-1.25)*	1.25 (0.85-1.85)	1.14 (1.03-1.25)**	1.20 (0.78-1.80)
Sex-Female	1.01 (0.99-1.04)	1.01 (0.95-1.08)	1.06 (1.04-1.09)***	1.07 (1.00-1.15)
Marital Status				
Never Married	0.94 (0.89-1.00)	1.01 (0.88-1.15)	0.95 (0.90-1.00)	1.00 (0.88-1.15)
Married	1.22 (1.16-1.27)***	1.44 (1.28-1.62)***	1.19 (1.14-1.24)***	1.41 (1.25-1.59)***
Widowed	1.02 (0.98-1.07)	1.12 (1.01-1.26)*	1.02 (0.98-1.06)	1.11 (0.99-1.24)
Divorced	0.95 (0.91-0.99)*	1.03 (0.93-1.13)	0.95 (0.91-0.99)**	1.02 (0.93-1.13)
Lived Alone Before Entry	0.98 (0.95-1.00)	1.19 (1.11-1.28)***	0.97 (0.94-1.00)	1.20 (1.11-1.29)***
Responsible for Own Decision Making	1.42 (1.38-1.45)***	1.49 (1.40-1.58)***	1.41 (1.38-1.44)***	1.48 (1.40-1.58)***
Enabling Resources				
Primary Payer on Entry				
Medicaid	0.45 (0.43-0.47)***	0.35 (0.32-0.39)***	0.48 (0.46-0.50)***	0.37 (0.33-0.41)***
Medicare (Part B)	0.90 (0.86-0.94)***	0.87 (0.77-0.96)**	0.91 (0.87-0.95)***	0.86 (0.78-0.95)**
Self or Family Pay	0.67 (0.65-0.70)***	0.59 (0.84-0.64)***	0.69 (0.67-0.72)***	0.60 (0.55-0.66)***
Private Insurance	1.14 (1.10-1.18)***	1.07 (0.99-1.16)	1.13 (1.09-1.17)***	1.07 (0.99-1.16)
VA Payment	0.89 (0.81-0.98)*	0.37 (0.26-0.53)***	0.90 (0.82-1.01)	0.34 (0.27-0.56)***
Other	0.99 (0.93-1.04)	0.84 (0.73-0.97)**	098 (0.93-1.04)	0.87 (0.75-1.01)
Receiving Home Health Services	0.99 (0.97-1.01)	-	0.99 (0.96-1.01)	-
Need				
Prior Hospitalization (last 30 days)	1.51 (1.45-1.56)***	2.09 (1.92-2.27)***	1.43 (1.38-1.48)***	1.97 (1.82-2.14)***

Table 4 (Continued)

	Traditional Cox Model		Competing Risk	
	Home	Assisted Living Communities	Home	Assisted Living Communities
	Hazard Ratio (95% Confidence Interval)			
Low Care	0.93 (0.88-0.98)*	0.99 (0.85-1.15)	0.93 (0.88-0.98)**	0.99 (0.85-1.17)
CHESS Score	0.97 (0.96-1.00)	0.99 (0.97-1.03)	0.93 (0.91-0.94)***	0.96 (0.93-0.99)*
Receiving Hospice Services	0.77 (0.72-0.83)***	0.69 (0.58-0.81)***	0.60 (0.57-0.65)***	0.54 (0.46-0.64)***
Cognitive Performance Score	0.84 (0.83-0.84)***	0.80 (0.78-0.82)***	0.84 (0.83-0.85)***	0.80 (0.78-0.82)***
ADL Dependency	0.99 (0.98-1.00)	0.98 (0.96-1.00)	0.97 (0.96-0.98)***	0.95 (0.93-0.97)***
Depression	0.86 (0.83-0.90)***	0.92 (0.84-1.01)	0.86 (0.82-0.89)***	0.92 (0.84-1.01)
Mental Health Diagnosis	0.94 (0.86-1.02)	0.99 (0.86-1.15)	0.95 (0.88-1.04)	1.02 (0.88-1.17)
Behavioral Problem(s)	0.79 (0.76-0.82)***	0.78 (0.70-0.83)***	0.77 (0.74-0.80)***	0.74 (0.68-0.81)***
Incontinence-Urinary	0.82 (0.80-0.85)***	0.71 (0.67-0.76)***	0.85 (0.82-0.87)***	0.74 (0.69-0.79)***
Incontinence-Fecal	0.93 (0.90-0.96)***	0.88 (0.81-0.95)***	0.90 (0.97-0.93)***	0.84 (0.78-0.91)***
Fall within 180 days	0.99 (0.97-1.02)	1.16 (1.09-1.24)***	1.01 (0.98-1.03)	1.15 (1.09-1.22)***
Fracture within 180 days	1.36 (1.32-1.41)	1.59 (1.47-1.73)***	1.39 (1.34-1.44)***	1.63 (1.51-1.77)***
Visual Impairment	0.91 (0.88-0.93)***	0.85 (0.80-0.91)***	0.91 (0.88-0.93)***	0.86 (0.80-0.92)***
Hearing Impairment	0.95 (0.93-0.98)***	0.98 (0.92-1.05)	0.96 (0.93-0.98)**	0.99 (0.93-1.06)
Diseases				
Dementia	0.80 (0.78-0.83)***	0.87 (0.82-0.92)***	0.83 (0.80-0.85)***	0.88 (0.84-0.95)***
Diabetes	0.98 (0.96-1.01)	0.95 (0.90-1.02)	0.99 (0.96-1.01)	0.96 (0.90-1.03)
CHF	0.97 (0.94-1.00)	1.10 (1.03-1.18)	0.95 (0.92-0.98)***	1.05 (0.98-1.12)
COPD	0.98 (0.96-1.01)	1.02 (0.95-1.10)	0.96 (0.93-0.99)***	0.99 (0.92-1.07)
Cancer	0.89 (0.85-0.92)***	0.96 (0.77-0.95)**	0.78 (0.75-0.81)***	0.79 (0.71-0.88)***
Parkinson's Disease	0.92 (0.88-0.97)***	0.91 (0.92-1.12)	0.97 (0.92-1.01)	0.95 (0.85-1.06)
Renal Failure	0.93 (0.89-0.97)**	1.03 (0.92-1.16)	0.88 (0.84-0.92)***	0.98 (0.87-1.11)
Stroke	1.03 (0.99-1.06)	0.96 (0.88-1.05)	1.06 (1.03-1.09)***	0.98 (0.90-1.06)

Notes. $^{*}p < 0.05$, $^{**}p < 0.01$, and $^{***}p < 0.001$. ADL, activities of daily living; CHF, congestive heart failure; COPD, chronic obstructive pulmonary disease. Models include variables controlling for differences across states (not shown). *Source:* Data derived from the MDS 2.0 for all new nursing home residents admitted directly from home aged 65 and older in the United States between July 1, 2007 and July 30, 2008.

