Determinants of Remaining in the Community After Discharge: Results From New Jersey's Nursing Home Transition Program

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Purpose: To inform states with nursing home transition programs, we determine what risk factors are associated with participants' long-term readmission to nursing homes within 1 year after discharge. **Design and Methods:** We obtained administrative data for all 1,354 nursing home residents who were discharged, and we interviewed 628 transitioning through New Jersey's nursing home transition program in 2000. We used the Andersen behavioral model to select predictors of long-term nursing home readmission, and we used Cox proportional hazards regressions to examine the relative risk of experiencing such readmissions. **Results:** Overall, 72.6% of the 1,354 individuals remained in the community, with 8.6% readmitted to a nursing home for long stays (>90 days) and 18.8% dying during the study year. Cox proportional hazards regression analysis showed that being male, single, and dissatisfied with one's living situation; living with others; and falling within 8 to 10 weeks after discharge were significant predictors of long-term nursing home readmission during the first year after discharge. **Implications:** Most of the factors predicting long-term readmission were predisposing, not need, factors. This fact points to the limits of formulaic approaches to assessing candidates for discharge and the importance of working with clients to understand and address their particular vulnerabilities. Consumers, state policy makers, nursing home transition staff, discharge planners, and caregivers can use these findings to understand and help clients understand their particular risks and options, and to identify those individuals needing the greatest attention during the transition period as well as risk-specific services such as fall-prevention programs that should be made available to them.

Key Words: Nursing home transition, Nursing home discharge, Community care, Caregivers

It is estimated that, from 2002 to 2010, the number of individuals aged 65 and older in the United States will increase by 17% to a total number of 39.4 million (Siegel, 1996). Despite a somewhat declining rate of disability, the absolute number of older adults with disabilities will increase substantially by virtue of the large growth in the population and the increasing growth in the over-85 age group (Miller & Mor, 2006). These changes in age and functional health characteristics are also affecting the long-term-care system. Traditionally, long-term care has entailed mostly long-term placement in the nursing home institution; however, this picture is changing as nursing homes increasingly serve more post-acute and rehabilitation residents; assisted living facilities become more prevalent; and home- and community-based services (HCBSs) such as adult day care become more widely available. All of these result in decreasing numbers of long-term stay residents (i.e., those who stay >90 days; see Alecxih, 2006; also see Miller & Mor).

Although the picture of who uses long-term care and the long-term-care system is changing, the largest portions of states' long-term-care budgets are still spent on nursing home care. One way in which some states are addressing the needs of the changing elderly population is to expand their HCBSs, thereby shifting their long-term care strategies away from the reliance on nursing home care. To this end, a number of states have received Nursing Facility Transition Grants from the Centers for Medicare and Medicaid Services to develop programs designed to assist nursing home residents in returning to community settings (Kasper & O'Malley, 2006). These grants allow states to create nursing home transition projects with the ultimate goal of changing "the long-term-care system from one devoted almost exclusively to institutional care in nursing homes to one that would help older seniors live in their homes and communities for as long as possible" (Reinhard & Fahey, 2003, p. 1).

Although there is much debate about the financial implications of rebalancing long-term care away from institutional care, there are several advantages for states interested in expanding HCBSs. A few studies suggest that adequate HCBSs might be able to extend the time that older adults can successfully remain in their homes and assist them in maintaining a good quality of life in familiar surroundings (Greene & Lovely, 1995; Jette, Tennstedt, & Crawford, 1995; Weissert & Lesnick, 1997). Nevertheless, the evidence is unclear as to whether HCBSs can fully substitute for nursing home care or significantly delay permanent nursing home admissions (Miller & Weissert, 2000). Moreover, most older adults prefer to avoid nursing home placement whenever possible (Bishop, 1999; Mattimore, Wenger, & Desbiens, 1997). Even among seriously ill older adults, 29% prefer to die rather than enter a nursing home (Mattimore et al.). In this same vein, some researchers (Kane & Kane, 2001) argue in favor of a less medical model for health services that empowers older adults and their agents to become active decision makers about their daily lives and care, thus encouraging them to make decisions based on their own thresholds for risk.

New Jersey's nursing home transition program, Community Choice Counseling, is one of the earliest and largest to assist older adults in moving back to the community from nursing homes. Building on an earlier state program, the 1999 Medicaid-funded initiative used trained counselors to provide nursing home residents with information about the full range of long-term-care options available to them. These counselors work with the nursing homes to identify potentially eligible residents. To be eligible for this program, residents need to be medically stable for discharge, restored to practical functioning levels, and choose to live continually in a community setting (i.e., they are interested in leaving and cognitively able to participate in the decision making; New Jersey Department of Health and Senior Services, 1999). Counselors provide instrumental assistance (such as setting up HCBSs) and emotional support (such as help talking with the residents' families about their plans). Although transition programs such as those in New Jersey assist nursing home residents through the transition process, there are concerns about what happens to these older adults, especially those with longer stays, once they reenter the community. There are also questions about the factors that predict their ability to remain in such settings. Therefore, in this study we focus on a sample of nursing home residents aged 65 and older who had participated in the New Jersey nursing home transition program to determine what happened to them during their first year after discharge.

New Jersey's nursing home transition program is unique in some ways, and therefore provides some unique research opportunities. First, many transition programs focus on younger adults (younger than 65 years of age) with disabilities, as it is widely accepted to avoid institutionalizing younger people (Eiken, 2004; Kasper, 2005). Second, this program includes people with both long and short nursing home stays. Among the general nursing home population, most discharges are for those who have a short-term admission (<30–90 days), such as those who typically come for post-hospital care and rehabilitation (Kasper & O'Malley, 2006). However, it is held that these individuals are likely to discharge on their own and may not require a nursing home transition program to assist them. The New Jersey nursing home transition program, however, included all individuals on the basis of the premise that assisting those with a short-term stay might lead to an even quicker discharge, averting a potential long-term admission. In contrast, although residents older than 65 and with longer stays (>90 days) are potentially the most difficult to transition, they may provide the greatest cost-savings opportunities for state Medicaid programs as well as the most useful information for gauging types and scope of community services needed for returning to and remaining in the community. This study considers the resident's length of stay prior to discharge as one possible predictor of ability to remain in the community. Given the heightened interest of states in expanding their HCBS options and therefore creating or developing nursing home transition programs, this study will inform state policy makers, discharge care planners, consumers, and caregivers by identifying factors they can use when assessing a person's risk of returning to a nursing home for a long-term readmission and for allocating resources (e.g., who may need the greatest monitoring in the transition period, and what factors are most relevant to such a reentry).

