Trends in Residential Long-Term Care:
Use of Nursing Homes and Assisted Living and Characteristics of Facilities and Residents

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Brenda C. Spillman, Senior Research Associate
Korbin Liu, Principal Research Associate
Carey McGilliard, Research Assistant

Urban Institute
Washington, D.C.

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INTRODUCTION

Increasing numbers of older adults with disabilities are entering assisted living facilities (ALFs), which are residential settings that offer help with routine personal care activities. Estimates of the total number of persons in such settings vary widely, however, in part because there is no generally accepted definition of assisted living (Lewin-VHI 1996). In 1998, an estimated 521,500 people resided in such facilities, according to a survey sponsored by the Department of Health and Human Services (HHS) (Hawes, Rose and Phillips 1999), but other estimates are as high as 1 million persons (Lewin-VHI 1996). Because the number of older adults is growing more quickly than the supply of nursing home beds, while occupancy rates are falling (Bishop 1999, Rhoades and Krauss 1999), some researchers have suggested that disabled older persons are increasingly substituting assisted living facilities for nursing home care. Such substitution may be fostered by the positive image of assisted living facilities relative to nursing homes, the generally lower cost of these facilities, changes in the disability composition of elderly adults, and state policy changes that stimulate increases in the growth of and use of assisted living facilities.

Growth in assisted living may result, in part, from a perceived higher quality of life in assisted living facilities than in nursing homes (Kane 2001; Mitchell and Kemp 2000). Although assisted living may include "board and care," "personal care homes," and "residential care," all of which offer similar supportive services in a homelike environment (Lewin-VHI 1996), some argue that assisted living is distinguished by a philosophy that differs significantly from that of nursing homes. Most definitions from trade and advocacy associations and researchers cited in the Lewin report emphasize resident autonomy and privacy in a homelike, congregate community setting. Services typically include assistance with activities of daily living (ADLs), which include such personal care activities as bathing and dressing, but may be "unbundled"--provided by the facility or others on a fee-for-service basis, rather than included in the cost of residence. Nursing homes, on the other hand, concentrate more on medically-oriented services and disability rather than on providing a home-like living environment (Hawes, Rose, and Phillips 1999, Kane 2001).

Changing public payment policies may also be contributing to growth in assisted living. Several states provide some coverage for assisted living under programs such as Medicaid, with the aim of reducing nursing home use (Mollica 1998). An increase in these policies may increase movement towards assisted living.

The potential promise of assisted living facilities to meet the long-term care needs of increasing proportions of disabled elderly adults has led analysts to study the extent to which there is overlap between the residents of assisted living facilities and nursing homes. Most such comparisons have relied on statistics of the two populations that were derived from data sources based on sample frames specific to each type of facility, rather

than on a population-based frame. In one exception, Spector and Cohen (1996) compared the two populations using data from the 1987 National Medical Expenditure Survey (NMES), which was based on a facility frame that included both nursing homes and personal care facilities. The personal care frame was admittedly incomplete, however, because it had been constructed from state lists of licensed facilities.

In this paper, we use data from the Medicare Current Beneficiary Survey (MCBS), which represents the full Medicare population, regardless of living arrangement, to describe characteristics of elderly residents of both types of facility and the characteristics of the facilities. Our sample is limited to beneficiaries age 65 or older. We compare the characteristics of the two populations and types of facilities and explore changes in those characteristics between 1992 and 1998. Individual characteristics we examine include measures of health, activities of daily living, and age of individuals in nursing homes and assisted living facilities. We also compare the size, ownership and service package of the facilities where they live.

I. BACKGROUND

Assisted living facilities are heterogeneous in the level of service and amount of privacy they provide (Hawes, Rose, and Phillips 1999). They lie somewhere between independence at home with care from family or other caregivers and the greater dependence of a nursing home. Although the original philosophy of assisted living centers on providing a home-*like* setting for older adults with disabilities, emphasizing autonomy, privacy, and community, facilities regarding themselves as assisted living differ in the emphasis placed on these elements and in services. Most state regulations require some level of personal and medical assistance in such facilities (Mollica 1998).