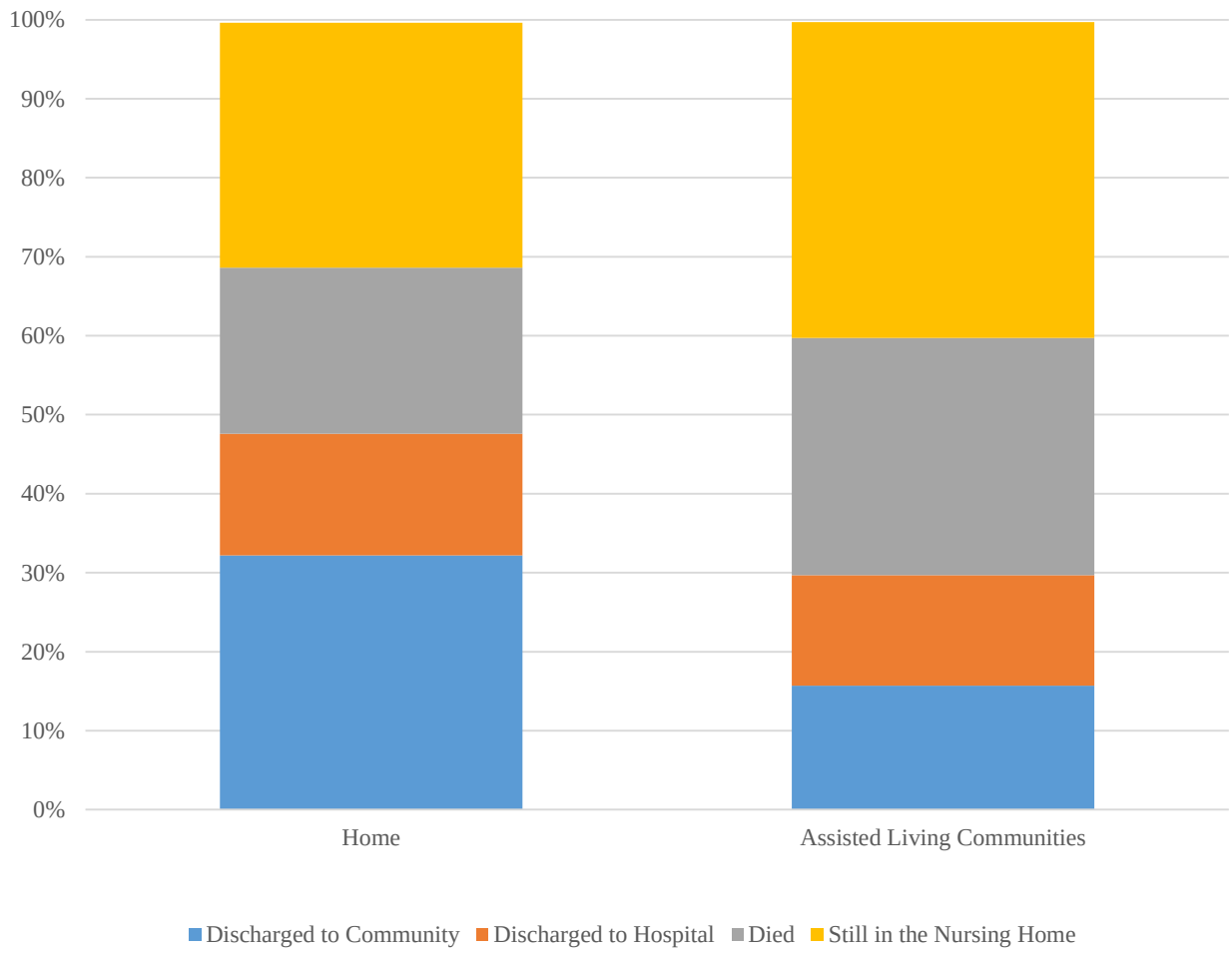

Figure 4.

Discharge Dispositions for Nursing Home Residents Admitted Directly from Community

Source. Data derived from the MDS 2.0 for all new nursing home residents admitted from the community aged 65 and older in the United States between July 1, 2007 and July 30, 2008.

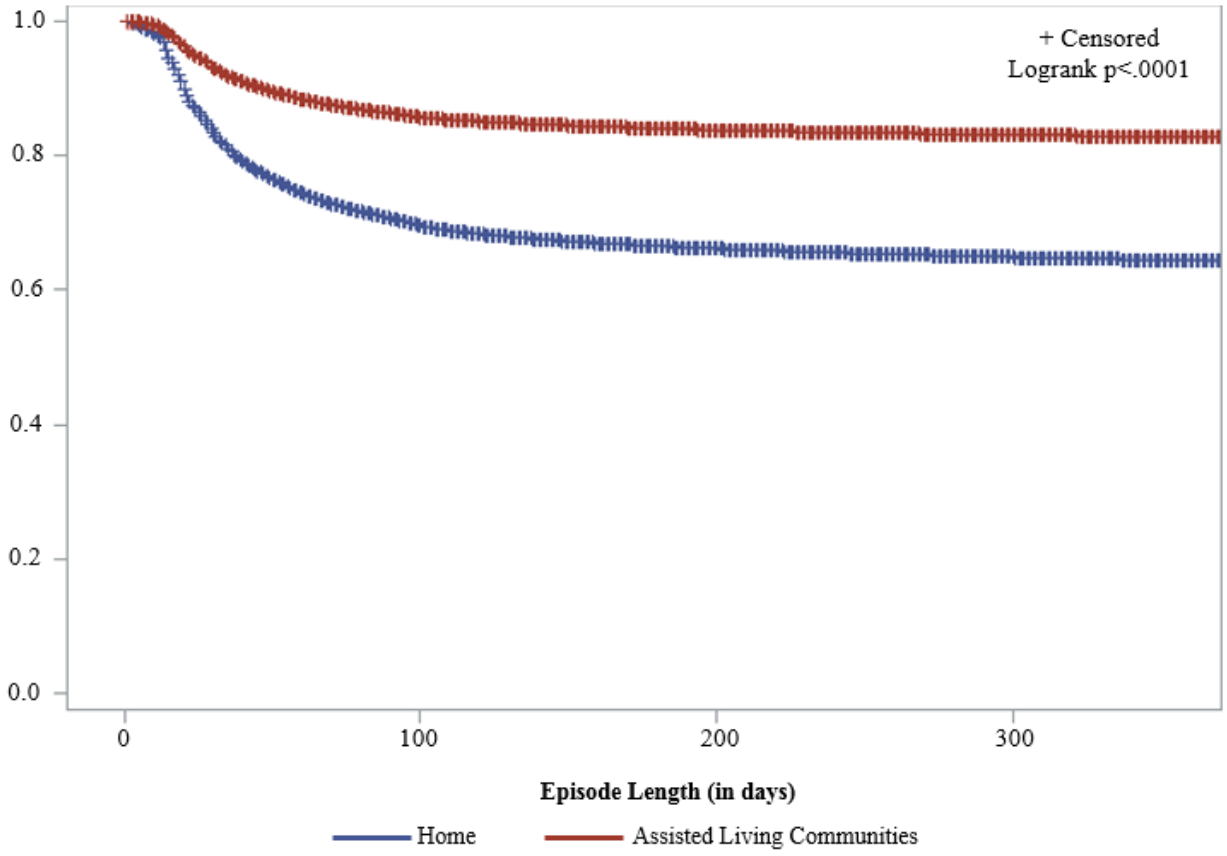

Figure 5.

Kaplan-Meier Curve for Community Discharge within 365 Days of Admission

Source. Data derived from the MDS 2.0 for all new nursing home residents admitted from the community aged 65 and older in the United States between July 1, 2007 and July 30, 2008.

CHAPTER FOUR:

HOME AGAIN: THE INFLUENCE OF STATE AND NURSING HOME CHARACTERISTICS ON THE DISCHARGE OF RESIDENTS ADMITTED FROM THE COMMUNITY

Introduction

Although NHs are an essential component of the nation's LTSS, calls to reduce unnecessary institutionalization and further contain Medicaid spending growth (Grabowski, 2006; Kaye et al., 2010) have provided states with the opportunity to rebalance their LTSS in favor of HBCS. For decades, even among the most seriously ill (Mattimore et al., 1997), most older adults and their caregivers have expressed a strong preference to receive services in the community and delay NH placement (Barrett, 2014; Eckert et al., 2004; R. L. Kane & Kane, 2001; Shirk, 2006). This preference has remained steadfast among long-stay NH residents who not only express a desire to transition back to the community, but also believe that the transition is possible (Nishita et al., 2008). As a result, many policies have emerged to either divert individuals from institutional care or support NH discharge among residents that can effectively be cared for in the community (Reinhard, 2010). Considering the varying scope and success of these efforts (Reinhard, 2010), discharge decisions often occur in an environment influenced by system factors such as state policies and resource allocation as well as NH quality and resident acuity. However, the extent to which these factors affect discharge is largely unknown, particularly among NH residents admitted directly from the community.