Even outside the context of nursing home transition programs, few studies have focused on

predictors of readmission for long-term nursing home stays (Liu, McBride, & Coughlin, 1994). In choosing variables for inclusion in our analysis, we therefore examined the general nursing home literature to identify predictors and risk associations previously reported for nursing home admission from the community. Demographic measures that are recognized to be strong predictors of nursing home use in general include increasing age, living alone, and having an informal caregiver. In contrast, being married and being non-White seem to reduce the risk of nursing home admission, whereas being female and having poor health behaviors (i.e., nutrition, exercise, etc.) have not been significant (Gaugler, Leach, Clay, & Newcomer, 2004; Greene & Ondrich, 1990; Miller & Weissert, 2000). Not owning a home and being eligible or enrolled in Medicaid have also been associated with increased risk of nursing home use. Urban residency, income, and level of education have not been associated with nursing home use (Greene & Ondrich; Liu, Coughlin, & McBride, 1991; Miller & Weissert).

Not surprisingly, worse self-rated health is significantly associated with increased risk of institutionalization; indicators of functional impairment such as limitations in activities of daily living (ADLs) and instrumental activities of daily living (IADLs), poor cognitive scale performance, incontinence, and behavioral symptoms are also correlated with increased risk of nursing home admission (Idler, Hudson, & Leventhal, 1999; Kane & Kane, 2000; Miller & Weissert, 2000). Specific conditions such as fractures, nervous system disorders, dementia, and digestive disorders may increase the risk of nursing home use, but increased risk has not been associated with depression and respiratory diseases (Miller & Weissert). Additionally, prior hospital use as well as the use of paid help or formal caregiving have consistently shown positive associations with nursing home placement, and prior nursing home use (although not length of nursing home stay) has been a strong significant predictor of future long-term nursing home care (Liu, Coughlin, & McBride, 1991; Liu, McBride, & Coughlin, 1994; Miller & Weissert; Mor, Wilcox, Rakowski, & Hiris, 1994).

In this study, we conceptualize these possible predictors and the relationships among them by using Andersen's behavioral model, which posits that health behaviors (including service use) are a function of predisposing, enabling, and need characteristics (Andersen, 1995; Andersen & Newman, 1973). Individuals' predisposing characteristics are the most distal to service use and include demographic factors (e.g., age, marital status) and social factors (e.g., social support, health beliefs and attitudes). Enabling resources must be present for service use to take place and include indicators of family and community resources (e.g., eligibility for Medicaid), whereas need (the most proximate cause) includes indicators of self-perceived and practitioner-

evaluated health (Akamigbo & Wolinsky, 2006; Andersen). We chose Andersen's framework to guide our selection and organization of predictors of readmission for the outcome measure of long-term nursing home care because it is a widely employed model and has long been used to explain the use of health services by the elderly population and in particular to predict nursing home admission (Miller & Weissert, 2000).

Methods

In this study we used a structured telephone interview to survey all individuals transitioning through New Jersey's nursing home transition program from January 1, 2000 to December 31, 2000. The New Jersey Department of Health and Senior Services provided contact information for all nursing home residents discharged during this period. This information included discharge disposition and the name of a caregiver or other contact person. A researcher contacted each person approximately 8 to 10 weeks after discharge for an initial interview and asked the person to participate in a four-wave longitudinal study. Interviewers conducted interviews at 3-month intervals for a total of four interviews over a 1-year period. In this article, we focus on the data collected during the first interview. Although changes in function or health over time might be useful in predicting a long-term readmission, we limited our analysis to factors that case managers would most likely have available at the time of transition or that would appear shortly thereafter; dischargees and their families can be alerted to these as risk factors that may prompt a change in care setting. Whenever possible, former nursing home residents were interviewed; however, a proxy (usually a family member; other descriptive information were not collected) was interviewed when it was determined by the interviewer that the mental or physical condition of the client prevented participation or the client preferred that the proxy be interviewed. When a proxy was used, the interviewer asked the client to confirm the proxy choice if he or she was able to do so. Additionally, state administrative data were available for all 1,354 nursing home residents, and we used this information to verify readmissions and deaths as well as provide basic demographic and nursing home length-of-stay information. Therefore, we collected data concerning age, gender, length of stay, readmission to a nursing home in New Jersey, and death certificate on 100% of the nursing home transition dischargees either through the interview or state administrative data. Whereas we used state administrative data to verify death or reentry to a nursing home in New Jersey, we could not verify those deaths and readmission occurring outside New Jersey unless the person also participated in the longitudinal study.

Participants

In total, 1,354 nursing home residents aged 65 and older were discharged during this time period with assistance from New Jersey's nursing home transition program. Of these individuals, 98 (7.2%) were deceased at the time of the first interview (8–10 weeks postdischarge), 70 (5.2%) refused, 283 (20.9%) could not be contacted because of missing contact information, and 275 (20.3%) were unable to consent and had no caregiver, family member, or friend to serve as a proxy respondent. Interviewers determined that a person was unable to consent when the person was unable to understand or hear (over the phone) the informed consent information. A total of 628 dischargees or their proxies completed the first interview. An exclusion of those ineligible to participate (98 deceased and 275 unable to consent) yielded a sample of 981 and a response rate of 64.0% (628 of 981), with 54% of the surveys being completed by proxies. Proxies were more likely to respond for the oldest group ($\chi^2 = 28.0$, $df = 2$, $p < .01$) and the lowest educational group ($\chi^2 = 47.5$, $df = 2$, $p < .01$).

Using state administrative data, we were able to compare respondents and nonrespondents in terms of gender, age, and original length of nursing home stay. Overall, 77.6% of those interviewed had had a short-term length of stay, 71.2% were female, and 72.7% were older than 75 years of age. There were no significant differences between respondents and nonrespondents for gender or original length of stay, but those individuals who refused were significantly more likely to be older than those individuals who did not. Finally, we examined the interaction of original length of stay with gender and age. As might be expected, age was positively and significantly related to increased or longer length of stay.

Dependent Variables

Because we were interested in informing state policy makers on how to support more people in the community and to prevent long-term readmissions, we measured our dependent variable in two ways. First, we considered the disposition group either as long-term nursing home readmission, died, or remained in the community. Second, we considered the duration (in days) until the person experienced a long-term nursing home readmission (see Table 1). In the latter analysis, we treated death as a censoring event (the person died before experiencing the event), and we also considered those respondents who remained in the community as censored (not having experienced the event) at the end of 1 year after discharge. We selected the 1-year observation period because it seemed a reasonable length of time that a state might use to evaluate the outcome for a program's participants. We defined long-term nursing home readmission as having a nursing home stay of more than 90 days during the observation period.

This 90-day length-of-stay cutoff point is used by the Centers for Medicare and Medicaid Services and typically denotes a change from short-term or postacute care to long-term nursing home residency (Abt Associates, Inc., 2004). In a manner consistent with other research (Liu et al., 1994; Miller et al., 2004), we treated those who had a short-term nursing home readmission (≤90 days in a nursing home) during the 1-year observation period as those who remained in the community. Moreover, we examined those who had a short-term readmission ($n = 82$) and found them to be similar to those who remain in the community in terms of their demographic and selected frailty indicators (original length of stay, age, gender, satisfaction with living situation, function, and self-perceived health).

