

Prevalence and Characteristics of Nursing Homes Residents Requiring Light-Care

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Abstract: Rising nursing home (NH) costs and the poor quality of NH care make it important to recognize elders for whom NH care may be inappropriate. As a first step in developing a method to identify these elders, we examined the characteristics of NH residents requiring light-care and changes in their care level from NH admission to 12-months. Using data from the Missouri Minimal Data Set electronic database, we developed three care-level categories based on Resource Use Groups, Version III (RUG-III) and defined light-care NH residents as those requiring minimal assistance with late-loss ADLs (bed mobility, transfer, toilet use, or eating) and having no complex clinical problems. Approximately 16% of Missouri NH residents met the criteria for light-care. They had few functional problems with mobility, personal care, communication, or incontinence; approximately 33% had difficulty maintaining balance without assistance; and 50% of those admitted as light-care were still light-care at 12-months. Findings suggest that many NH residents classified as light-care by these criteria could be cared for in community settings offering fewer services than NHs.

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It is estimated that by 2010 more than 2.4 million elders will reside in nursing homes (NH), at a cost of over \$155 billion (American Health Care Association, 2001; Centers for Medicare &

Medicaid Services, 2004). This growing demand for long-term care will place a significant strain on health care resources. Further, the NH industry faces ongoing problems with poor quality-of-care,

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an institutional environment, high staff turnover, and limited family involvement (Health Care Financing Association, 1999, 2001; Institute of Medicine, 2001; Maas et al., 1994, 2001). These pressing issues underscore the importance of reducing the number of NH residents who may not actually require the level of care provided in NHs. To achieve this, nurses and others making long-term care placement decisions need to identify those elders who require some assistance, but may not require the many nursing and rehabilitation services available in NHs.

As a first step in developing a method to identify these elders, it is necessary to examine the clinical characteristics as well as the nursing and rehabilitation needs of NH residents who might be more suitably cared for in community settings providing lower levels of care. To this end, we defined light-care NH residents as those elders requiring few of the many nursing and rehabilitation services available in NHs: (a) those without complex clinical problems such as aphasia, stasis ulcers, or wandering; and (b) those requiring only supervision or minimal assistance with the late-loss activities of daily living (ADL; i.e., bed mobility, transfer, toilet use, or eating). Next, we examined other clinically important resident characteristics that might necessitate NH placement such as ability to balance, continence status, and ability to communicate. Last, we tracked the care needs of a cohort of newly admitted NH residents over a 12-month period to determine the stability of their care requirements over time.

Community-based programs may be appropriate alternatives for NH residents needing limited services (Kane, Kane, & Ladd, 1998). Assisted living, a residential care model, provides 24-hour oversight, personal care, and minimal health-related services for elders who are too frail to live alone. It offers elders a living environment that promotes independence, personal choice, privacy, and family involvement (Just, DeYoung, & Van Dyk, 1995; National Center for Assisted Living, 1998). However, it does not include 24-hour supervision by nurses and has fewer nursing personnel than NHs. Consequently, assisted-living facilities do not provide the level of care required to meet the needs of elders with complex clinical problems or extensive ADL limitations.

Other community-based programs that provide more nursing care than assisted-living facilities are becoming available. These programs are designed to care for elders with moderate care needs in the community. Housing with services, a new model, provides elders a living environment that offers privacy, choice, support, and around-the-

clock access to nursing care (Marek & Rantz, 2000). In this model, comprehensive home health services are available in "elder congregate housing," including personal, nursing, and rehabilitation services as well as care-coordination. It accommodates elders needing light to moderate assistance with ADLs and ongoing nursing care. Community based managed long-term care programs such as Missouri Care Options, Program of All-Inclusive Care for the Elderly (PACE), and the Oregon Health Plan also are emerging across the country. They provide comprehensive nursing care, rehabilitation services, and case management in the home to frail elders who might otherwise be placed in NHs (Kane et al., 1998; National Academy for State Health Policy, 2002).