To provide baseline information on assisted living facilities and their residents, Hawes, Rose and Phillips (1999) conducted a nationally representative survey of these facilities for HHS. The researchers selected residential care facilities primarily serving a frail elderly clientele that had more than 10 beds and either represented themselves as assisted living facilities or provided 24-hour staff, housekeeping, two or more meals per day, and help with at least two of the following activities: bathing, dressing, and help with medications. With these selection criteria, Hawes, Rose, and Phillips estimate that there are 11,459 assisted living facilities in the United States, with 611,300 beds (an average of 53 beds per facility) and 521,500 residents. However, they found that 59 percent of these facilities offered low to minimal privacy and service and were more consistent with "board and care," with a significant proportion of resident rooms shared and little assistance beyond medications, bathing and dressing. The remaining 41 percent, which the researchers categorized as consistent with the philosophy of assisted living, included high privacy/low service facilities (18 percent), low privacy/high service facilities (12 percent), and high privacy/high service facilities (11 percent). Nearly all assisted living facilities offered 24 hour staff, three meals a day, and housekeeping. Seventy percent of facilities have a licensed nurse on staff, either full time or part time and 40 percent have a full-time registered nurse. While prices ranged from $3,600 per year to more than $85,000 per year, the most common prices ranged from $12,000 to $24,000 per year, with lower cost facilities tending to offer fewer services and less privacy than higher cost ones. In contrast, private rates for nursing home care average between $35,000 and $50,000 depending on the level of care and type of facility (Gabrel 2000).

Focusing on the 41 percent of facilities that were high privacy or high service facilities they considered consistent with the assisted living philosophy, Hawes, Phillips, and Rose (1999) reported that 27 percent of residents had moderate or severe cognitive impairment, 79 percent were independent in all ADLs, 13 percent received help with one or two ADLs, and 8 percent received help with three to five ADLs. In contrast, only 3 percent of nursing home residents had no ADLs, 22 percent had one or two ADLs, and 75 percent had three to five ADLs (Gabrel 2000). Thus, residents of these facilities were substantially less impaired than those in nursing homes. Among the larger sample of

facilities surveyed, fewer than half would admit persons who required help to transfer in or out of bed or chair (44 percent) or who had moderate to severe cognitive impairment (47 percent), again confirming the focus on a less impaired population than nursing homes. Seventy-two percent of all surveyed facilities would not retain residents needing nursing care for two weeks or more.

Traditionally, most assisted living facility residents pay privately, mostly out of pocket, for their expenses. In recent years many states have expanded Medicaid to cover services administered in assisted living, but participation remains low, and Medicaid pays only for long-term care services. The program does not cover basic fees for living in these facilities (room and board). In 1998, 28 states covered services in assisted living or board and care settings, and nine states were considering coverage (Mollica 1998). Twenty-three of the states covering services used Medicaid Home and Community Based Service (HCBS) waivers, which are limited to persons who require a level of care that would make them eligible for Medicaid nursing home benefits, but also allow states to extend benefits to low income persons with higher incomes. Besides the requirement that HCBS waiver beneficiaries have a higher level of impairment, caps on waiver expenditures contribute to limited participation. Six states covered assisted living services under their basic Medicaid programs (Mollica 1998). In states covering services under their basic Medicaid programs, residents need not be nursing home eligible, and spending is not capped (Mollica 1998), resulting in higher participation. Nevertheless, the total number of assisted living or board and care residents receiving benefits through either HCBS waivers or the personal care benefit was only about 40,000 in early 1998 (Mollica 1998).

In contrast, Medicaid pays the full cost of nursing home care, including room and board, for residents who meet financial criteria for Medicaid eligibility. Some older adults enter nursing homes paying privately and later become eligible for Medicaid after their resources are exhausted, but most who receive Medicaid nursing home benefits are eligible at admission (Spillman and Kemper 1995). Both Medicare and Medicaid have increased in importance as payers for nursing home care over time. In 1999, Medicaid was the primary payment source for 57 percent of residents age 65 or older, 25 percent paid privately, and 15 percent were covered by Medicare (Jones 2002). Private long-term care insurance is an alternative method of payment for either assisted living or nursing home care, but only 5 to 7 percent of the elderly have long-term care insurance (Coronel 1998, American Academy of Actuaries 1999), so that nearly all private nursing home payments are out of pocket.