To address the issue of proper classification of stays that might begin at the end of the 1-year observation period, we examined nursing home stays for an additional 2 months (approximately 425 days after the original discharge date) to ensure that those individuals with stays of fewer than 90 days who were still in the nursing home at the end of the year were classified properly as either short-term stays or long-term stays (if they actually became a long-term stay). Because we did not have actual dates for all deaths (rather only whether the person died or not), we measured the duration to this event as survival to the next quarterly interview. So, for example, if the person completed Interview 2 but died before completing Interview 3, we considered them censored for the third interval.

Independent Variables

We used previous literature and Anderson's model to select variables that might influence the risk of long-term nursing home readmission and then classify them as predisposing, enabling, and need factors (Anderson, 1995; Anderson & Newman, 1973). Variables and definitions are presented in Table 1. In the model, individuals' predisposing characteristics included demographic, social support, and health beliefs (as indicated by behaviors) that affect the individuals' likelihood of using nursing home services. For demographics, we included age and gender; for social support indicators, we included marital status, living arrangement, and satisfaction with living arrangement (those more satisfied less likely to change); and for indicators of health beliefs that might influence perceptions of need and use, we included an index measure of three positive health behaviors (i.e., eating a healthy diet, using vitamins or supplements, and exercising daily). Because there was little variation in race or ethnicity among the dischargees, we were unable to include that variable.

Enabling characteristics are those resources or barriers that influence the use of nursing home care such as family and community resources. These

Table 1. Dependent and Selected Independent Variables

Variables	Definitions	Measure
Dependent variables		
Disposition outcome group	1-year postdischarge disposition group	Deceased; LT NH readmission; remained in the community (includes short-stay NH readmissions)
Time to LT NH readmission	Duration of stay in the community prior to a LT NH readmission	LT NH: number of days in the community until the person experienced the event; death: number of days in the community until the censored (measure quarterly); remained in the community: number of days in the community until censored by the end of the observation period.
Independent variables		
Predisposing factors		
Marital status	Married or not married	
Health beliefs	Follows healthy diet, uses vitamins or supplements, and has daily exercise	Yes or no individually; scaled across the 3 items
Living arrangement	Lives alone or with others	Yes or no
Satisfaction with current living situation	How satisfied are you with your living situation?	Satisfied, somewhat satisfied, not satisfied
Enabling factors		
Education level	Completed education (highest level)	<high school; high school; >high school
Available package of services in current living situation	Current living situation has an available package of services	Yes or no
Informal help with ADLs	Nonpaid assistance with any ADL	Yes or no
Formal help with ADLs	Paid assistance with any ADL	Yes or no
IADL: Transportation use	Able to use transportation (with or without assistance)	Yes or no
Need factors		
ADL dependence	Level of dependence for bathing, dressing, eating, toileting, having bed mobility	Individual ADL: Yes or no Scale: adds across the 5 ADLs
IADL dependence	Level of dependence for preparing meals, doing housework, doing laundry, getting around the home, managing finances, managing medications, using the telephone, shopping, and using transportation	Individual IADL: Yes or no Scale: adds across the 9 ADLs
Nagle's Index of Abilities and Limitations	Level of difficulty in having speech understood, hearing normal conversation, seeing normal print, lifting up to 10 lb (4.5 kg), walking three city blocks, and climbing a flight of stairs	Difficult, somewhat difficult, not difficult
Perceived unmet need for services	Client felt they had the services needed to remain in the community	Yes or no
Self-perceived health	Client's perception of own health	Excellent or very good, good, fair, or poor
Postdischarge acute health events	Experienced a fall	Yes or no: individually;
	Visited an emergency department or had a hospitalization during the 8- to 10-week postdischarge period	
Self-perceived QoL	Able to do things that make life enjoyable	Yes or no
Medication management	Able to manage one's own medications	Yes or no
Original length of NH stay	Length of NH stay before discharge through the NJ NHTP-CCCP	LT or ST NH admission

Notes: Dependent and selected independent variables exclude demographic variables. LT = long term; ST = short term; ADL = activity of daily living; IADL = instrumental activity of daily living; QoL = quality of life. NJ NHTP-CCCP = New Jersey's nursing home transition program, Community Choice Counseling. LT or ST readmissions are considered to be ≥90 days or <90 days, respectively.

could influence both the ability to obtain or to avoid nursing home use. We included education level, whether the current living situation had a package of services available, the IADL of transportation use, and receipt of informal or formal help with ADLs as enabling resources. Because the New Jersey nursing home transition program is a Medicaid-funded initiative, the participants are generally considered eligible for Medicaid, so there would be little variation in income level; we did not include it.

Need (previously called illness) in the behavioral model includes indicators of self-perceived and practitioner-evaluated health. We included self-perceived health, ability to do things that make life enjoyable (quality of life), and perceived unmet needs to remain in the community as self-perceived indicators of health, need for residential services, and the prior nursing home length of stay. Functional ability has been shown to be associated with the ability to live independently in the community (Kane & Kane, 1981, 2000), and functional impairment has been correlated with nursing home admission. This was indicated by greater dependence in ADLs and by the need for medication management. We found the level of IADL impairment and an index of frailty to be highly correlated with ADL level, and thus we did not include them to avoid multicollinearity effects. Those discharged through the nursing home transition program were either not or only minimally cognitively impaired, and thus we excluded cognitive impairment. Experiencing acute health events may increase the likelihood of long-term readmission, either by increasing need or signaling underlying need. Therefore, we did include experiencing a fall and having an emergency department (ED) visit or hospital admission within the 8- to 10-week postdischarge period. We also considered the length of the nursing home stay prior to discharge through the transition program (categorized as ≤90 days and >90 days). Although this is our best available measure of original length of stay, it has some limitations, because some individuals may have had previous admissions and discharges. Additionally, a short original length of stay does not mean that an individual did not intend to stay in the nursing home for a longer period of time. Because prior hospitalization data were unavailable, we were unable to distinguish between stays intended for postacute care and long-term care.

To summarize, three independent variables, that is, age, gender, and original length of stay, were available for the entire sample ($N = 1,354$). For the 628 survey respondents, we were able to examine this broader range of independent variables that existed or occurred during the 8- to 10-week postdischarge period.

Analysis

Our analyses addressed two research questions: (a) how many of the former nursing home clients remained in the community, returned to the nursing home, or died during the first year after discharge? and (b) what factors are related to the risk of having a long-term readmission within the first year after a nursing home discharge through the nursing home transition program?