Given the ongoing problems with NH care (Institute of Medicine, 2001) and an increasing variety of community based long-term care options (Marek & Rantz, 2000), Spector, Reschovsky, and Cohen (1996) investigated whether current NH placement criteria allow clinically inappropriate elders in NHs. Determining appropriate NH placement criteria is complicated because NH admission criteria vary from state to state. In order to capture the range of admission criteria used across the nation, Spector et al., examined the markedly different NH admission criteria used by the states of Oregon and Washington. Oregon has developed an innovative long-term care program that allows many elders who were previously cared for in NHs to remain in community settings. Washington, on the other hand, has a traditional long-term care program that relies heavily on NHs for the care of frail elders.

From their analysis of Oregon's and Washington's NH admission criteria, Spector et al. (1996) developed three categories of NH admission criteria: high, middle, and low. These were based on NH residents' ADL including dressing, bathing, transferring, toileting, continence, and feeding; and clinical problems, such as decubitus ulcers and the inability to avoid self-injury. Their goal was to examine the influence that different NH admission criteria categories would have on the number of elders admitted to NHs. The High criteria would limit NH admission to elders with the most severe clinical problems and/or physical disabilities. Thus, fewer elders would be eligible for NH admission using the high threshold criteria and more using the low threshold criteria. Their three categories differ from our definition of light-care because all three include residents with clinical problems and do not account for the type of assistance needed with ADLs.

In order to determine how many current NH residents might not be clinically appropriate for NHs, Spector et al. (1996) applied the three sets of criteria to a sample of NH residents taken from the 1987 Institutional Population Component of the National Medical Expenditure Survey (NMES-IPC) data. They found that only 30% of their NH sample would be eligible for NH admission using the high criteria, while 85% of the NH sample would be eligible with the Low criteria. Their findings suggest that if high criteria were used, significantly fewer elders would enter NHs. Their analysis implies that elders who might be excluded from NH admission using high or middle criteria would receive the nursing care they need in community assisted living settings. This may not be the case; the average assisted living facility (National Center for Assisted Living, 2001) does not provide the necessary 24-hour a day nursing services to treat problems such as urinary incontinence or the inability to avoid injuring oneself. Under their high or middle criteria, elders with either of these conditions would be eligible for admission into assisted-living facilities.

Using different criteria, other researchers have investigated the prevalence of NH residents requiring light-care. Krauss and Altman (1998) analyzed 1996 data from the Medical Expenditure Panel Survey to determine the frequency of ADL limitations found in NH residents. Their findings revealed that 17% of a sample of the nation's 1.6 million NH residents had three or fewer ADL limitations, and 3% had no ADL limitations. Buttar, Blaum, and Fries (2001) conducted a secondary analysis of the Resident Assessment Instrument Evaluation Study data from 1990 and 1993 (Fries et al., 1997). They classified NH residents care needs based on ADL dependency. In their sample, 25% met their criteria for low care. Unlike Spector et al. (1996), these researchers did not consider NH residents' clinical problems in their analysis of care needs.

Although initial placement decisions are important, it is also necessary to determine whether NH residents' care needs remain stable. If they do not remain stable or their care needs decline rapidly, then NH placement may be appropriate to avoid unnecessary relocations from assisted-living facilities to NHs. Spector et al. (1996) reanalyzed the care level needs of survivors from the 1987 NMES-IPC sample after 1 year and found that 58% of the elders who met the Low criteria, that is those with the fewest physical and clinical problems, continued to meet Low criteria at 1 year; compared to 78% of the Middle criteria group and 90% of the High criteria group. Buttar

et al. (2001) also analyzed the stability of their NH sample's care needs and found that 69% of NH residents who met their low criteria (i.e., would not meet the High criteria) continued to meet low criteria at 6 months. Together, these findings indicate that the majority of NH residents' care requirements remain stable over time.

These researchers based their analysis of NH resident care needs on the number of ADL limitations without consideration of the amount of assistance needed to manage the ADLs. They identified light-care NH residents whose nursing care requirements might range from minimal to heavy. For example, an NH resident who is totally dependent in an ADL has significantly greater care requirements than one who simply needs occasional assistance with ADLs. The former would likely require the level of care available in NHs while the latter would probably not. Past researchers have not identified a cohort of NH residents most suitable for assisted living; those with the fewest physical and clinical problems who require only minimal nursing and rehabilitation services.