Little evidence exists on the substitution of assisted living facilities for nursing homes, although a primary aim of states in covering assisted living services is to reduce the use of more expensive nursing home care. Most assisted living facilities will admit and retain individuals needing assistance with fewer than three ADLs who are continent and do not need assistance transferring (Hawes, Rose, and Phillips 1999). Perhaps 20 percent of nursing home residents potentially meet these criteria. About 17 percent of nursing home

residents have fewer than three ADLs, 46.1 percent are continent, and 26.4 percent receive no assistance with transferring (Krauss and Altman 1998). Spector and Cohen (1996) estimated that about 16 percent of nursing home residents met all three of those criteria and the additional conditions of having no substantial medical needs or behavior problems (e.g. wandering) and being able to understand and communicate.

II. DATA AND METHODS

The MCBS is conducted annually for the Centers for Medicare and Medicaid Services (CMS) and collects information on a nationally representative sample of Medicare enrollees residing in the community or facilities. Thus, it provides samples of persons in nursing homes and assisted living facilities drawn from the same national cross-section, rather than from separate facility surveys. About 95 percent of the elderly are enrolled in Medicare. Our data are from the Cost and Use file, which contains reconciled information on events, charges, and payments from both survey and Medicare claims for the year.

A. Survey Structure

The MCBS is a rotating longitudinal panel survey that follows representative samples of the Medicare population over a four-year period. The annual sample is about 12,000 persons, including an over-sample of those age 85 or older (Adler 1994; Laschober and Olin 1996; CMS 2002). A supplemental sample is drawn and interviewed in each fall round (September through December) to replace respondents being retired from the sample, replenish cells depleted by refusals and death, and correct for coverage errors in the initial frame (CMS 2002). Since 1994, the supplemental sample has been representative of persons alive and eligible on January 1 of the survey year. The full sample represents all persons who were enrolled in the Medicare program during the calendar year, and weights are constructed to be used for full-year and panel estimates.

The MCBS conducts an initial interview in either the community or a facility and then follows respondents as their place of residence changes. For each year, a time line including all changes of residence is constructed for each individual. In addition to nursing homes, facility settings include other residential care facilities, such as assisted living and personal care homes. A facility questionnaire elicits information about the characteristics of each identified facility, including the type of facility. For each sample person, an initial baseline interview elicits information on demographic characteristics that are constant (e.g., gender) and the core questionnaire administered in the fall provides information on the personal characteristics that change over time (e.g., income, living arrangements, health-status and functioning).

B. Methods

For this analysis, we focused on those age 65 or older. For most of our analysis, we selected a sample age 65 or older on October 1 of each year to roughly coincide with the

fall interview in which individual characteristics are elicited for both continuing respondents and new entrants to the survey. Our selection of an October 1 cross-section was necessary so we could place individuals in a particular setting and then compare characteristics of each type of facility and their residents. Although CMS documentation indicates that cross-sectional weights yield accurate annual and round estimates, the weights are designed to replicate an "ever enrolled" during the year population. We are concerned that our selection of a cross-section on October 1 may imply that weights need to be adjusted for sample attrition, especially attrition due to deaths, in order to represent a true point in time cross-section of the Medicare population. If so, our estimates understate the Medicare population on October 1 and, because mortality is greater among the disabled and particularly among nursing home users, they also may understate nursing home and assisted living facility use on October 1. We will discuss this issue further when estimates are presented in the results section.

We analyzed MCBS data for 1992 through 1998, with a focus on making comparisons between 1992, 1996, and 1998. We chose three years to keep comparisons more manageable. As will be discussed below, changes in data collection methods that began in 1997 created some inconsistencies. For that reason, we chose 1992 and 1996 because they were the earliest and latest years in the period before the methodology changed, and 1998 as our final year. In each year, we identified all persons who resided in a facility at any point during the year from the timeline and then obtained information on facility type from the facility components of the survey. The MCBS defines a facility as having three or more beds and providing long-term care services throughout the facility or in a separate unit (CMS 2002). For each facility used, the MCBS collects basic information about the type of facility and services provided.

Beginning in 1997, the treatment of skilled nursing facility (SNF) stays was changed in a way that affects our estimates of those ever using nursing homes as well as estimates of the length of episodes of nursing home use. From 1992 through 1996, SNF stays were not identified separately on the time line. The significance is that nursing home use by those residing in the community before and after a SNF stay and interviewed in the community are not captured on the timeline. Thus, unless event-level data are analyzed, these stays are not recorded, and because there was no facility interview if the respondent was not in the facility at the time of interview, no facility characteristics were collected. The event-level data also captured only the part of the SNF stay covered by Medicare, so even on the event-level file, length of stay was underestimated. Beginning in 1997, SNF was listed as a separate category on the timeline, facility information was collected, and length of stay includes any use beyond that paid by Medicare. Because there was no obvious way to find all SNF use in the years prior to 1997, we were not able to either exclude SNF use in all years or include it. The impact is that our estimates of persons with any nursing home use prior to 1997 somewhat understate the total incidence of nursing home use and the length of episodes of care, although per-person average use also may be overstated because we are missing persons interviewed in the community who had only very short

SNF stays. This reduces the comparability of the nursing home estimates before 1996 with those in 1997 and after.