For the entire sample ($N = 1,354$), we used bivariate techniques to determine the differences between the three outcome groups—deceased; long-term nursing home readmission; and remained in the community—in terms of age, gender, and original length of stay. To address our second question, the factors related to the risk of having a long-term nursing home readmission within the first year after a nursing home discharge, we used Andersen's behavioral model to guide our selection and organization of predictors and we examined the subsample of survey respondent data ($n = 628$). First, we compared the three outcome groups by using bivariate analyses of the individuals' demographic characteristics, living situation, functional ability and frailty, informal and formal assistance, and selected health service experiences since community reentry. Next, we used Cox proportional hazards regression to measure the relative risk of experiencing a long-term readmission versus remaining in the community for the entire 1-year observation period ($n = 471$) and censoring for deaths ($n = 106$) during this period. We created life tables to examine the survival function and then to determine proportionality for each independent variable. Using the life table results, we then included those variables that had significant associations in the bivariate analyses to select predisposing, enabling, or need variables for our final model.

Results

Sample Description

Almost three fourths (72.6%) of the entire sample of individuals ($N = 1,354$) remained in the community during the first year after leaving the nursing home (see Table 2); fewer than one in five (17%) returned for a long-term nursing home readmission (>90 days); and nearly one in five (18.8%) dischargees died sometime during that first year. Disposition was significantly associated with the individual's original length of stay (prior to the nursing home discharge through the transition program). That is, about one third of those individuals with a long-term (>90 day) original length of stay were more likely to be readmitted for long-term nursing home care, compared with those who remained in the community or who died ($\chi^2 = 10.4$, $df = 2$, $p < .01$). Gender was also significant, with more men than women having a long-term readmission ($\chi^2 = 9.0$, $df = 2$, $p < .01$).

Next, we examined the subsample of individuals who participated in the survey ($n = 628$, 63.9% of

Table 2. Comparison of Groups by Disposition at 1 Year Postdischarge by OLOS, Gender and Age

Variable	Deceased (n = 254)	Long-term NH Readmissions (n = 117)	Remained in the Community (n = 983)
OLOS (%)**			
≤90 days	77.8	65.2	78.5
>90 days	22.2	34.8	21.5
Female (%)**	65.5	65.2	73.7
Mean age (SD)	80.6 (7.6)	79.2 (7.3)	80.2 (7.8)

Notes: OLOS = original length of stay; NH = nursing home; *SD* = standard deviation.
**Significantly different by disposition ($p < .01$).

the total respondents). Using three disposition outcome categories (short stays were included with those who remained in the community), we see that 75% of the individuals continuously remained in the community ($n = 471$), 8.1% had a long-term nursing home readmission ($n = 51$), and 16.9% died ($n = 106$) during the 1-year postdischarge period. Respondents and nonrespondents did not differ in terms of their disposition, age, or gender; however, those individuals with an original length of stay of more than 90 days were less likely to participate than those with a shorter stay.

Bivariate Results

Using bivariate analyses, we examined the associations between the dischargees' characteristics and disposition outcome (see Table 3). For the predisposing factors, disposition outcome differed significantly by gender, with more women continuously remaining in the community and more men deceased at 1 year ($\chi^2 = 10.4$, $df = 2$, $p < .01$). Having a formal main caregiver was also significant to an individual's outcome. Specifically, 40.9% of those persons returning for a long-term readmission indicated that they had a formal caregiver ($\chi^2 = 7.1$, $df = 2$, $p < .05$), compared with those who died (26.7%) or remained in the community (22.8%). Health beliefs were also related to outcome, with those persons reporting more positive health behaviors more likely to remain in the community ($\chi^2 = 12.7$, $df = 4$, $p < .05$). Living alone 8 to 10 weeks after discharge was significantly associated with remaining in the community ($\chi^2 = 5.9$, $df = 6$, $p < .05$). Although this was unexpected, it may be that our sample of individuals was composed of higher functioning dischargees. Exploring this relationship, we saw that those who lived alone had significantly fewer ADL dependencies than those who lived with others ($\chi^2 = 42.5$, $df = 2$, $p < .01$). This seems logical because those who need more help would have been more likely to go home with a caregiver or spouse or have been discharged to a group setting that provided services, such as an assisted living residence or a group home.

Among the enabling factors, being satisfied with one's living situation was significantly related to outcome, with those individuals least satisfied most likely to have a long-term readmission ($\chi^2 = 20.6$, $df = 3$, $p < .01$). Receipt of any help with ADLs, informal help ($\chi^2 = 16.3$, $df = 2$, $p < .01$), or formal help ($\chi^2 = 6.7$, $df = 2$, $p < .05$) was significantly associated with dying or having a long-term readmission, perhaps because receipt of help was an indicator of greater underlying need. The individual's inability to use transportation was also positively related to having a long-term readmission (92.2%) or being deceased (85.6%; $\chi^2 = 11.2$, $df = 2$, $p < .01$).

Self-perceived health was also significantly associated with disposition outcome. Not unexpectedly, those who perceived themselves to be in poorer health were significantly more likely to have died during the study year ($\chi^2 = 42.7$, $df = 6$, $p < .01$), whereas those who reported themselves to be in better health were more likely to have continuously remained in the community. In terms of quality of life, those who felt they were able to do things that made life enjoyable were more likely to remain in the community ($\chi^2 = 8.4$, $df = 3$, $p < .05$). Not surprisingly, long-term readmission was positively associated with the client's postdischarge level of ADL and IADL impairment, with $F(24.5)$, $p < .01$ and $F(15.4)$, $p < .01$, respectively. Those who were unable to manage their own medications were also more likely to have died or had a long-term readmission ($\chi^2 = 23.4$, $df = 3$, $p < .01$).

Having a postdischarge acute health event was also significantly associated with dying or having a long-term readmission during the 1-year observation period. Approximately 40% of those persons who had such a readmission experienced a fall, compared with only 21.4% who remained in the community ($\chi^2 = 13.4$, $df = 3$, $p < .01$). Approximately half of those individuals who died (54.7%) and those who had a long-term nursing home readmission (51.0%) had experienced an ED visit or hospitalization within the 8- to 10-week postdischarge period ($\chi^2 = 38.1$, $df = 3$, $p < .01$). The individual's original length of stay (coded in three ways: 30-day increments up to 120 days, as a dichotomized variable using a 90-day cutoff point,