The aim of our study was to identify the numbers and characteristics of NH residents most suitable for community options offering lower levels-of-care (light-care) such as assisted-living facilities based on the level of need for nursing and rehabilitation services. Criteria for light-care included NH residents with no clinical problems and who required only minimal assistance with the late-loss ADLs of bed mobility, transferring, toileting, and eating. Our research questions were:

1. What percent of a random sample of NH residents require only light-care?
2. What are the clinical characteristics of those NH residents requiring only light-care?
3. What is the level-of-care trajectory for newly admitted NH residents over 12-months?

METHODS

Sample

All data for this study were obtained from the Missouri electronic statewide minimum data set (MDS) resident assessment database from 1998 to 2000 (Grando, Rantz, & Petroski, 2000). The study was approved by the University Institutional Review Board. All MDS resident assessment data were collected by facility NH staff at admission, quarterly, annually, and with any significant change in the resident's status (either decline or improvement), according to state and federal

regulations. NH staff recorded the resident MDS assessment data on facility computers and electronically transmitted the data to databases at both state and federal levels. Data on all NH residents in Missouri who met the inclusion criteria were retrieved electronically from the Missouri electronic database by research staff.

Three distinct samples were used to answer the research questions. The exact number of MDS assessments in the Missouri MDS electronic database varies from day to day because additional assessments such as late entries that can be added to the system at any time. Sample 1 was drawn from the Missouri MDS electronic database from 1999 to 2000 and was based on all quarterly and full MDS assessments for those years ($N = 64,977$). It was used to track the care requirements by quarter over a 2-year period. Sample 2 was based on the most recent full MDS assessments in 2000 ($N = 56,503$). From it, we examined selected clinical characteristics of NH residents meeting the criteria for light-care ($N = 7,309$). Sample 3 was based on four consecutive MDS assessments of newly admitted NH residents admitted from 1998 to 2000 ($N = 27,751$). Three years of data were necessary to ensure an adequate number of newly admitted NH residents who remained for 12-months because the pool of newly admitted NH residents is considerably smaller than the pool of all residents in Missouri NHs at any given time, and attrition occurs over time.

Measures

The *MDS Resident Assessment Instrument* was used to assess NH residents' ADL functioning and clinical needs. The MDS (version 2) is a comprehensive, standardized, clinical assessment tool mandated for use with NH residents in Medicare and Medicaid beds (Brown, 1995). The MDS has 18 domains and 413 items and has been found to be reliable and valid (Hawes et al., 1995; Lawton et al., 1998; Won, Morris, Nonemaker, & Lipsitz, 1999). Won et al. reported that an average test-retest Kappa weight was .80 when the MDS was completed by research nurses. Hawes et al. found that interrater reliability scores ranged from .62 (vision pattern) to .92 (ADL self-performance) based on the Spearman-Brown interclass correlation coefficient. Lawton et al., reported on concurrent validity tests for the MDS using two samples of NH residents ($N = 513$). They found that the validity of selected MDS indices ranged from moderately good (ADL: $r = .58$ to $.79$ with the MDS-ADL items and the

Physical Self-Maintenance Scale) to poor (Depression: $r = .15$ to $.44$ with MDS-Depression items and the Geriatric Depression scale).

The Resource Use Groups, Version III (RUG-III) is a payment classification system based on a selected number of MDS items (Fries et al., 1994). Residents' RUG-III categories are determined by using a standard computer algorithm applied to MDS data. The RUG-III measures NH residents' resource utilization and is associated with the average staff time involved in caring for NH residents. It is used in states employing a Medicaid case-mix reimbursement system (Fries et al., 1994). The RUG-III system was developed from a sample of 7,658 NH residents in seven states and was a revision of the RUG-II classification system. Fries et al. reported that RUG-III explained 56% of the variance in total nursing and rehabilitation costs, an improvement over the 43% accounted for by RUG-II.

The RUG-III classifies residents into seven major categories based on two hierarchical typologies: (a) clinical conditions and (b) ADL dependency. One of the categories, Reduced Physical Functioning, only measures ADL dependency based on the four late-loss ADLs: bed mobility, transfer, toilet use, and eating. Fries et al. (1994) found that these four ADL variables provided a better measure of total nursing costs than any other combination of ADL variables. The other six categories measure both ADL dependency and one of the following clinical conditions: Behavior problems, impaired cognition, clinically complex, special care, extensive services, and special rehabilitation. Each of the seven major categories is subdivided into 44 sub-categories based on the residents ADL dependency, which can range from low ADL dependency to very high ADL dependency. For example, an elder with no clinical problems would be classified into one of the four Reduced Physical Functioning sub-categories and an elder with dementia would be classified into one of the four Impaired Cognition sub-categories. Table 1 outlines the definitions of the seven major RUG-III categories. The RUG-III classification system does not include categories for light, moderate, and heavy care.