Existing research documents the relationship between resident characteristics and NH discharge as demographics (Arling et al., 2011; Arling et al., 2010; Engle & Graney, 1993;

Gassoumis et al., 2013; Kasper, 2005; Mehr et al., 1997; Murtaugh, 1994), previous institutionalization (Arling et al., 2010; Engle & Graney, 1993; Mehr et al., 1997), and physical and cognitive impairments (Arling et al., 2010; Arling et al., 2000; Gassoumis et al., 2013) consistently predict NH transitions. Few studies have attempted to identify the facility and market factors affecting community discharge. In their comprehensive study of first-time NH admissions, Arling and colleagues (2011) found that higher nurse staffing levels and greater ratios of HCBS recipients to NH residents predicted NH discharge within 90 days of admission. More recently, Holup and colleagues (2015) found that although, facility and market characteristics influenced NH discharge at both 90 and 365 days of admission, the effect of the these factors differed according to state and length of stay.

Although these sources provide valuable data on the facility and market factors affecting NH discharge, many questions remain as to the characteristics and discharge outcomes of residents admitted directly from the community. Often, studies fail to acknowledge the distinct factors affecting this subpopulation as so few residents are admitted annually from home (Holup, Hyer, Meng, & Volicer, 2016) or ALCs. As conversations continue about appropriate NH placement and the use of HCBS, additional research is needed to understand the long-term care needs and discharge outcomes of NH residents admitted directly from the community.

Conceptual Framework and Purpose

Using Andersen's behavioral model of health service utilization (Andersen, 1995; Andersen & Newman, 1973), this study attempts to fill a crucial gap in the literature by describing the facility and state-level factors that influence the discharge of residents admitted directly from the community. Recent iterations of the model (Andersen, 1995) emphasize the dynamic nature of health service use and posits that the larger external environment affects both

population characteristics and utilization outcomes. Although research on the facility and state factors associated with the transition of NH residents to the community is sparse, Andersen's framework suggests that policy and spending patterns at the state level as well as the characteristics of NHs influence the discharge patterns of NH residents (Figure 6).

Methods

Data Sources

Several secondary data sources were used in this study. Resident-level data were derived from the Minimum Data Set (MDS) 2.0 and facility characteristics were obtained from Nursing Home Compare (NHC) and the federal Online Survey, Certification, and Reporting (OSCAR) database. Population and state characteristics were derived from LTCfocus.org, Nursing Home Data Compendium 2008 (Centers for Medicare & Medicaid Services, 2008), and the 2007 U.S. census estimates.

The MDS 2.0 is a federally mandated assessment that contains approximately 400 data elements reflecting the physical, cognitive, and psychosocial functioning of all residents in a Medicare- or Medicaid- certified NH. The Centers of Medicare and Medicaid (CMS) mandate administration of the MDS within 14 days of admission to a certified NH, when a significant change in health status occurs, quarterly, at the time of discharge, and in the event of readmission (Morris et al., 1997). OSCAR is an administrative database derived from on-site inspections conducted at least once every fifteen months by state licensure agencies as part of the CMS certification process and provides facility-level information on the structure and regulatory compliance of all nursing facilities. NHC was originally launched to provide consumers with information on deficiency citations, facility characteristics, and NH resident characteristics (Castle, 2009; Stevenson, 2006), but has since evolved to include a five star quality ranking of all

certified NHs based on health inspections, quality measures, and staffing. The LTCFocUS.org website aggregates data from multiple sources including the MDS, OSCAR, area health resource files, residential history files, and state policy data to characterize the policy environment at the state and county levels.

Study Design

This study was approved by the University of South Florida Institutional Review Board. Data from the MDS 2.0 resident admission assessments were used to construct episode of care for residents aged 65 and older admitted to any free-standing, certified NH between July 1, 2007 and July 30, 2008 (Thomas et al., 2009). An episode began when the resident was admitted to the NH and ended when the resident either died or was discharged from the facility and did not reenter the same facility within 30 days. To ensure that the admission represented a novel episode, data was left-censored 30 days and right-censored 395 days to determine the episode's outcome disposition. By concatenating stays separated by less than 30 days, episodes of care tend to better estimate discharge rates compared to stays (Gassoumis et al., 2013; Thomas et al., 2010).

Admissions were excluded if they were not a new admission; were extremely short-stay residents (defined as not having a full MDS admission assessment); or admitted from acute care or another NH, psychiatric, or rehabilitation facility.

Study Variables

Dependent Variable. The primary study outcome was community discharge, defined as discharge to home, group homes, board-and-care facilities, or ALCs (Arling et al., 2010; Gassoumis et al., 2013; Holup et al., 2015). Community discharge was treated as a dichotomous variable at 90 and 365 days of admission.

Independent Variables. Selection of the independent variables was directed by Andersen's behavioral model of health service utilization (Andersen, 1995).

Population characteristics including predisposing, enabling, and need factors were derived from the MDS 2.0 resident admission assessment as well as the OSCAR and NHC databases. Consistent with Miller and Weissert (2000), predisposing characteristics included age at admission, race, gender, marital status, whether the resident lived along prior to NH entry, and responsibility for one's own decisions. Primary payer on admission and whether the NH resident was receiving home health service prior to institutionalization were included in the analysis as resident-level enabling resources. Facility-level enabling resources were based on earlier studies examining the relationship between facility characteristics and community transitions (Arling et al., 2011; Holup et al., 2015) and included measures of NH quality, structure, and staffing.

To account for the effect of the external environment, several state level variables were included in the analysis. Consistent with previous studies (Kaye et al., 2009; Muramatsu et al., 2007), the proportion of a state's Medicaid long-term care spending on HCBS was included in the analysis. This measure provides an indication of the balance of a state's LTSS system and the extent to which a state favors HCBS as opposed to institutionalization. Additional state level variables included the proportion of adults aged 65 and older (U.S. Census Bureau, 2007), the adjusted Medicaid per diem rate, and the number of NH beds per 1000 state residents aged 65 and older (Centers for Medicare & Medicaid Services, 2008). Table 5 provides additional details on the measures.

Data Analysis

Descriptive analyses were used to examine national trends in community discharge among resident admitted from home or ALCs. Taking advantage of the hierarchical nature of the

data, we estimated a three-level hierarchical generalized linear model (HGLM) with community discharge at 90 and 365 days measured as binary resident outcome. Deviations from normality were examined and all predictor variables were centered on their grand means. Before arriving at the final set of variables, several models were tested to ensure that all predictors were theoretically relevant and not collinear. The HGLM used a logit link function and assumed a Bernoulli distribution. All analyses were completed in StataIC Version 13 (StataCorp 2013).

Results

Between July 1, 2007 and July 30, 2008, a total of 139,262 NH residents were admitted directly from community. While most remained in the facility 365 days following admission, 28% of residents transitioned to the community, 15% were discharged to the hospital, and 23% died. Nationally, there was significant variation in the number of residents transitioning to the community with rates ranging from 14% (North Dakota) to roughly 40% (Washington) of NH community admissions (Figure 7).

Table 6 details the predisposing, enabling, need, and environmental characteristics of the study sample. Facilities (n=15,487) transitioning residents from home or ALCs to the community had an average of approximately 110 beds with 83% occupancy. Approximately 36% of facilities staffed at or above the CMS recommended guidelines of 1.3 hours per resident day (HPRD) for LPN and RNs. Most were for-profit facilities affiliated with a chain and approximately 65.4% were located in an urban area.

Predictors of Discharge

Several facility characteristics influenced the discharge of NH residents admitted directly from the community (Table 7). Facilities with a greater ratio of Medicare residents (odds ratio (OR) =1.01, 95% confidence interval (CI): 1.01-1.02), for profit facilities (OR=1.16, 95% CI:

1.12-1.21), those that were a member of a chain (OR=1.10, 95% CI: 1.06-1.14), and those that staffed LPNs and RNs at or above the CMS recommended level (OR=1.07, 95% CI: 1.03-1.12) were more likely to discharge residents to the community. Conversely, facilities admitting a higher proportion of Medicaid residents (OR=0.99, 95% CI: 0.98-0.99) and receiving a higher total deficiency score (OR=0.99, 95% CI: 0.99-0.99) were less likely to discharge residents to the community. At the state-level, the proportion of a state's LTSS budget reserved for HCBS (OR=1.01, 95% CI: 1.01-1.02) was predictive of community discharge; whereas states with a greater number of NH beds per 1000 residents aged 65 and older (OR=0.99, 95% CI: 0.98-0.99) were less likely to discharge residents to the community.