Table 3. Respondent Characteristics, Function and Health Indicators at 8 to 10 weeks Postdischarge by Disposition at 1 Year After Discharge
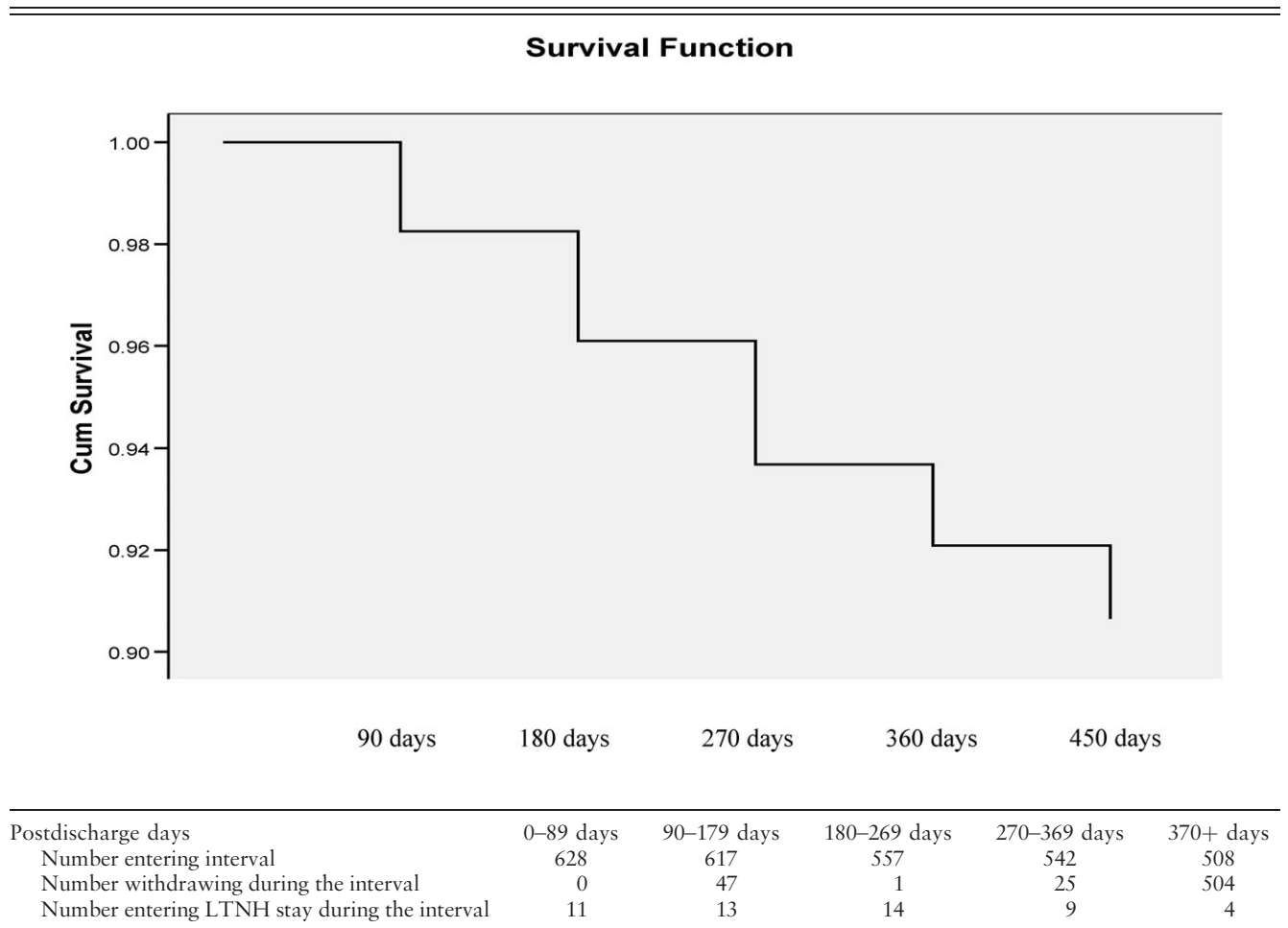
Basic Characteristic	Deceased (n = 106)	Long NH Readmission (n = 51)	Remained in the Community (n = 471)
Predisposing factors			
Mean age: years (SD)	81.2 (8.1)	79.2 (6.6)	79.7 (8.0)
Female: %	61.3	60.8	75.2
Married: %	25.5	10.0	22.8
Informal main caregiver: %	66.3	50.0	61.5
Formal main caregiver: %**	26.7	40.9	22.8
Health beliefs: %*			
Indicated 1 HB	18.9	37.3	18.7
Indicated 2 HB	43.4	31.4	36.7
Indicated 3 HB	37.7	31.4	44.6
Lives alone: %*	28.3	21.6	36.4
Satisfied w/situation: %**			
Satisfied	92.4	76.5	86.5
Somewhat satisfied	5.7	3.9	7.8
Not satisfied	1.9	19.6	5.8
Enabling factors			
Education level: %			
<High school	46.4	46.7	42.5
High school	36.4	35.6	34.7
>High school	17.2	17.8	22.8
Available package of services in Current living situation: %	17.3	29.7	21.0
Informal help with ADLs: %**	52.5	44.9	31.8
Formal help with ADLs: %**	46.2	51.0	36.7
Unable to use transportation*	85.6	92.2	75.7
Need factors			
Average no. of ADL dependencies (SD)**	2.1 (1.9)	1.76 (1.9)	1.0 (1.5)
Average no. of IADL dependencies (SD)**	6.0 (2.5)	6.0 (2.3)	4.6 (2.6)
Index of Ability and Limitations (SD)**	7.0 (2.4)	6.0 (2.3)	5.6 (2.6)
Has the services needed to remain in the community: %	79.4	80.4	87.6
Self-perception of health: %**			
Poor	30.8	9.8	10.1
Fair	36.5	39.2	32.1
Good	23.1	39.2	33.8
Very Good or excellent	9.6	11.8	23.9
Postdischarge acute health			
Events: %			
Falls**	34.3	39.2	21.4
ED visit or hospitalization**	54.7	51.0	26.8
Able to do the things that make life enjoyable*	57.8	64.7	71.6
Unable to manage one's own medication: %**	83.0	80.4	61.1
OLOS			
< 90 days	77.1	72.5	78.7
≥90 days	22.9	27.5	21.3

Notes: NH = nursing home; OLOS = original length of stay; ADL = activity of daily living; IADL = instrumental activity of daily living; ED = emergency department; HB = health behavior; SD = standard deviation. The category of those who remained in the community includes those who had a short NH stay during the observation year.

*Significantly different at $p < .05$ chi-square test.

**Significantly different at $p < .01$ chi-square test.

Table 4. Survival Analysis of Remaining in the Community: Life Table Results in 90-Day Intervals

Survival Function

Postdischarge days	0–89 days	90–179 days	180–269 days	270–369 days	370+ days
Number entering interval	628	617	557	542	508
Number withdrawing during the interval	0	47	1	25	504
Number entering LTNH stay during the interval	11	13	14	9	4

Notes: LTNH = long-term nursing home.

and as a continuous measure) was not significantly associated with disposition outcome at 1 year.

Using survival analysis, we next created life tables to examine the proportion of dischargees surviving (*not* having a long-term readmission) in 90-day intervals while we censored for deaths (see Table 4). Overall, 91% of the individuals remained in the community throughout the 1-year observation period. In terms of those individuals experiencing a long-term readmission, the results show that the proportion of persons terminating is fairly constant over the intervals (approximately 2% at each interval). Withdrawals due to death occurred primarily during the second ($n = 47$) and fourth intervals ($n = 25$). We then created life tables to compare groups stratified by each predictor variable. These life tables (not shown) indicated that the predisposing factors of being male, living with others, not being married, and having fewer positive health beliefs; the enabling factors of being less satisfied with one's living situation and being unable to use transportation; and need indicators such as receiving formal help with ADLs, being unable to manage medication, having a level of ADL dependence, and having an acute health event (fall, ED or hospital) after nursing

home discharge were significantly associated with long-term readmissions. This mirrors the relationships seen in the bivariate analysis in Table 3.