Procedure

We developed three ordinal-level categories based on the seven major RUG-III categories to classify NH residents' care requirements. We used the RUG-III classification system because it is a standardized tool that measures both clinical needs

Table 1. RUG-III Major Categories and Descriptions

RUG-III categories	RUG-III category descriptions
Reduced physical functioning	A measure of late-loss ADL functioning including bed mobility, transfer, toilet use, and eating. This major category is divided into 5 sub-categories based on late-loss ADL scores ranging from 4 to 18, with 4 requiring the least assistance and 18 requiring most assistance
Behavior problems	Problems with wandering, verbal/physical abuse, delusions, hallucinations, or behavior
Impaired cognition	Cognitive impairment including problems in short-term memory, decision making, or orientation
Clinically complex	Medical or skilled nursing problems such as aphasia, UTI, dehydration, open lesions
Special care	Heavy care including serious conditions such as IV meds, quadriplegia, tube feeding, coma
Extensive care	Parental/IV, suctioning, tracheotomy care, ventilator, or respirator needs.
Special rehabilitation	Low or medium physical, occupational, or speech therapy needs

and ADL functioning needs, and was designed to be used with MDS data. The three care levels included: (a) light-care, NH residents who had no clinical problems and required minimal assistance with late-loss ADLs; (b) moderate-care, NH residents who had clinical problems and required minimal assistance with late-loss ADLs and; (c) heavy-care, NH residents with or without clinical problems who required moderate to extensive assistance with late-loss ADLs. Minimal assistance was defined as being either independent or needing supervision/limited assistance with ADLs. We developed these three levels because we wanted to study NH residents who required minimal assistance with ADLs and who did not have clinical problems that might warrant NH placement. However, we felt that it was not appropriate to label all other NH residents as heavy care. NH residents with clinical problems, but who need only minimal assistance with ADLs, have different care needs than those needing extensive assistance with ADLs.

Because our light-care criteria were based on a limited number of late-loss ADLs (bed mobility, transfer, toilet use, or eating) used in the RUG-III, we chose to examine other characteristics of light-care NH residents that might warrant NH placement. We measured, balance, mobility, locomotion, dressing, personal hygiene, oral nutritional status, hearing, vision, and communication. All of these characteristics could greatly influence an elder's ability to manage in assisted living.

RESULTS

First, we examined the prevalence of care-levels of Missouri NH residents by quarter. From 1999 to

2000 ($N = 64,977$) approximately 16% of NH residents met the criteria for light-care, 19% met the criteria for moderate-care, and 65% met the criteria for heavy-care. These percentages were very stable over the 2-year period as shown in Table 2, which presents a quarterly summary of residents by care level.

Next, we examined selected characteristics of Missouri NH residents who met the criteria for light-care in 2000 ($n = 7,309$) to determine if they had other clinical issues that might have necessitated NH placement. The sample had a mean age of 83 years ($SD = 8.9$, range 60–105), and was 71% female, 91% White, 9% African-American, and 15% married. Thirty-seven percent lived alone prior to entering the NH. The majority of light-care residents had few problems with mobility. Nonetheless, it is important to note that 38% were unable to attempt a balance test without physical support, 11% needed extensive assistance or were totally dependent while walking in their room, and 17% needed extensive assistance or were totally dependent while walking in corridors. Table 3 provides a complete summary of the percent of light-care NH residents with mobility problems. As shown in Table 4, personal-care functioning did not present significant problems for the majority of light-care NH residents, and few had problems with communication (see Table 5). However, behavioral functioning presented a different picture. As shown in Table 6, the majority of light-care NH residents had problems in this area.