Standard errors for estimates were computed using WesVarPC, a statistical software package that accounts for survey design, and replicate weights provided on the MCBS data files. Unless otherwise noted, differences discussed in the text are significant at the 5 percent level of significance in a two-tailed test.

Characteristics of Facilities

Long-term care facility types identified in the facility data are nursing home, retirement home, domiciliary/personal care, mental health facility, institution for the mentally retarded/developmentally disabled, mental health center, life care/continuing care, assisted living facility, rehab facility, and other place. We included in our assisted living measure retirement homes, domiciliary/personal care, life care/continuing care, and assisted living facility. In each year there also were between 0.4 percent and 5 percent of facilities who responded "other place," and were allowed to specify a facility type not on the above list. From these facilities, we included as assisted living any type that included the phrases residential care, independent living, family care or adult foster care, personal care, assisted living, domiciliary care, group home, retirement home, life care, rest home, or board and care, in an effort to have a broad definition of assisted living. We did not include those in facilities for the mentally retarded or mentally ill in either our nursing home or assisted living sample. Because some assisted living facilities may not meet the facility definition (e.g., some small board and care settings or places, especially if services are obtained from outside the facility), we also classified a supplemental group of persons as assisted living who were in group settings not identified as facilities on the MCBS. We defined this supplemental "community assisted living" group as those who were living with at least two other unrelated individuals and no related individuals *and* received assistance with at least two ADLs. This group accounted for less than 0.2 percent of the population in all years and a rapidly declining share of persons identified as assisted living residents (28 percent of assisted living residents in 1992 but only 4 percent in 1998). This may reflect in part improvements in survey identification of these settings as facilities over time.[1]

For each residence identified as a facility, the MCBS collected data on various characteristics of the facility, including number of beds, ownership, and types of services provided to residents. This information was not available for our supplemental "community assisted living" sample, since they were not in identified facilities. The services we include are nursing or medical care, supervision of self-administered medications, bathing help, shopping help, eating help, help with communication, and 24-hour supervision or nursing. Facilities were asked to indicate whether they *routinely* provided the services. In 1998, a

[1] The 2000 MCBS includes a housing supplement for community residents that will identify characteristics of their housing and services received, so that better estimates of nonfacility assisted living will be possible.

separate screener interview was completed for SNFs that did not include these services. We assumed that SNFs in 1998 provided all listed services. The assumption made little difference because nearly all other nursing homes provided them.

Characteristics of Individuals

We focused on demographic characteristics and individual characteristic related to long-term care that might potentially differentiate ALF residents from nursing home residents. These included age, gender, self reported health status, as well as selected medical conditions, and disability. Again, changes in the survey after 1996 complicate comparisons of the characteristics of facility residents.

Questions about health conditions for persons receiving a community interview in all years and for those receiving facility interviews before 1997 were of the form, "Has a physician ever told you that you had (condition)." The conditions are Alzheimer's disease or other dementia, diabetes, hip fracture, emphysema/asthma/COPD, mental disorder, or stroke. Beginning in 1997, resident characteristic questions in facility interviews were redesigned to be more consistent with Minimum Data Set (MDS) resident assessments required by CMS for certified nursing facilities. Information was taken from the most recent assessment, if available, and from the time of admission if an assessment was not available. We could at least nominally match all conditions except mental disorder or stroke. For mental disorder, we combined all psychiatric conditions listed on the questionnaire (anxiety disorder, depression, manic depression, and schizophrenia), and for stroke we included cerebrovascular accident (CVA) and transient ischemic attack (TIA). Because of their chronic nature, for most of the conditions the change in reference period from "ever" to "at the most recent assessment" may not be very damaging. For some, however, such as stroke, and especially hip fracture, reference period is fundamental to comparability.