Multivariate Results

We used Cox proportional hazards regression to estimate the relative risk of each covariate on experiencing a long-term readmission (censoring for deaths). Using the significant results from the bivariate analysis and life tables, our final model included five predisposing factors (gender, marital status, health beliefs, living alone, and satisfaction with one's living situation), two enabling factors (received formal help with ADLs and transportation), and four need factors (dependencies in ADLs, medication management, falls and ED visit or hospitalization).

In Table 5, we see that women have about half the risk of men of having a long-term readmission. Those living alone had relatively less than half the risk of a long-term readmission than those who lived with others. Individuals who were married had only 22% risk of a long-term readmission. In terms of indicators of health beliefs, those who reported at least two of three positive health behaviors had

Table 5. Cox Regression Analysis: RRs and 95% CIs of Having a LTNH Readmission During the First Year after NH Discharge

	Relative risk (95% CI)
Predisposing factors	
Female**	0.46 (0.25, 0.82)
Married**	0.22 (0.09, 0.59)
Health beliefs (2 of 3 behaviors)*	0.46 (0.23, 0.93)
Health beliefs (3 behaviors)	0.54 (0.26, 1.10)
Lives alone*	0.42 (0.19, 0.92)
Satisfied with living situation**	0.32 (0.15, 0.71)
Somewhat satisfied with living situation**	0.14 (0.03, 0.68)
Enabling factors	
Received formal help with ADLs	1.16 (0.57, 2.33)
Unable to use transportation	2.66 (0.78, 9.12)
Need factors	
Dependent in 3 to 5 ADLs	1.20 (0.50, 2.84)
Dependent in 1 to 2 ADLs	0.95 (0.42, 2.15)
Fall*	1.86 (0.99, 3.48)
ED visit or hospitalization	1.41 (0.73, 2.72)
Unable to manage one' own medications	1.30 (0.59, 2.86)
Overall chi-square**	59.59 ($df = 14$)
−2 log likelihood**	560.00

Notes: RR = relative risk; CI = confidence interval; LTNH = long-term nursing home. ADL = activity of daily living; IADL = instrumental activity of daily living; ED = emergency department. LTNH readmission is after discharge through the New Jersey NH transition program ($n = 628$).

*Significant at $p < 0.05$ compared with the reference category.
**Significant at $p < 0.01$ compared with the reference category.

about half the risk of having a long-term readmission during the observation year than those reporting fewer (none or one). Those satisfied with their living setting were also at significantly less risk (14% to 32%) of having a long-term readmission than those who were dissatisfied with their living situation.

Those individuals with the enabling factors of being unable to use transportation and receiving formal help with ADLs continued to show increased risk of long-term readmission, but these variables did not maintain significance in the survival model. Similarly, the need factors of increased number of impaired ADLs and need for medication management, as well as hospitalization, indicated increased risk for long-term readmission, but they did not retain significance. Notably, having a fall during the 8 to 10 weeks following the original nursing home discharge was significant. Specifically, those persons who had at least one fall had almost twice the relative risk (1.86) of long-term readmission as those who did not. Overall, our model was significant with a −2 log likelihood = 560.00, $p = .01$.

Discussion

Our central aims in this study were to answer two key questions that policy makers, service providers, and older adults and their families have about nursing home transition programs: What happens to older adults once they have reentered the community? What risk factors influence their ability to continuously remain there? In considering the first question, we find it notable that, although approximately one third of the sample either experienced a nursing home readmission or died during the first year postdischarge, the predominance of former nursing home residents (72%) continuously remained in the community. It might be that nursing homes have become more suited over the past decade to serving the postacute population primarily financed by Medicare (Alecxih, 2006; Miller & Mor, 2006). However, these planned discharges with appropriate services still may reduce lengths of nursing home stays, both short and long term.

Without randomized control groups, our findings are promising but should not be considered an assessment of nursing home transition programs. These findings do strongly suggest, however, that these programs deserve further evaluation. States may want to explore transition programs in addition to nursing home diversion strategies for reducing reliance on institutional care, with the caveat that community support services, residential alternatives, moving costs, and affordable housing options may need to receive support with state funds and Medicaid policy (Kasper & O'Malley, 2006).

With respect to the second question, we found in our bivariate analyses that several factors were significantly associated with disposition outcome: gender, satisfaction with living situation, health beliefs, living situation, informal and formal assistance with ADLs, inability to use transportation and manage medications, ADL and IADL dependencies, self-perceived health, and postdischarge acute health events (e.g., falls, ED visits or hospitalizations). Examining the complex relationships between those factors, the survival analysis showed that a person's chance of long-term readmission was associated with being male, single, and dissatisfied with one's living situation; not living alone; and experiencing a fall during the first 8- to 10-week postdischarge period.

The finding that men were more likely than women to experience a long-term readmission is consistent with other research that has found women more likely to remain in the community—although once in the nursing home, women tend to remain longer, perhaps because of their longer average life span (Liu et al., 1991, 1994; Miller & Weissert, 2000). In addition, the finding that married people were more likely to remain in the community than unmarried people is consistent with broader research that suggests t t hat older adults who have a social support network are more likely to remain in the community (Bloom, Stewart, Johnston, Banks, & Fobair, 2001; Kasper, 2005; Suarez et al., 2000).

In contrast, given the importance of social support, it is surprising that we found that living

alone—rather than with others—was associated with *lower* risk of long-term readmission. It is possible that those who were very frail were less likely to be discharged home alone; although living alone did retain significance as a predictor of long-term nursing home readmission in our multivariate model including indicators of frailty, we may not have measured the dimensions of frailty well. Or it may be that the need for nursing home readmission is less likely to be noticed for those who live alone. Alternatively, living with former nursing home residents may be perceived as difficult by caregivers, precipitating long-term readmissions. Given the complex possibilities and their important implications, this finding requires further study.

In our multivariate analysis, none of our measures of functional limitation or health reached significance as predictors of long-term readmission, although several had been significant predictors in bivariate analyses. Therefore, the direction of these associations lend only minimal support at best to other research showing that physical frailty may affect post-transition outcomes (Chapin, Wilkinson, Rachlin, Levy, & Lindbloom, 1998). Although changes in function or health over time might be useful in predicting a long-term readmission, we limited our analysis to factors that case managers would most likely have available at the time of transition or that would appear shortly thereafter. These are factors that dischargees and their families can be alerted to as risk factors that may prompt a change in care setting. Although state programs may build in a follow-up period to monitor discharges, many states cannot afford to follow these individuals more than a few weeks to see how changes over longer periods of time will affect their outcomes. Nonetheless, changes in functional health should be examined in future longitudinal studies.