Specifically, for-profit facilities (OR=1.15, 95% CI: 1.11-1.20) that were affiliated with a chain (OR=1.09, 95% CI: 1.05-1.14) and located in urban areas (OR=1.09; 95% CI 1.05-1.14) were more likely to discharge residents within 90 days of admission. Facilities admitting a higher proportion of Medicaid residents (OR=0.99, 95% CI 0.98-0.99) were less likely to discharge residents to the community within 90 days of admission. Facilities residing in states with a greater commitment to HCBS (OR 1.01, 95% CI 1.01-1.02) and staffing nurses at or above the CMS level for nurses (OR=1.09, 95% CI: 1.04-1.14) were more likely to transition short-stay residents.

Few facility characteristics influenced the discharge of NH residents after 90 days of admission. For-profit facilities (OR=1.11, 95% CI: 1.04-1.19) and those affiliated with a chain (OR=1.07, 95% CI: 0.98-0.99) were more likely to transition long-stay residents, whereas facilities with a higher proportion of Medicaid residents (OR=0.99, 95% CI 0.98-0.99) were less likely to transition long-stay residents.

Discussion

With Medicaid spending on LTSS shifting from institutional care to HCBS, identifying the factors associated with NH discharge has important implications for many as forecasting, designing, and evaluating transition initiatives require knowledge of the appropriate targets and conversely, the risks associated with long-stay NH placement. By examining residents admitted directly from the community, this study illustrates the importance of NH characteristics and state policy since both population characteristics and the larger external environment influence community discharge.

At the environmental level, a strong commitment to HCBS by states (those with a higher proportion of Medicaid LTSS expenditures devoted to HCBS) clearly affects the ability of NH residents to transition back to the community. In a 2011 study of first-time NH admissions, Arling and colleagues concluded that the availability of HCBS within markets had a positive relationship to community discharge. Extending these findings to a national sample, the current analysis corroborates the relationship between HCBS and community discharge and further suggests that community discharge may be amendable to state policies. Particularly in states with unbalanced LTSS systems, allocating additional resources toward HCBS may improve health outcomes (Konetzka, Karon, & Potter, 2012) and result in gradual cost savings over time (Kaye, 2012).

Population characteristics also influenced the transition of NH residents following either a short- or long- NH stay. Although a thorough discussion of the resident characteristics affecting community discharge falls outside of the scope of this study, predisposing characteristics, enabling resources, and need factors were strikingly consistent with prior studies (e.g., Arling et al., 2010; Arling et al., 2000; Gassoumis et al., 2013) as demographics,

community support, and resident acuity influenced the discharge of residents admitted from the community.

Several facility characteristics enabled community discharge including for-profit ownership, chain membership, and a higher proportion of Medicare residents. Since chain membership may promote a greater level of corporate standardization (Kamimura et al., 2007), facilities affiliated with a chain may have better standards for targeting residents for discharge or may simply be discharging residents to a different facility within the chain. Conversely, for-profit facilities with limited resources may encourage community discharge to improve resource availability and profitability. Kitchener and colleagues (2008) argued that publicly traded facilities with significant debt and limited resources often experienced pressure from shareholders and investors to improve profitability In such facilities, managerial decisions encouraged practices that prioritized financial gain and sacrificed quality of care (Kitchener et al., 2008). Additional studies examining for-profit NH chains posit that for-profit chains have lower staffing and higher deficiencies that nonprofit and government facilities (Harrington, Olney, Carrillo, & Kang, 2012). When taken together, the results of this study and previous research suggest that community discharge in for-profit chains may be used as a means to improve profitability and reduce resource load within a facility. As for Medicare-rich facilities, studies (Rahman, Tyler, Thomas, Grabowski, & Mor, 2015) have suggested the facilities with a higher proportion of Medicare residents may have more resources available to residents, which in turn promotes better resident outcomes.

Adequate nurse staff has a strong impact on community discharge, particularly among short-stay residents. Although CMS recommends that NHs maintain skilled nursing (RN/LPN) levels at a minimum of 1.3 hours per resident day (Centers for Medicare & Medicaid Services,

2001), introducing nursing staff at or above the CMS recommendations may improve the likelihood for residents to transition back to the community. Because short-stay residents admitted from the community may have intensive rehabilitation needs that were not adequately supported in the community following a hospital discharge, these residents may require higher levels of skilled nursing to successfully transition back to the community. Alternatively, since nurse staffing levels was not significant in the long-stay population, we can speculate that those residents admitted from the community who converted to long-stay require continuous nursing care and not intensive rehabilitation more common in the post-acute population.

As the primary financier of LTSS in the United States, Medicaid is often cited as an inhibitory factor in NH transitions. Consistent with earlier studies (Arling et al., 2011; Holup et al., 2015), the ratio of Medicaid residents within a facility influences NH discharge as higher proportions of Medicaid residents decrease the probability of community transition. Mor and colleagues (2004) have shown that high-Medicaid facilities have fewer resources and often lack the necessary nursing and administrative support needed to improve resident outcomes. As a result, high-Medicaid facilities may lack the resources and reimbursement schedule to identify and target residents appropriate for discharge or may reside in areas with few community-based supports limiting residents to long-stay NH placement.

One finding that requires little clarification is the impact of total deficiency scores on community transitions as it is well known that deficiency scores are an influential metric of NH quality (Castle & Ferguson, 2010). Results from the current study indicated that facilities with higher total deficiency scores were less likely to transition residents to the community. Given the relationship between deficiencies and NH quality, study findings further advance discussions on NH quality and resident outcomes. Moreover, CMS recently announced the addition of

several new quality measures with the goal of providing older adults and their caregivers with more meaningful information when evaluating NHs (Centers for Medicare & Medicaid Services, 2016). Considering the relationship between NH quality, facility characteristics, and community discharge that this and other studies have elicited, the addition of the community discharge quality measure is quite timely and will serve to better address the needs of consumers, researchers, and policymakers as rebalancing initiatives continue. However, care must be taken when interpreting community discharge as a measure of NH quality. Since some residents are most appropriately cared for in the NH until their death, it is possible that this population may skew the quality measure causing some facilities to be unfairly judged when their residents require a certain level of skilled nursing not available in the community and cannot be safely discharged home.

Several limitations in the study design should be considered. First, discharge outcomes for the sample were derived from the MDS assessment data and not matched against Medicare claims data, death records, or hospital admission records. Subsequently, we are unable to draw any conclusions about the success or duration of a resident's transition to the community and may have underestimated the rates of death and hospital admission in the sample. To better address these issues, future research is needed on the duration and prognosis of NH residents following community discharge. Additionally, similar to other studies (Arling et al., 2011; Arling et al., 2010; Holup et al., 2015), all resident-level predictors were based on the MDS admission assessment and did not account for health changes during a NH stay. Despite these caveats, this study serves as an important step in understanding the influence of facility characteristics and state commitment to HCBS on the community discharge of NH residents.

Table 5.