The change to MDS-like questions in facility interviews also affected disability measures. We included in our measures ADLs and instrumental activities of daily living (IADLs), which are activities such as housework, meal preparation and financial management more related to the ability to live independently than to personal care (Lawton and Brody, 1969). We considered persons dependent in ADLs or IADLs if they reported receiving personal assistance or supervision for these activities. Individuals were classified by whether they had no dependencies, one or more IADL dependencies and no ADL dependency, one or two ADL dependencies, or three or more ADL dependencies. We also created a category of "some ADL or IADL" for cases where we could determine some disability but could not determine the number of ADLs because of missing data. Five ADLs (bathing, dressing, toileting, transferring, and eating) and three IADLs (telephoning, shopping, and money management) were used in facility interviews.

Beginning in 1997, use of the MDS format in the facility interview resulted in differences in both ADL and IADL items. In the earlier years, respondents were asked whether the individual had difficulty performing each ADL "by himself/herself and without special equipment" because of health, or didn't do the activity because of health, and, if health-related difficulty was reported, whether help or supervision was received for the activity. Beginning in 1997, facility respondents were instead asked to provide levels of dependency for each activity, from independent to totally dependent or the activity didn't occur. There is no direct determination of health reasons if the activity didn't occur. For IADLs, beginning in 1997 respondents were asked whether the individual had difficulty doing each IADL without help because of health or didn't do the activity because of health, but there was no follow-up question about whether help was received. We assumed that facility residents with difficulty in self performance would receive at least some help with these activities, but this may overstate actual dependence among those with difficulty. Hawes, Rose, and Phillips (1999) characterized 59 percent of assisted living facilities as low to minimal privacy and service facilities and another 18 percent as high privacy/low service facilities. The two changes would have a tendency to increase the number of persons reported to be dependent in IADLs or ADLs, but it is not clear that the difference would be large within the population living in long-term care facilities. It seems plausible, however, that the less restrictive questions in 1997 and after would have a larger impact in assisted living than in nursing homes.

Duration of Annual Use

Because the MCBS continuously tracks the residence of sample individuals, we also were able to examine changes in episodes of residence in nursing home or ALFs. We looked at the distribution of persons in nursing homes and assisted living facilities by whether they spent the entire year in the facility, began the year but were discharged, entered and remained for the rest of the year, or entered and were discharged within the year. While use is truncated for all except the last group, if episodes within a year are becoming shorter, for example, we would expect to see a smaller proportion in a particular setting for the entire year and a larger proportion with completed use within the year. We also looked at the number of days in the year spent in each type of facility.

As noted earlier, the change in the treatment of SNF stays between 1996 and 1998 affects our nursing home estimates. Specifically, because SNF stays for those interviewed in the community are not captured in 1996 and prior, overall use is understated in those years, but average length of use per person may be overstated because we are missing persons with only a short SNF stay. Assisted living facility estimates, however, would not be affected.

III. FINDINGS

We first examine the prevalence of nursing home and assisted living over the period from 1992 to 1998 before turning to the characteristics of facilities and their residents. Finally, we examine the distribution of episodes of the two types of facility use to explore whether we can discern pointers to changes in the duration of facility use.

A. Use of Nursing Homes and Assisted Living Facilities

Focusing first on annual use of nursing homes and assisted living facilities by Medicare enrollees in the top panel of Table 1, the data show a consistent 6 percent of the population using nursing homes from 1992 through 1996, and 7.9 percent and 7.5 percent respectively in 1997 and 1998. The treatment of SNF stays that would underestimate SNF use prior to 1997 accounts for some of the 2 percentage point increase in nursing home use between 1996 and 1997. Missed SNF stays are more important toward the end of the 1992-1996 period because of the rapid growth of Medicare SNF use through the 1990s. Total discharges from nursing homes doubled between the mid-1980s and 1997 (NCHS 2001), and discharges because of recuperation and return to the community increased from 18 percent of discharges in 1985 to 30 percent of discharges in 1997 (Sahyoun, Pratt, and Lentzner 2001).