Last, we examined the stability of newly admitted NH residents' care-level classifications. To accomplish this, we tracked changes quarterly in the care level status of 27,751 newly admitted NH residents admitted from 1998 to 2000 for

Table 2. Frequency Missouri NH Residents by Care-Level Group 1999 to 2000 by Quarters (N = 64,977)^a

Frequency column percent	1999				2000			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Light-care	5,877 15.54%	5,947 15.57%	6,828 16.48%	6,883 16.57%	6,844 16.29%	6,903 16.81%	6,822 16.63%	6,435 16.69%
Moderate-care	7,230 19.11%	7,226 18.92%	7,761 18.73%	7,821 18.83%	8,163 19.44%	7,836 19.03%	7,875 19.19%	7,353 19.07%
Heavy-care	24,720 65.35%	25,024 65.51%	26,837 64.78%	26,832 64.60%	26,994 64.27%	26,331 64.11%	26,337 64.18%	24,770 64.24%
Total all groups	37,827 100%	38,197 100%	41,426 100%	41,536 100%	42,001 100%	41,070 100%	41,034 100%	38,558 100%

Q1, first quarter; Q2, second quarter; Q3, third quarter; Q4, fourth quarter.

^aThe total number of MDS assessments analyzed (N = 321 649) reflects the summation of all MDS assessments completed for the 8 quarters from 1999 to 2000 and is considerable larger than the total population of NH residents during that period.

12-months. In the cohort of newly admitted NH residents, approximately 68% were women, 91% White, 8% African-American, 26% married, and the mean age was 83 years (*SD* = 7.7, range 65–109). Admission care levels were as follows: 13.7% were light-care, 25.6% were moderate-care, and 60.7% were heavy-care. Next, we examined the stability of the baseline cohort of newly admitted NH residents who met the criteria for light-care (*n* = 3,743). Of these, 76.4% were light-care at 3-months, 70.2% were light-care at 6-months, 63.3% were light-care at 9-months, and 56.2% were light-care at 12-months. Finally, we examined the percent of the surviving cohort of newly admitted NH residents at 12-months to identify how many were now light-

care. We found the percent of the survivors who were light-care was 20.94%. Of these, 667 (8.56%) had been light-care at admission, 467 (5.99%) had been moderate-care at admission, and 497 (6.38%) had been heavy-care at admission. It is noteworthy that slightly over 12% of those admitted as moderate- and heavy-care were light-care at 12-months.

The change in these numbers was due to a change in care-level status and attrition. Unfortunately, it was not possible to track newly admitted NH residents who were discharged from the NH over the course of the year. We, therefore, do not have a complete picture of the stability of our samples' care level needs over the year or whether the subjects that were lost due to attrition

Table 3. Percentage of Light-Care Residents Having Problems with Mobility (n = 7,309)

Measures of mobility functioning	Frequency of problem	Percentage with problem
Balance		
Partial physical support needed to stand during balance test	1,718	24
Not able to attempt balance test without physical help	1,037	14
Walking in room		
Supervision needed while walking in room	852	12
Limited assistance needed while walking in room	803	11
Extensive assistance needed while walking in room	103	1
Total dependence	735	10
Walking in corridor		
Supervision needed while in corridor	1,085	15
Limited assistance needed while walking in corridor	972	13
Extensive assistance needed while walking in corridor	124	2
Total dependence	1,128	15
Locomotion (ability to maneuver about in facility by any means)		
Supervision needed while maneuvering in facility	1,196	16
Limited assistance needed while maneuvering in facility	783	11
Extensive assistance needed while maneuvering in facility	147	2
Total dependence	339	5

Table 4. Percentage of Light-Care Residents Having Problems with Personal-Care Functioning (*n* = 7,309)

Measures of person care functioning	Frequency of problem	Percentage with problem
Dressing		
Supervision needed while dressing self	1,627	22
Limited assistance needed while dressing self	2,229	31
Extensive assistance needed with dressing	264	4
Performance of ADLs:		
Performs ADLs very slowly	1,328	18
Personal hygiene		
Supervision needed to perform personal hygiene	1,921	26
Limited assistance needed to perform personal hygiene	1,981	27
Extensive assistance needed while performing personal hygiene	258	4
Oral Nutritional Status		
Swallowing problems	218	3
Chewing problems	820	11
Needs mechanically altered diet	1,102	15
Contenance		
Frequently or always Incontinent bladder	574	8
Frequently or always Incontinent bowel	114	2

improved, declined, remained the same, or died. However, the ratio of each category to the others did remain the same, indicating that the loss of subjects in each category was comparable, so that the representativeness of the reduced sample was still reasonable. Figure 1 illustrates the comparability of the sample newly admitted NH residents at 3, 6, 9 and 12-months.