Definitions of Predictor Variables

Variable	Variable Construction	Source
External Environment		
Proportion of HCBS Spending	Percent of state's Medicaid long-term care budget spent on HCBS	LTCFocus.org
Adjusted Medicaid Per Diem	Average adjusted Medicaid per diem; total Medicaid nursing home spending in the state divided by the total number of Medicaid days in a nursing home	LTCFocus.org
Proportion of the Population aged 65 and older	Percent of the state's population aged 65 and older	US Census
Beds per 1000 Residents aged 65 and older	Number of certified nursing home beds per 1000 state residents aged 65+	Nursing Home Compendium
Predisposing Characteristics		
Age at admission	Continuous; calculated from birth date and date of admission	MDS 2.0
Race-Caucasian	Dichotomized; 0=Other Race,1= Caucasian	MDS 2.0
Gender-Female	Dichotomized; 0=Male, 1=Female	MDS 2.0
Marital Status-Married	Dichotomized; 0=Non-Married, 1=Married	MDS 2.0
Lived Alone Before Entry	Dichotomous; resident lived alone prior to nursing home admission	MDS 2.0
Responsible for Decision Making	Dichotomous; 0=resident is responsible for own decisions, 1=someone else is responsible for decisions	MDS 2.0
Enabling Resources		
Primary Payer on Admission – Medicaid	Dichotomized; 0=No, Payment other than Medicaid used at admission, 1=Yes, Medicaid is primary payment source	MDS 2.0
Receiving Home Health Services	Dichotomous; 0=Not receiving services; 1= Using home health services prior to nursing home admission	MDS 2.0
High Quality	Dichotomous, Derived from the Five star quality ranking based on 36 months of health inspection, staffing information, and quality measures. 0=Low quality facility (1-3 stars); 1=High quality facility (4-5 stars).	NH Compare
Total Deficiency Score	Continuous; Total deficiency score received by a facility based on the scope and severity of each citation	OSCAR

Table 5 (Continued)

Variable	Variable Construction	Source
Percent of Medicaid Residents	Continuous; Ratio of Medicaid residents to total number of residents at the time of the survey	OSCAR
Percent of Medicare Residents	Continuous; Ratio of Medicare residents to total number of residents at the time of the survey	OSCAR
Chain Membership	Dichotomous; 0=Independent; 1=Chain Affiliation	OSCAR
Number of Beds	Continuous; Total number of beds in the facility	OSCAR
Urban	Dichotomous; 0=Rural; 1=Urban	OSCAR
Nurse Staffing Level	Dichotomous; 0=Staffing skilled nursing (LPN/RN) below the CMS recommended level of 1.3; 1= staffing skilling nursing (LPN/RN) at or above CMS recommended level	OSCAR
CNA Staffing Level	Dichotomous; 0=Staffing CNAs below the CMS recommended level of 2.8; 1= staffing CAN at or above CMS recommended level	OSCAR
Need		
Prior Hospitalization	Dichotomous; 0=Did not require a Medicare-qualifying hospital stay in the 30 days prior to the NH admission; 1=Experienced a Medicare-qualifying NH stay in the 30 days prior to NH admission	MDS 2.0
Low Care	Dichotomous; 0=Not Low Care; 1=Considered Low Care. Residents were classified as low-care if they required no physical assistance in any of the four late-loss ADLs and were not identified as "special care" or "clinically complex" according to Resource Utilization Group (RUG-III) classifications (Mor et al., 2007)	MDS 2.0
CHESS Score	Changes in Health, End-Stage disease and Symptoms and Signs score	MDS 2.0
Cognitive Performance	Cognitive Performance Scale ranging from 0-6	MDS 2.0
ADL Dependency	Continuous; Activities of Daily Living (ADL) Self Performance Scale (Short-Form), range: 0-6	MDS 2.0

Table 5 (Continued)

Variable	Variable Construction	Source
Depression	MDS Depression rating scale. Depression was defined as a score of 3 or higher on the scale. Scores then dichotomized into: 0= No depression; 1= Depression present	MDS 2.0
Mental Health Diagnosis	Dichotomous; 0 = No mental health diagnosis; 1 = Diagnosis of schizophrenia or bipolar disorder	MDS 2.0
Behavioral Problem(s)	Dichotomous; 0 = No behavioral problems, 1 = Exhibited at least one of the following within the last seven days: wandering, resisting care, verbally abusive, physically abusive, or socially inappropriate/disruptive behavioral symptoms	MDS 2.0
Incontinence-Urinary	Dichotomous; Displayed urinary incontinence at least twice per week	MDS 2.0
Incontinence-Fecal	Dichotomous; Displayed fecal incontinence at least once per week	MDS 2.0
Fall within 180 days	Dichotomous; 0=None; 1=Fall within 180 days	MDS 2.0
Fracture within 180 days	Dichotomous; 0=None; 1=Fracture within 180 days	MDS 2.0
Visual Impairment	Dichotomous; Ability to see in adequate light and with glasses if needed: 0=adequate; 1=impaired	MDS 2.0
Hearing Impairment	Dichotomous ; Ability to hear adequately: 0=adequate; 1=impaired	MDS 2.0
Diseases		
Dementia	Dichotomous; 0=No; 1=Disease present	MDS 2.0
Diabetes	Dichotomous; 0=No; 1=Disease present	MDS 2.0
Congestive Heart Failure	Dichotomous; 0=No; 1=Disease present	MDS 2.0
COPD	Dichotomous; 0=No; 1=Disease present	MDS 2.0
Cancer	Dichotomous; 0=No; 1=Disease present	MDS 2.0
Parkinson's Disease	Dichotomous; 0=No; 1=Disease present	MDS 2.0
Renal Failure	Dichotomous; 0=No; 1=Disease present	MDS 2.0
Stroke	Dichotomous; 0=No; 1=Disease present	MDS 2.0

Notes. ADL, activities of daily living, CMS, Centers for Medicare and Medicaid Services, CNA, certified nursing assistant, CHF, congestive heart failure, COPD, chronic obstructive pulmonary disease.

Table 6.

Population and Environmental Characteristics for the Sample of Nursing Home Residents Admitted from the Community

	% or *M(SD)*
External Environment	
Proportion of HCBS Spending	28.0
Adjusted Medicaid Per Diem	*156.78 (28.87)*
Proportion of the Population aged 65 and older	12.8
Beds per 1000 Residents aged 65 and older	*46.74 (15.03)*
Population Characteristics	
Predisposing	
Age at admission	*84.1 (7.8)*
Race-White	88.3
Sex-Female	69.0
Married	29.1
Lived Alone Before Entry	27.7
Responsible for Own Decision Making	32.5
Enabling Resources	
Primary Payer on Admission-Medicaid	25.2
Receiving Home Health Services	23.7
High Quality	34.1
Deficiencies	
Total Deficiency Score	*45.35 (64.99)*
Quality of Care Deficiency	*14.26 (23.08)*
Resident Behavior Deficiency	*2.50 (10.60)*
Quality of Life Deficiency	*3.73 (7.24)*
Percent of Medicaid Residents	59.8
Percent of Medicare Residents	15.7
Chain Membership	53.6
For Profit Ownership	66.7
Occupancy	82.9
Number of Beds	*109.67 (68.17)*
Urban	65.4
Staffing	
Above Recommended Nurse Staffing Level	35.9
Above Recommended CNA Staffing Level	30.0
Need	
Prior Hospitalization (last 90 days)	29.5
Low Care	4.0
CHESS Score	*0.91 (0.89)*
Receiving Hospice Services	7.2
Cognitive Performance Score	*2.2 (1.6)*
ADL Dependency	*3.1 (1.5)*
Depression	11.2

Table 6 (Continued)

	% or *M(SD)*
Mental Health Diagnosis	2.1
Behavioral Problem(s)	15.9
Incontinence-Urinary	44.4
Incontinence-Fecal	28.4
Fall within 180 days	39.7
Fracture within 180 days	7.9
Visual Impairment	29.3
Hearing Impairment	31.4
Diseases	
Dementia	33.8
Diabetes	25.3
CHF	18.7
COPD	15.9
Cancer	10.6
Parkinson's Disease	6.2
Renal Failure	5.4
Stroke	12.4

Notes. CNA, certified nursing assistant; ADL, activities of daily living; CHF, congestive heart failure; COPD, chronic obstructive pulmonary disease. Data derived from the MDS, OSCAR, LTCFocus.org, 2007 US Census, and Nursing Home Compare databases for facilities admitting residents aged 65 and older in the United States between July 1, 2007 and July 30, 2008 from the community.