The total using either type of facility was about 7 percent in the years 1992-1996 and 9 percent in 1997 and 1998, suggesting that a stable proportion of enrollees were using some type of long-term care facility. However, the growth of assisted living may suggest some movement toward this type of facility. This is more apparent in the cross-sectional estimates in the lower panel, which are less affected by missing SNF data than the annual estimates because only SNF stays spanning October 1 would be missed. Throughout the series, about 5 percent of the enrollee population on October 1 is in some type of long-term care facility. The proportion of those in long-term care facilities who are in assisted living increases from 15 percent in 1992 to nearly a quarter in 1998. This is due both to the growth in assisted living and to an apparent decline in the proportion of enrollees residing in nursing homes. The better accounting for SNF use in the latter two years should have the impact of increasing overall nursing home use estimates, even though the impact would be smaller than for annual use. Thus, the underlying use of nursing homes for long-term care, as opposed to post-acute care, may have declined more than overall use.

However, as noted in the methods section, we are concerned that our estimates may not fully represent the cross-sectional Medicare population because they are not attrition adjusted. In fact, our October 1 estimate of Medicare enrollment is between 300,000 and nearly 700,000 below CMS enrollment estimates for July 1 (CMS 2000), depending on the

year. This may differentially affect estimates of the disabled and nursing home users because of their higher mortality rates. Because mortality is correlated with greater disability, this may also have the effect of understating disability within facilities. On the other hand, our estimate of nursing home residents age 65 or older in 1996 is 1.46 million, only slightly above the 1.43 million estimate from the 1996 Medical Expenditure Panel Survey Nursing Home Component[2] and similar to the 1997 National Nursing Home Survey estimate of 1.47 million (Gabrel 2000). Our estimates for 1997 and 1998, 1.39 and 1.35 million respectively, are well below these estimates and the 1999 National Nursing Home Survey estimate of 1.47 million (Jones 2001b). The 2000 Census shows 1.56 million persons age 65 or older in nursing homes (Hertzel and Smith 2001). This may suggest that a discontinuity in methods between 1996 and 1997 may be more important for the accuracy of our nursing home estimates than the lack of an attrition adjustment.

Some of the differences in estimates across surveys almost certainly reflect the difficulties in distinguishing one type of facility from another in survey data. Despite our less restricted criterion for assisted living, our estimate of about 417,000 persons in assisted living is also well below the 512,000 estimate of Hawes, et al. On the other hand, the 1999 National Long-Term Care Survey (NLTCS), which uses a different methodology for identifying community versus institutional settings, yields an assisted living estimate of roughly 800,000 persons either in assisted living facilities qualifying for an institutional questionnaire or in assisted living or similar settings in the community (Manton and Gu 2001).[3] More than half of those reporting they are in these settings in the community on the NLTCS report no chronic ADL or IADL disability.

B. Characteristics of Facilities

Table 2 indicates differences in the characteristics of the nursing homes and assisted living facilities used by our sample of facility residents as well as interesting trends in the characteristics of assisted living facilities. (As noted earlier, we excluded our supplemental "community assisted living" sample of disabled elderly in nonfacility group quarters because we did not have facility characteristics.)

Notably, nearly all nursing home residents were in facilities with 50 or more beds in all years. Although assisted living residents were far more likely to use smaller facilities, the percent in facilities with 50 or more beds increased markedly over the study period, from

[2] Author's tabulations.

[3] About 500,000 persons age 65 or older directly specifically report residing in assisted living on the NLTCS, and another 320,000 report retirement home, foster or family care home, group home or residential care facility (author's tabulations).

about 53 percent in 1992 and to 73 percent in 1998. (Hawes et al. estimated that two thirds of assisted living residents were in facilities with more than 50 beds in 1998.)[4]

There was little difference between nursing home and assisted living facility residents in facility ownership in 1992, with about 70 percent of residents in for-profit facilities and just under 25 percent in nonprofits. However, while the distribution of nursing home residents by facility ownership was stable, growth in assisted living appears to have been among nonprofits. By 1998, about 40 percent of assisted living residents were in nonprofit facilities and 60 percent in for-profit.

Similarly, there was little change over time in the array of services routinely available to nursing home residents but large increases in the services offered by assisted living facilities. An increased proportion of assisted living facility residents had access to all services except 24-hour supervision. There was a large increase in the percent of residents who routinely had access to nursing or medical care, and by 1998, nearly all residents had access to supervision of medications and help with bathing, shopping or correspondence, and communication. About 92 percent were in facilities routinely offering assistance with eating. Essentially, with the exception of 24-hour supervision, the assisted living service package appears to look more like those found in nursing homes by 1998. Round-the-clock supervision appears to have declined dramatically, with only about 45 percent of residents in supervised facilities.