One finding that requires little interpretation is the significance of falls as a predictor of long-term readmission. It is well known that falls are a significant predictor of decline in performance of IADLs and ADLs, placement in a nursing home, and illness (Robitaille et al., 2005; Tinetti, Bogardus, & Agostini, 2004). Our study lends yet more support to the urgency of allocating resources for home-based fall-risk assessment and fall prevention as one way of potentially reducing functional decline and nursing home placement, especially because more than one third of those individuals 65 years of age and older fall each year (Robitaille et al.).

Unexpectedly, age and original length of stay were not significant predictors of long-term readmission as previously reported in the literature (Kelman & Thomas, 1990). However, the direction of our bivariate findings suggests that age and original length of stay, though important, may be serving as proxies for other factors such as frailty and social support. The needs of the frailer individuals, who lack housing and readily available caregivers, may

not be as easily met when they return to the community, making them more vulnerable to subsequent nursing home readmission.

Overall, most of the factors predicting long-term nursing home readmission were predisposing rather than need factors. These findings point to the limits of formulaic approaches to assessing candidates for discharge and the importance of working with clients to understand and address their particular risks, needs, and preferences. Rather than using our findings to automatically exclude potential candidates from consideration for discharge, perhaps consumers, state policy makers, nursing home transition staff, discharge planners, and caregivers could use them to understand and help clients understand their risks and appropriate options, and to identify those persons needing the greatest attention during the transition period as well as which services should be made available to them.

Future research must also determine whether even short returns to the community are considered worthwhile by the individuals (and families) who experience them. For instance, it is unclear whether those who return to the nursing home or die soon after returning to the community represent a premature or inappropriate discharge. As this study does not serve to evaluate New Jersey's nursing home transition program, this outcome should not necessarily be defined as a failure. Instead, these individuals may have made particular choices that they believed to be right for them, and that may, in fact, have unfolded exactly as intended. As Kane and Kane (2001) have argued, one way to improve long-term care would entail empowering older adults to make their own decisions based on their own risk thresholds. In other words, for some of these people, a short return to the community may have been the result of a conscious choice that should be respected.

Our research suggests a number of important findings for those who discharged through a nursing home transition program, but there are some limitations to this study. First, this analysis used data from both respondents and proxies. Although proxy bias is well known and these proxies did rate the former residents as more frail than respondents rated themselves, we would also expect this bias given that those who are frailer would also be more likely to need a caregiver to serve as a proxy respondent. Additionally, we were unable to include 275 former residents who may have been even frailer as they were unable to consent and had no proxies. This study was able to compare respondents with nonrespondents on a few characteristics, but we lacked health and functional information for nonrespondents for a more thorough evaluation. Finally, the data were also limited to individuals' self-assessed measures of functional ability at 8 to 10 weeks postdischarge rather than at the time of discharge, and the data lacked cognitive impairment information.

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Another limitation is potential selection bias. Although we examined original length of stay, we did not have the historic data to indicate whether the stay was a planned short stay for postacute care or rehabilitation services or whether the stay was intended to be a long-term one. Therefore, comparisons of this population with other nursing home populations are challenging. Those who are discharged through a nursing home transition program, though deemed eligible for nursing home level of care, are probably less frail (particularly by ADL dependence) than those who remain. Thus, this sample may be slightly less frail than the average nursing home population. Although there is some research on nursing home transfers for comparison, most samples focus more on postacute residents who tend to be more medically unstable and more frail (Hirth, Banaszak-Holl, & McCarthy, 2000; Murtaugh & Litke, 2002), or on the younger disabled population (Heller, Factor, & Hahn, 1999; Heller, Factor, Hsieh, & Hahn, 1998). Likewise, comparisons with community samples of well older adults also present a challenge, as that population may be on average less frail than the population of individuals who were recently discharged from a nursing home. Therefore, comparable samples to study were not available. Categorization of disposition outcomes also presented a particular challenge for this study. For example, the category of deceased individuals may have included some people who had reentered a nursing home and eventually died.

Furthermore, even though it is positive that so many of the individuals in our sample remained in the community, the small number of individuals who were readmitted to a nursing home during the year after discharge did limit the number of variables we were able to include in the analysis. The small number of short-stay readmissions also limited our ability to consider them as a separate outcome group. Consistent with other nursing home research, we combined those who had a short stay with those who remained in the community. However, future studies might focus on those who have short-term readmissions, especially as nursing homes continue to specialize in short-term rehabilitation and postacute care. Such studies can help identify service needs before and after readmission. Future studies could also include factors that were not available in our data sources, such as cognitive functioning levels, diagnoses and comorbidities, payment sources and costs, and facility variables (such as size and affiliation).

Conclusions

This study clearly showed that the predominance of individuals who were discharged from a nursing home through the New Jersey nursing home transition program did remain in the community for at least 1 year, no matter the length of prior nursing home stay.

Predisposing characteristics of being male, single, and dissatisfied with the current living situation, as well as living with others, were significant predictors of returning for a long-term nursing home stay. Policy makers can take away several lessons. First, residents discharged to live with a caregiver may be more likely to return to the nursing home, as they may be frailer than those who live alone or because their caregivers may find it difficult to care for someone with this level of need without adequate support and return the person to the nursing home. Additional research is needed to explain these reasons. Second, because an individual's dissatisfaction with the postdischarge living situation means people are more likely to return for long-term nursing home care, programs have to ensure discharged individuals are placed into the situations they prefer and that can adequately support their needs.

This study also found the need factor of having a fall within 8 to 10 weeks after discharge to be significant, thereby suggesting the need to direct more resources toward home-based fall-risk assessment and services that prevent falls. Functional limitations showed higher relative risk for long-term nursing home readmission but did not reach significance. Consumers, state policy makers, nursing home transition staff, discharge planners, and caregivers can use these findings to understand and help clients understand their risks and appropriate options, and to identify those needing the greatest attention during the transition period as well as which services should be made available to them.

References

Abt Associates, Inc. (2004). *National nursing home quality measures: User's manual.* Baltimore, MD: Centers for Medicare and Medicaid Services.

Akamigbo, A. B., & Wolinsky, F. D. (2006). Reported expectations for nursing home placement among older adults and their role as risk factors for nursing home admissions. *The Gerontologist, 46,* 464–473.

Alecxih, L. (2006, November). *Nursing home use by the "oldest old" sharply declines.* Paper presented by The Lewin Group at the National Press Club, Washington, DC.

Andersen, R. M. (1995). Revisiting the behavioral model and access to medical care: Does it matter? *Journal of Health and Social Behavior, 36,* 1–10.

Andersen, R. M., & Newman, J. F. (1973). Societal and individual determinants of medical care utilization in the United States. *The Milbank Quarterly, 51,* 95–124.

Bishop, C. E. (1999). Where are the missing elders? The decline in nursing home use, 1985 and 1995. *Health Affairs, 18,* 146–155.