Table 7

Multilevel Predictors of Discharge among Nursing Home Residents admitted from the Community

	All Community Discharges	Discharge within 90 Days	Discharge After 90 Days
	Odds Ratio (95% CI)		
External Environment			
Proportion of HCBS Spending	1.01 (1.01-1.02)	1.01 (1.01-1.02)	0.99 (0.99-1.01)
Adjusted Medicaid Per Diem	1.00 (0.99-1.01)	1.00 (1.00-1.01)	0.99 (0.99-1.00)
Proportion of the Population aged 65 and older	0.99 (0.95-1.04)	1.01 (0.96-1.06)	0.97 (0.95-1.00)
Beds per 1000 Residents aged 65 and older	0.99 (0.98-0.99)	0.99 (1.00-1.01)	0.99 (0.99-1.00)
Population Characteristics			
Predisposing			
Age at admission	0.97 (0.97-0.98)	0.98 (0.98-0.99)	0.97 (0.97-0.98)
Race-White	0.68 (0.65-0.71)	0.75 (0.71-0.79)	0.65 (0.60-0.71)
Sex-Female	1.09 (1.05-1.13)	1.08 (1.04-1.12)	1.07 (1.00-1.13)
Married	1.41 (1.36-1.46)	1.40 (1.34-1.45)	1.15 (1.09-1.23)
Lived Alone Before Entry	1.09 (1.05-1.13)	1.10 (1.05-1.14)	1.00 (0.94-1.07)
Responsible for Own Decision Making	1.60 (1.55-1.65)	1.57 (1.52-1.63)	1.18 (1.11-1.25)
Enabling Resources			
Primary Payer on Admission-Medicaid	0.47 (0.45-0.49)	0.42 (0.40-0.44)	0.96 (0.90-1.03)
Receiving Home Health Services	1.23 (1.18-1.27)	1.25 (1.21-1.30)	0.99 (0.93-1.06)
High Quality	0.97 (0.93-1.01)	0.97 (0.93-1.00)	0.98 (0.91-1.04)
Total Deficiency Score	0.99 (0.98-0.99)	0.99 (0.99-1.01)	1.00 (0.99-1.01)
Percent of Medicaid Residents	0.99 (0.98-0.99)	0.99 (0.98-0.99)	0.99 (0.98-0.99)
Percent of Medicare Residents	1.01 (1.01-1.02)	1.02 (1.01-1.03)	0.99 (0.99-1.01)
Chain Membership	1.10 (1.06-1.14)	1.09 (1.05-1.14)	1.07 (1.01-1.13)
For Profit Ownership	1.16 (1.12-1.21)	1.15 (1.11-1.20)	1.11 (1.04-1.19)
Occupancy	0.99 (0.99-1.00)	0.99 (0.99-1.00)	0.99 (0.99-1.00)
Number of Beds	1.00 (0.99-1.00)	1.00 (0.99-1.01)	0.99 (0.99-1.00)
Urban	1.07 (1.02-1.11)	1.09 (1.05-1.14)	0.93 (0.88-1.01)

Table 7 (Continued)

	All Community Discharges	Discharge within 90 Days	Discharge After 90 Days
	Odds Ratio (95% CI)		
Staffing			
Above Recommended Nurse Staffing Level	1.07 (1.03-1.12)	1.09 (1.04-1.14)	0.95 (0.88-1.02)
Above Recommended CNA Staffing Level	0.97 (0.89-1.01)	0.96 (0.92-1.01)	0.99 (0.83-1.00)
Need			
Prior Hospitalization (last 30 days)	2.01 (1.94-2.08)	2.07 (2.00-2.15)	1.11 (1.04-1.18)
Low Care	0.96 (0.89-1.04)	0.95 (0.88-1.02)	1.03 (0.90-1.18)
CHESS Score	0.88 (0.87-0.90)	0.89 (0.88-0.91)	0.92 (0.88-0.95)
Receiving Hospice Services	0.46 (0.43-0.50)	0.49 (0.45-0.53)	0.54 (0.46-0.63)
Cognitive Performance Score	0.78 (0.77-0.79)	0.78 (0.77-0.79)	0.90 (0.88-0.92)
ADL Dependency	0.96 (0.94-0.97)	0.96 (0.95-0.97)	0.97 (0.94-1.13)
Depression	0.85 (0.80-0.89)	0.83 (0.79-0.88)	1.03 (0.94-1.13)
Mental Health Diagnosis	0.90 (0.82-0.99)	0.85 (0.76-0.94)	1.15 (0.98-1.36)
Behavioral Problem(s)	0.72 (0.69-0.76)	0.74 (0.70-0.78)	0.75 (0.88-1.03)
Incontinence-Urinary	0.75 (0.73-0.79)	0.86 (0.82-0.90)	0.95 (0.89-1.04)
Incontinence-Fecal	0.86 (0.83-0.90)	0.75 (0.72-0.78)	0.95 (0.88-1.02)
Fall within 180 days	1.01 (0.98-1.05)	0.99 (0.96-1.02)	1.09 (1.03-1.16)
Fracture within 180 days	1.96 (1.86-2.07)	1.83 (1.73-1.92)	1.43 (1.30-1.57)
Visual Impairment	0.88 (0.86-0.92)	0.88 (0.95-0.92)	0.95 (0.89-1.02)
Hearing Impairment	0.98 (0.95-1.02)	0.97 (0.94-1.00)	1.03 (0.97-1.10)
Diseases			
Dementia	0.80 (0.77-0.82)	0.78 (0.75-0.81)	0.97 (0.91-1.03)
Diabetes	1.01 (0.98-1.04)	0.99 (0.96-1.03)	1.06 (0.99-1.13)
CHF	0.96 (0.93-1.00)	0.97 (0.93-1.01)	0.98 (0.91-1.06)
COPD	1.01 (0.97-1.04)	0.98 (0.94-1.02)	1.11 (1.03-1.19)
Cancer	0.71 (0.68-0.75)	0.74 (0.70-0.78)	0.78 (0.72-0.87)
Parkinson’s Disease	0.95 (0.89-1.00)	0.95 (0.89-1.01)	1.00 (0.90-1.12)
Renal Failure	0.91 (0.85-0.97)	0.94 (0.88-0.99)	0.88 (0.78-1.00)
Stroke	1.15 (1.10-1.20)	1.11 (1.06-1.16)	1.20 (1.11-1.30)

Notes. FTE, full time equivalent; HPRD, hours per resident day; RN, registered nurse; LPN, licensed practical nurse; CNA, certified nursing assistant; ADL, activities of daily living; CHF, congestive heart failure; COPD, chronic obstructive pulmonary disease. All continuous predictor variables were grand mean centered. Data derived from the MDS, OSCAR, LTCFocus.org, Nursing Home Compare, Nursing Home Data Compendium 2008, and 2007 US Census estimates for facilities admitting residents aged 65 and older in the United States between July 1, 2007 and July 30, 2008 from the community.

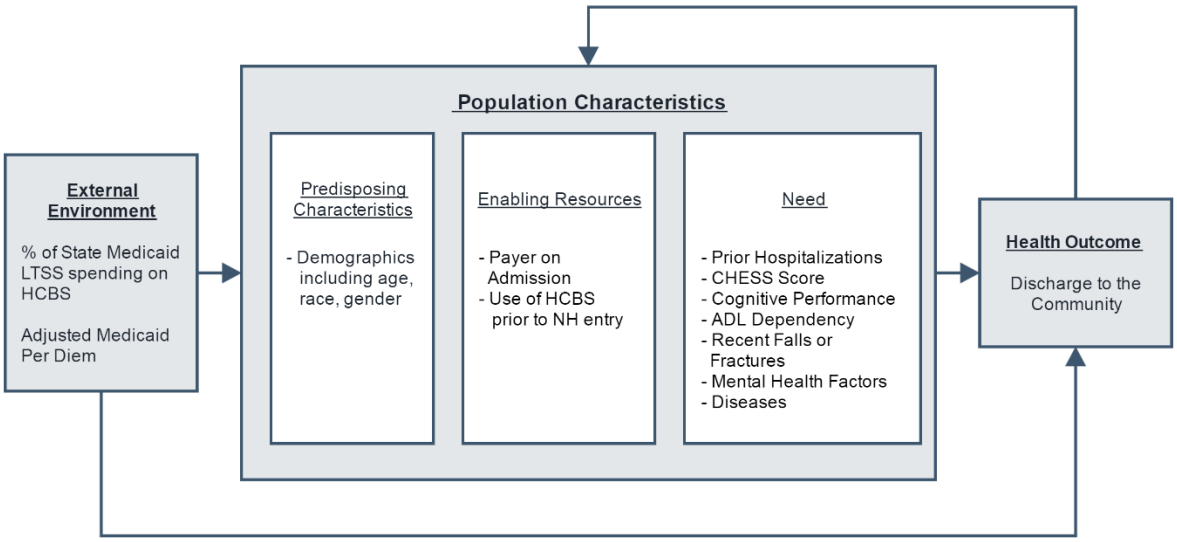

Figure 6.