DISCUSSION

This exploratory study illustrates that 16% of NH residents in Missouri do not require or use the many nursing and rehabilitation services offered

Table 5. Percentage of Light-Care Residents Having Problems with Communication Functioning (*n* = 7,309)

Measures of communication functioning	Frequency	Percentage with problem
Hearing		
Impaired hearing	626	9
Vision		
Moderately impaired	321	4
Impaired	276	4
Communication		
Does not usually understand others	65	1

The table shows the percent of the light-care NH residents with the problem.

in NHs. Moreover, our findings suggest that the majority of Missouri's NH residents who met our criteria for light-care had few functional problems that required extensive daily assistance with ADLs. We also found that the majority of newly admitted light-care NH residents (56%) still met the criteria for light-care at 12-months.

However, some light-care NH residents had problems that could interfere with their ability to manage independently at home. The most clinically significant problems were with balance and mobility, which can result in increased risk of falling and difficulties ambulating in the community. As a result, these elders may refrain from social activities outside their homes such as shopping, visiting friends, or keeping medical appointments; because of difficulties ambulating and fear of falling. This can result in decreased socialization, isolation, inadequate health care, and hospitalization. Furthermore, the majority had problems with self-initiating activities, setting goals, and adjusting to change. Such problems could result in poor judgment about when it is necessary to seek medical assistance, plan daily meals, or manage medications. Ongoing problems such as these may warrant 24-hour oversight and contribute to NH placement if elders and their families do not know of other long term care options that can provide 24-hour oversight (Grando et al., 2002; Grando, Mehr, Popejoy, Maas, & Westhoff, 2000).

Elders with minimal ADL needs, but who are experiencing problems with mobility and decision making, may be candidates for assisted living that

Table 6. Percentage of Light-Care Residents Having Problems with Behavior Functioning (n = 7,309)

Measures of behavioral functioning	Frequency of problem	Percentage with problem
Behavior		
Does not establish own goals	4,729	65
Not at ease self-initiating activities	2,127	29
Does not adjust to changes	857	12
Not at ease interacting with others	675	9
No personal contact with family/friends	339	5

provides 24-hour protective oversight, medication management, and limited assistance with ADL. Policy decisions at the state and federal level may be a factor in the NH placement of these elders. In Missouri, elders who qualify for Medicaid assistance receive substantially greater financial support for NH care than for home or community care. In 2000, the average amount paid annually per Medicaid recipient was \$32,385 for NH care, \$4,639 for residential care, and \$4,194 for home/community based care (Research and Evaluation Unit, 2001). Although the Missouri Medicaid program supplemented elders' incomes to cover 100% of NH costs, it paid only about 25% of residential care costs. This low reimbursement rate may not be sufficient to help elders remain in the community.

Further, settings that provide protective oversight, such as residential care, are expensive. In 2000, the average annual cost nationwide for assisted living and residential care was \$22,500 (National Center for Assisted Living, 2001). Many elders may not be able to afford this. The median reported income for all elders was \$14,251 in

2002, with 31.5% reporting annual incomes of less than \$10,000 and 24.7% reporting an income of \$25,000 or more (Administration on Aging, 2001). Inability to afford residential care may be more of an issue for women than for men, because they have substantially lower incomes than men and are more likely to be unmarried or widowed (Administration on Aging). The median reported income nationally for women was \$11,406 in 2000, whereas men reported \$19,436 (Administration on Aging). For elders on limited incomes, Medicaid-supported NH care may be the only affordable option.

Because Medicaid does not provide for room and board, states must use creative combinations of self-pay, state funds, and federal funds to cover room and board in assisted living. Some states are currently doing this through innovative programs that are proving to be cost-effective while offering greater long-term care options. Initiatives such as Oregon's long-term care program have successfully reduced the number of elders in NHs by increasing elders' ability to remain in their homes or in assisted living (Oregon Secretary of State, 2002).