However, the large increase in medication assistance, which also occurred in nursing homes, and supervision may be, at least in part, artifacts of changes in the questions after 1996. Prior to 1997, facilities were asked whether they routinely supervised residents who *administered their own medications*. Beginning in 1997, the question was rephrased to ask whether the facility "routinely provide(s) supervision over medications." Certainly it is reasonable to expect that nearly all nursing homes would respond yes to this less restrictive question. It is less clear that nearly all assisted living facilities (99.5 percent) would offer routine medication supervision in 1998, even though there was an increase in supervision of *self-administered* medications between 1992 and 1996. In each year, a larger percent of residents were in facilities providing medication assistance than were in facilities reporting routine nursing or medical care, which would logically be related to medication supervision. In 1998, 81.4 percent of residents were in facilities reporting routine nursing or medical care.

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[4] The exclusion of our supplemental “community assisted living sample” affects the pattern quantitatively but not qualitatively, and in fact strengthens the decline over time in the proportion of residents in small facilities. All or nearly all persons in the supplemental sample in each year were in settings with 10 or fewer unrelated persons (including the respondent) and so would fall in the category of 10 or fewer beds. Had they been included, the proportion of assisted living residents in these small facilities would have been 44 percent in 1992 but only 13 percent in 1999.

The large decline (from 96.5 percent in 1996 to about 45 percent in 1998) in the percent of assisted living residents with 24-hour supervision may reflect both a change in question wording and a change in the composition of assisted living. Prior to 1997, facilities were asked whether they provided 24-hour, 7 days per week "supervision or nursing coverage" for residents. Beginning in 1997, facilities were asked whether they provided 24-hour, 7 days per week "on-site supervision by an RN or LPN" and, if the facility had not reported providing any of the other services listed in Table 2, whether they provided 24-hour, 7 days per week "*on-site* supervision *by a caregiver*." It is possible that, prior to 1997, facilities with telephone check-in or on-call personnel were reporting 24-hour supervision. It is also possible that growth in assisted living has been among more decentralized, apartment-like settings, and that this results in more ambiguity about the nature of supervision.

C. Characteristics of Residents

Similarity or differences in characteristics of nursing home and assisted living residents can help differentiate the two groups in two ways. First, they can point to characteristics that make one setting or the other more appropriate or appealing. Second, trends over time may provide pointers to whether changes in the two groups reflect more general population changes or indicate differences in access. Two key dimensions along which residents may differ--demographic characteristics and health characteristics--are examined in Table 3.

Demographic Characteristics

There were no significant changes in the age distribution of residents in either nursing homes or assisted living, although there appears to have been a shift upward in the age of the assisted living population. In1998, about 14 percent of both assisted living and nursing home residents were under age 75 and just over half were age 85 or older. The trend in racial composition of the two populations is significant. Consistent with other evidence (Bishop 1999), nonwhites increased as a proportion of the nursing home population. However, over the same period, their representation in assisted living decreased. Nonwhites made up about 9 percent of both the assisted living and nursing home populations in 1992. By 1998, this group represented about 14 percent of the nursing home population but only about 4 percent of the assisted living population. Women, who are more likely to have long-term care needs, dominate both settings in all three years. Although those who are widowed, divorced, or separated continue to be most common in both nursing home and assisted living, married persons made up an increasing proportion of those in assisted living, rising from about 11 percent in 1992 to nearly 17 percent in 1998. The apparent increase in the proportion of nursing home users who were married was not significant. There was a significant increase in the proportion of nursing home

users who were widowed, separated, or divorced and a significant decrease in both nursing homes and assisted living in the proportion who were never married.

Assisted living residents were somewhat better off financially than nursing home residents in all years, with a smaller proportion having income below $10,000 and a larger proportion having income above $20,000. However, although those with very low incomes were dominant in both settings in all years, there was an upward shift in the income distribution in both nursing homes and assisted living. Just over half of nursing home residents in 1998 had incomes below $10,000, compared with more than two-thirds in 1992, and the proportion with income above $20,000 rose from 12 percent in 1992 to 19 percent in 1998. Those in assisted living also appear to be better off in 1998, with less than half having incomes less than $10,000,[5] compared with 55 percent in 1992. The proportion of assisted living residents with incomes above $20,000 rose from 13.6 percent in 1992 to just over a quarter in 1998.