Conceptual Model adapted from Andersen's Behavioral Model of Health Service Utilization

Notes. LTSS, long-term services and supports; HCBS, home and community-based services. Adapated from Andersen's behavioral model of health service utilization.

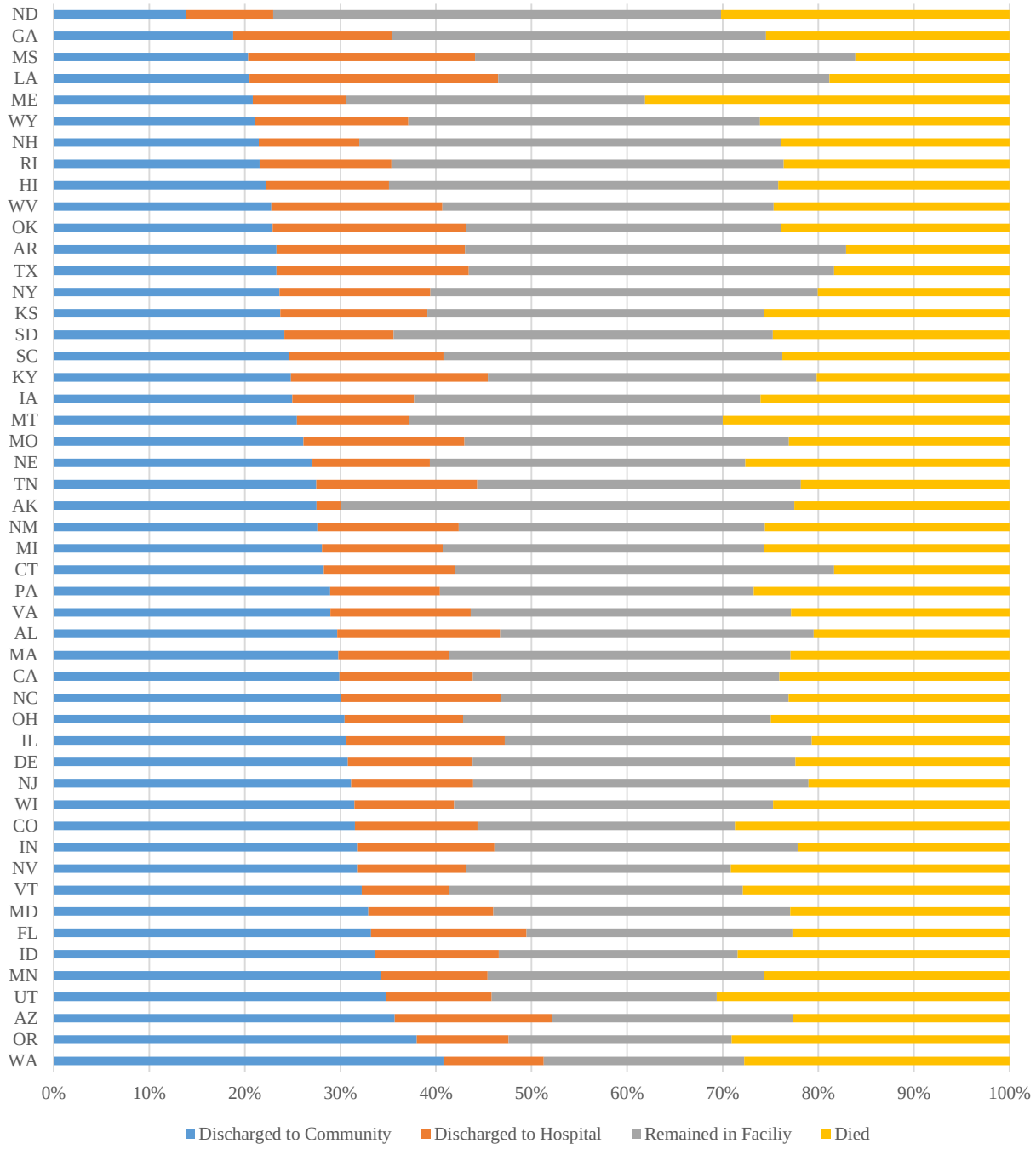

Figure 7

Discharge Outcomes by State for Residents Admitted Directly from the Community within 365 days of Admission

Source. Data derived from the MDS 2.0 aggregated to the facility level for nursing homes admitting residents aged 65 and older in the United States between July 1, 2007 and July 30, 2008 from the community.

CHAPTER FIVE:

CONCLUDING REMARKS

In an attempt to advance discussions on rebalancing LTSS, the dissertation included three studies examining the influence of resident, facility, and state characteristics on the community discharge of residents admitted from home or ALCs. Often dwarfed by the larger post-acute population, NH residents admitted directly from the community are a unique subpopulation whose behaviors and characteristics may provide important insights into current policies and best practices related to NH transitions. The findings from the three studies are summarized below.

By examining the profile of NH residents admitted directly from home, the first study (refer to chapter two) attempted to understand alternative pathways toward NH placement. Findings from the study posit that residents admitted directly from home are a distinct subgroup with varying levels of needs and unique factor precipitating NH placement. Although additional research is needed to determine precisely why these residents are transitioning from the community to the NH, study findings present several unique hypotheses. First, since this population experienced significant health needs (extensive ADL dependency and moderate cognitive impairment) and was often part of a caregiving relationship, it is possible that the needs of these residents exceeded the current levels of HCBS in the community. Alternatively, these residents may represent the profile of individuals appropriately cared for in a NH as they may require continuous nursing support.

Expanding on these findings, the second study (refer to chapter three) investigated the resident-level factors influencing the community transition of NH residents admitted directly from home or ALCs. Consistent with previous research (e.g., Arling et al., 2010), demographics, payment source, and health needs predicted community discharge with older, cognitively impaired residents less likely to transition to the community. Residents relying on Medicaid as their primary payment source on admission were less likely to transition to the community; whereas residents who required additional LTSS following an acute care admission were more likely to transition.

The final study (refer to chapter four) approached community discharge as a multi-level problem and acknowledged the impact of both facility characteristics and a state's commitment to HCBS on community discharge. At the facility-level, ownership, total deficiency score, the ratio of Medicare and Medicaid residents, as well as urban location were associated with community discharge. However, the effect of these factors differed according to the length of stay. The commitment of a state to HCBS, measured by the proportion of the Medicaid LTSS allocated for HCBS, was also predictive of community discharge.

Policy Implications

The results from these studies present important policy issues that may inform policymakers as they attempt to better allocate limited LTSS resources between HCBS and NH care. Although most policies are directed toward reducing institutionalization, the findings presented in these studies suggest that NHs may be an appropriate care location for some residents, while others may benefit from additional HCBS resources to either delay a NH admission or prevent transition to the community.

Echoing the themes presented by Kaye and Harrington (2015) policy and research agendas should encourage more accessible consumer-directed LTSS for community-dwelling older adults and their caregivers to better promote aging in place. Research should support a better understanding of the factors that influence the success of NH diversion and transition programs, particularly among NH residents admitted directly from home or ALCs. Ultimately, both policy and research agendas should better align with the needs of facility administrators, NH residents, and their caregivers to assess whether current levels of access and utilization of HCBS are sufficient.