Missouri Care Options, like other similar state programs, has helped many elders remain in their communities. However, it provides limited financial support for residential care and this may be a factor in the NH placement of elders requiring light-care. Thus, Missouri may be spending over \$32,000 per year to support a light-care resident in an NH who is appropriate for residential care at a much lower cost, about \$18,000 per year. Given these economics, states that do not provide adequate financial support to make assisted living a realistic option for light-care elders need to re-evaluate their long-term care programs.

Our findings suggest a need for programs that help elders remain in their communities during transitory periods of increased care needs. Many newly admitted NH residents improved from moderate- or heavy-care to light-care by 3-months

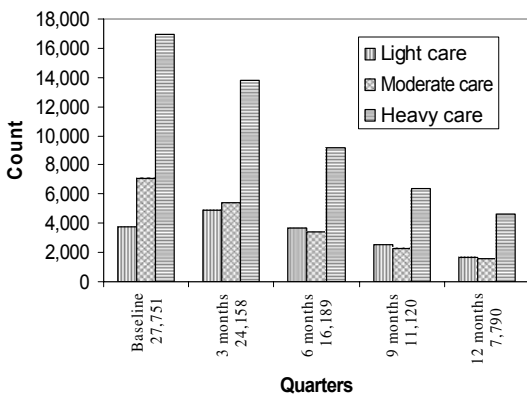


FIGURE 1. Frequency of care levels at baseline, 3-months, 6-months, 9-months, and 12-months.

and remained at this level at 1 year. This is important. Once an elder enters an NH, many forces tend to keep the elder from moving back into the community including a lack of community options, fear, and ignorance rather than health-care needs.

We focused only on Missouri NH residents in our study. Studies should be conducted in other parts of the country to determine the prevalence of NH residents with light-care needs throughout the United States. Each state sets its own NH admission criteria and these have a direct bearing on the care level of residents. Variability in the reliability of MDS items was also a problem, because it limited the number of items we could use to examine important resident characteristics. For example, we did not study the MDS depression variables because they have been reported in previous literature to have low reliability (Lawton et al., 1998).

Although the cohort of newly admitted NH residents decreased and we were unable to track residents discharged from the NH, we believe that it is clinically noteworthy that nearly 700 newly admitted NH residents remained for 12-months and could have been cared for in a community setting. Future studies are needed that can track a cohort of newly admitted residents for a year. This would provide a clearer picture of NH residents' care trajectory and could be used to verify or refute our findings.

We have built upon the findings of previous researchers by demonstrating that a significant number of NH residents require less nursing and rehabilitation services than previously identified. Our research findings and that of others point to three main directions for future research. First, research is needed to build on the existing knowledge about the reasons light-care elders enter NHs and in particular, the role of assisted-care systems in keeping the elderly in the community. Assistive-care systems help maintain frail elders in the community by involving frail elders, family members, friends, and health-care professionals in the day-to-day management of the frail elders' self-care needs (Grando, 2000). Elders in the early stages of dementia or who have undiagnosed moderate depression may be unable to manage their own needs. Qualitative studies of elders in the community and those newly admitted to NHs who meet the criteria for light-care could provide a broader understanding of the problems and issues facing elders who require light-care.

Researchers should also concentrate on finding the best long-term care fit for light-care elders while elders' health status can decline, improve, or

remain the same over time (Crimmins & Saito, 1993; Katz et al., 1983; Spector et al.). It is not known whether changes in health status are influenced by long-term-care environments. Thus, it is important to examine the outcomes of elders requiring light-care in a variety of care settings (Spector et al.).

In our study, light-care NH residents had minimal problems with ADL functioning and did not need the many nursing and rehabilitation services available in NHs, but may have needed 24-hour oversight. It is likely that they could have been cared for appropriately in alternative long-term-care community programs, such as residential care or housing with services. Given the high cost of NH services and problems with the quality of care in NHs, initiatives that promote light-care elders' ability to remain in settings best suited for their unique needs are critical. To achieve this goal, it is essential to develop innovative nursing programs, to conduct research on light-care elders' special needs, and to change government reimbursement policy at both the state and federal levels. These combined efforts will undoubtedly improve the long-term options for elders requiring light-care and help them remain in the least restrictive and least costly settings possible.

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