Bloom, J. R., Stewart, S. L., Johnston, M., Banks, P., & Fobair, P. (2001). Sources of support and the physical and mental well-being of young women with breast cancer. *Social Science & Medicine, 53,* 1513–1524.

Chapin, R., Wilkinson, D. S., Rachlin, R., Levy, M., & Lindbloom, R. (1998). Going home: Community re-entry of light care nursing facility residents age 65 and over. *Journal of Health Care Finance, 25,* 35–48.

Eiken, S. (2003). *Community choice: New Jersey's nursing home transition program.* (Prepared for DHHS Office of the Assistant Secretary for Planning and Evaluation, Office of Disability, Aging and Long-Term Care Policy, Medstat Research and Policy Division). Washington, DC: U.S. Government Printing Office.

Gaugler, J. E., Leach, C. R., Clay, T., & Newcomer, R. C. (2004). Predictors of nursing home placement in African Americans with dementia. *Journal of the American Geriatrics Society, 52,* 445–452.

Greene, V. L., & Lovely, M. E. (1995). Reducing nursing home use through community long-term care: An optimization analysis. *Journal of Gerontology: Social Sciences, 50B,* S259–S268.

Greene, V., & Ondrich, J. I. (1990). Risk factors for nursing home admissions and exits: A discrete-time hazard function approach. *Journal of Gerontology: Social Sciences, 45,* S250–S258.

Heller, T., Factor, A. R., & Hahn, J. E. (1999). Residential transitions from nursing homes for adults with cerebral palsy. *Disability & Rehabilitation, 21,* 277–283.

Heller, T., Factor, A. R., Hsieh, K., & Hahn, J. E. (1998). Impact of age and transitions out of nursing homes for adults with developmental disabilities. *American Journal of Mental Retardation, 103,* 236–248.

Hirth, R. A., Banaszak-Holl, J. C., & McCarthy, J. F. (2000). Nursing home-to-nursing home transfers: Prevalence, time pattern, and residential correlates. *Medical Care, 38,* 660–669.

Idler, E., Hudson, S., & Leventhal, H. (1999). The meaning of self-ratings of health: A qualitative and quantitative approach. *Research on Aging, 3,* 458–476.

Jette, A., Tennstedt, S., & Crawford, S. (1995). How does formal and informal community care affect nursing home use? *Journal of Gerontology: Social Sciences, 50B,* S4–S12.

Kane, R. L., & Kane, R. A. (1981). *Assessing the elderly: A practical guide to measurement.* New York: Springer.

Kane, R. L., & Kane, R. A. (Eds.). (2000). *Assessing older persons: Measures, meaning, and practical applications.* New York: Oxford University Press.

Kane, R. L., & Kane, R. A. (2001). What older people want from long-term care, and how can they get it? *Health Affairs, 20,* 114–127.

Kasper, J. (2005, August). *Who stays and who goes home: Using national data on nursing home discharges and long-stay residents to draw implications for nursing home transition programs.* Kaiser Commission on Medicaid and the Uninsured. www.kff.org/medicaid/7386.cfm.

Kasper, J., & O'Malley, M. (2006, April). *Nursing home transition programs: Prospectives of state Medicaid officials.* Kaiser Commission on Medicaid and the Uninsured. http://www.kff.org/medicaid/7484.cfm.

Kelman, H. R., & Thomas, C. (1990). Transitions between community and nursing home residence in an urban elderly population. *Journal of Community Health, 15*(2), 105–120.

Liu, K., Coughlin, T., & McBride, T. (1991). Predicting nursing home admission and length of stay: A duration analysis. *Medical Care, 29,* 125–141.

Liu, K., McBride, T., & Coughlin, T. (1994). Risk of entering nursing homes for long versus short stays. *Medical Care, 32,* 315–327.

Mattimore, T. J., Wenger, N. S., & Desbiens, N. A. (1997). Surrogate and physician understanding of patient's preferences for living permanently in a nursing home. *Journal of the American Geriatrics Society, 45,* 818–824.

Miller, E. A., & Mor, V. (2006). *Out of the shadows: Envisioning a brighter future for long-term care in America* (Report for the National Commission for Quality Long-Tem Care). Providence, Rhode Island: Brown University Center for Gerontology and Health Care Research (www.quality longtermcarecommission.org).

Miller, E. A., & Weissert, W. G. (2000). Predicting elderly people's risk for nursing home placement, hospitalization, functional decline, and mortality: A synthesis. *Medical Care Research & Review, 57,* 259–297.

Miller, S. C., Intrator, O., Gozalo, P., Roy, J., Barber, J., & Mor, V. (2004) Government expenditures at the end of life for short- and long-stay nursing homes residents: Differences by hospice enrollment status. *Journal of the American Geriatrics Society, 52,* 1284–1292.

Mor, V., Wilcox, V., Rakowski, W., & Hiris, J. (1994). Functional transitions among the elderly: Patterns, predictors, and related hospital use. *American Journal of Public Health, 84,* 1274–1280.

Murtaugh, C. M., & Litke, A. (2002) Transitions through post-acute and long-term settings: Patterns of use and outcomes for a national cohort of elders. *Medical Care, 40,* 227–236.

Nagel, S. Z. (1976). An epidemiology of disability among adults in the United States. *Milbank Memorial Fund Quarterly, Health and Science, 54,* 439–467.

New Jersey Department of Health and Senior Services. (1999). *Community Choice initiative.* Grant proposal submitted to the Health Care Financing Administration, Department of Health and Human Services.

Reinhard, S. C., & Fahey, C. J. (2003). *Rebalancing long-term care in New Jersey: From institutional to community care.* Milbank Memorial FundElectronic Report. www.milbank.org/reports/030314newjersey/030314newjersey.html

Robitaille, Y., Laforest, S., Fournier, M., Gauvin, L., Parisien, M., Corriveau, H., et al. (2005). Moving forward in fall prevention: An intervention to improve balance among older adults in real-world settings. *American Journal of Public Health, 95,* 2049–2057.

Siegel, J. (1996). *Aging into the 21st century.* Retrieved December 17, 2002, from http://www.aoa.dhhs.gov/aoa/stats/ging21/demography.html.

Suarez, L., Ramirez, A. G., Villareal, R., Marti, J., McAlister, A., Talavera, G. A., et al. (2000). Social networks and cancer screening in four U. S. Hispanic groups. *American Journal of Preventive Medicine, 19,* 47–52.

Tinetti, M. E., Bogardus, S. T., Jr., & Agostini, J. V. (2004). Potential pitfalls of disease-specific guidelines for patients with multiple conditions. *New England Journal of Medicine, 351,* 2870–2874.

Weissert, W. G., & Lesnick, T. (1997). Cost savings from home and community-based services: Arizona's capitated Medicaid long-term care program. *Journal of Health Politics, Policy and Law, 22,* 1329–1357.