Expanding on concerns related to HCBS utilization, policy initiatives should better identify and address the unmet care needs of community-dwelling older adults and their caregivers. Coupling the results of the current study with findings from Black and colleagues (2013), community-dwelling older adults with dementia and their caregivers often have substantial unmet care needs which may have initiated a decision to transfer to a NH. Conversely, these unmet needs may also inhibit NH residents from transitioning to the community. Policies should be developed to better identify and target community-dwelling older adults and their caregivers. Such policies would simultaneously support efforts to expand diversion and transition programs across states.

Policies should also address the appropriateness of NH placement. Since the *Olmstead* decision, most discussions pertaining to the appropriateness of care have centered on reducing institutionalization and providing care in the least restrictive setting as possible. However, the findings from this study suggest that some individuals are appropriately cared for in a NH. Considering the admission profile of the study population, there appears to be a population of older adults with significant cognitive impairments, behavioral problems, and care needs that are

currently not supported through HCBS and informal caregiving. If these individuals do require continuous nursing support, NHs may be the most appropriate care setting to deliver LTSS. Ultimately, additional research is needed to determine whether residents are appropriately cared for in the NH or if expanding HCBS can allow these individual to remain in the community.

Consistently, study findings have suggested that varying LTSS environments affect both the proportion of residents admitted directly from the community and the number of NH residents discharged back to the community. Findings suggest that states like Washington and Oregon, which are recognized leaders in HCBS utilization, tend to admit fewer NH residents directly from the community while discharging more NH residents to the community. However, there is significant variation between states, which raises several policy questions. Do older Americans and their caregivers have equity in access and delivery of HCBS? Are NHs and HBCS being prioritized differently based on the state or county of residency? Are education and lifestyle factors influencing the decision to delay NH entry? Ultimately, is the level of HCBS currently available to older American sufficient to meet their long-term care needs?

Additional state monitoring and unification of ALC practices is also necessary. Currently, regulations guiding ALC structure vary tremendously across states leading to questions about care standards and discharge practices. Although some states are changing their legislation to provide ALCs with greater flexibility in caring for residents near the end-of-life (Carder, 2015; Mollica, 2006), additional research and policy discussions are needed on why ALC are transitioning residents to NHs and preventing older adults from aging in place.

Results from this study also recommend policy discussions related to end-of-life practices and hospice utilization. Recently, the Institute of Medicine (2015) acknowledged that transfers to and from NH are an important component of end-of-life care. Moreover, palliative

care experts (Wang et al., 2016) have suggested that limiting the number of transfers near the end-of-life may improve quality of life for both the dying older adult and their caregivers. Since transitions are occurring near the end-of-life from the community, NHs, and ALCs further evaluation is needed to determine whether these residents and their families are being adequately supported by hospice or if state policies are enabling residents to age in place through the time of death.

Education Implications

Collectively, the study findings introduce several teachable moments for the various players across the LTSS spectrum. First, nursing students, healthcare professionals, and administrators should be mindful of the importance of communication, especially during periods of care transition. Since residents admitted directly from the community with Medicare Part A or per diem as their primary payment source may have experienced a brief hospitalization and community discharge before their NH admission, poor communication during care transitions may result in the loss of health information and significant unmet care needs. Since these residents faced an intermediate transition to the community before their NH admission, additional research is needed to understand whether information is loss during these points of transition. As a result, healthcare professionals should be particularly mindful of gathering accurate intake data from both the NH resident and their informal caregivers.

Additional guidelines should be developed to assist healthcare professionals and NH staff in evaluating and delivering care programs based on the reason for the admission. Although additional research is needed to fully understand the reasons why NH residents are admitted directly from the community, study findings posit that these residents are admitted under different circumstances than the traditional post-acute population. In ALCs, continued

refinement of practice guidelines may prevent residents from being transferred to NH and enable aging in place. For those admitted directly from home, educators should develop guidelines for caring for residents admitted with significant acuity and end-of-life care needs.

Educators should also be aware of the difficulties that transitioning between the community and NH may cause the resident's informal caregivers and family. Programs designed for the family members and other informal caregivers should be implemented in the community to better prepare the family for the NH admission. These programs may also provide caregivers with additional information on HCBS and resources, which if previously unknown to the older adult and their caregiver, may delay the NH admission.

Limitations

Several limitations should be noted regarding the study analyses. First, community discharge was broadly defined as discharge to home, board-and-care homes, or ALCs. As a result, it was not possible to determine whether a resident admitted from home and subsequently discharged to the community was residing in their former dwelling or an ALC after discharge. Likewise, conclusions regarding the success and duration of community discharge could not be determined. Second, data elements used in defining the discharge status of the sample were based on MDS assessment data and not matched to death records or Medicare claims data. As a result, both death rates and rates of hospitalization may have been underestimated. Third, since hospice utilization was measured at admission and did not account for residents who later enrolled in hospice services, the proportion of residents enrolled in hospice care may have been underestimated. Additionally, all resident-level predictors used throughout the analyses were based on the MDS admission assessment and did not adjust for changes in resident health status

during an episode of stay. Finally, the age of the study data prohibits policy discussions related to the implementation of Medicaid Managed Care Systems or the Affordable Care Act.

Since the analyses relied on several administrative dataset, it inherits the limitations associated with each database. Although, several studies have suggested that the validity and reliability of the MDS 2.0 are suitable for research purposes (Casten, Lawton, Parmelee, & Kleban, 1998; Lawton et al., 1998), the validity of some items including pain, depressed mood, incontinence, and visual acuity remains questionable (Mor, 2004). The MDS 2.0 has also been heavily criticized since quality of life is largely ignored in the 2.0 configuration (R. A. Kane, 2003; D. R. Zimmerman, 2003). The OSCAR database has been plagued by concerns of inconsistent reporting (Arling, Kane, Mueller, Bershadsky, & Degenholtz, 2007), and the reliability and validity of some data elements has also been questioned. Despite these limitations, administrative datasets contain national data that allows researchers to analyze NH characteristics with considerable validity (Castle, Wagner, Ferguson-Rome, Men, & Handler, 2011) and more importantly, influence policy discussions as these datasets are often used to demonstrate policy initiatives (Grabowski & Castle, 2004).

Future Research

The results of these studies present several opportunities for future research. First, more recent data should be used to explore how the implementation of Medicaid Managed Care Systems or the Affordable Care Act has affected the care trajectories of NH residents admitted from the community. Longitudinal studies should explore changes in community admission and discharge rates over time. The LTCFocus.org website aggregated the proportion of residents admitted from the community for each U.S. NH from 2000 to 2010. In addition to examining national descriptive trends in community admissions rates, the data can be used to compare across NHs of varying quality. For example, a series of studies could examine the relationship

between changes in admission rate and metrics of NH quality including proprietary status, chain affiliation, quality measures, deficiency scores, or staffing and administrative turnover. These studies could be expanded to markets by investigating the impact of competition, population characteristics, or HCBS expenditures on changes in admission rates. Similar reasoning would also suggest that by aggregating discharge data from the MDS assessments, proportions of community discharge can be determined and similar studies conducted with discharge as the outcome of interest.

Second, although hospice was not the focus of this study, findings have suggested that hospice utilization on admission to a NH may vary according to admission status. These findings have raised several questions for future research. Are ALCs discharging residents who require hospice services to NHs? Are there differences in hospice utilization by state or market? What factors are preventing residents admitted from home from remaining in the community and receiving hospice services? Future research is needed to determine if these trends relating to hospice utilization are amendable to state policies.

Additional qualitative questions are also introduced by the results of this study. Considering the small number of residents admitted directly from the community to NHs, questions arise as to why such residents are transitioning from their current dwellings to NHs. Focus groups and interviews with older adults (if cognitively able, as this question must also be addressed by future research) and their caregivers could explore the reasons for admission to NHs. A similar methodology could also explore why these residents are transitioning back to the community after a NH stay. By adding a qualitative component to this research, questions regarding resource availability, caregiver burden, and HCBS utilization can also be addressed. As an extension to the qualitative projects, future research should also address racial differences

and the cultural component associated with NH admission and discharge since the current study fails to address differences in cultural traditions and familial practices that may have influenced decisions to delay NH entry and then subsequently, enable NH discharge.

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