Disability and Health

Disability and health characteristics of those in assisted living confirm other research indicating that they are generally healthier and less disabled than those in nursing homes (Spector and Cohen 1996; Hawes et al. 2000). However, we also see some evidence that assisted living facilities either are accepting less healthy residents than in the past or that their residents are "aging in place" and becoming less healthy and more disabled over time.

Our estimates of ADL and IADL disability for nursing home residents in 1998 track closely with other estimates, with about 5 percent having no ADLs, about 20 percent having 1-2 ADLs and about 75 percent having 3 or more ADLs. However, the data do not show the pattern of increasing disability among nursing home residents found in other data (Spillman 2002; Sahyoun, Pratt, and Lentzner 2001; Rhodes and Krauss 1999). Two factors may contribute to this. The first is that a larger number of disabled nursing home residents could not be classified by number of ADLs because of missing data in 1992 than in 1996 (4 percent versus 2.5 percent). The second is that missing SNF patients, which would be a larger problem in 1996 than in 1992, may distort the trend over time. That is, if the missing post-acute SNF patients have fewer ADL limitations, then the ADL disability level in 1996 may be overstated.

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[5] Hawes, Rose, and Phillips found that assisted living rates ranged from $3,600 per year to $85,000 in 1998, but only about 20 percent of all facilities had a monthly rate of less than $1,000. Several factors may explain the apparent inconsistency between these rates and the estimate that nearly half of assisted living residents on the MCBS have income less than $10,000. Most important, Hawes, Rose and Phillips' were facility-level rates rather than person-level estimates. Second, our estimates include persons in facilities with 3-10 beds, which were excluded from Hawes Rose, and Phillips, and are likely to be less expensive care settings. Finally, income data tends to be underreported on surveys.

In contrast, there is an unequivocal upward shift in functional disability among assisted living residents. The percentage with no disability or with only IADLs declined from 25 percent in 1992 to about 15 percent in 1998, while the proportion with 3 or more ADLs increased from 35 percent to more than half. As noted earlier, slightly less restrictive facility questions about ADLs and IADLs after 1996 would have the effect of increasing the proportion disabled. However, most of the increase actually occurred between 1992 and 1996. Our estimates of ADL disability are dramatically higher than those found in Hawes et al. This is probably explained in part by their examination of characteristics of a more restricted sample of "high privacy or high service" facilities, about half of which were in the high privacy, low service category. Such facilities may be more appealing and appropriate for less disabled elders.

Assisted living residents have notably better perceived health than nursing home residents in all years. In 1998, 11.5 percent of assisted living facility residents were reported to be in excellent or very good health, more than twice the proportion of nursing home residents, and only about half had fair or poor health, compared with two-thirds of those in nursing homes. Both nursing home and assisted living facility residents appear to have worse perceived health over time, but this is most marked for nursing home residents. It is possible that this reflects a selection effect, with the healthier among the population that would have entered nursing homes in the absence of alternatives selecting into assisted living. This could reduce the level of health in both settings to the extent that such selection occurs among those healthier than the average nursing home user but less healthy than the average assisted living resident.

Finally, those in assisted living appear generally to have lower prevalence of the chronic diseases we measure than those in nursing homes, although in both settings, cognitive impairment and mental disorders are the most common condition. About half of nursing home residents and a third of assisted living residents had Alzheimer's disease or other dementia in 1998, and more than a quarter of those in both settings had a mental disorder. Stroke and diabetes were the next most common conditions in both settings, affecting about 20 percent of nursing home residents and 15 percent of assisted living residents. Trends over time in both settings must be considered more tentatively, because of the changes in the reference period (from "ever had" the condition to "had the condition at last assessment") and content of questions after 1996. The clearest impact of the change in the reference period can be seen for hip fracture, which fell from more than a quarter of residents in both settings in 1996 to 5.4 percent in nursing homes and 6.8 percent in assisted living in 1998. Similarly, the prevalence of stroke in both settings fell to half the 1996 level in 1998. It is also likely that 1996 estimates of longer term conditions, such as cognitive impairment and respiratory diseases, are biased upward because of the missing SNF patients.

D. Annual Use Patterns

Table 4 shows the distribution of nursing home and assisted living residents on October 1 by annual utilization pattern and average use during the year in days for each group.

The impact of missing SNF stays occurring among community residents is evident in the nursing home use patterns. About 38 percent of nursing home residents in 1998 entered and were discharged within the year, compared with 3 to 4 percent in the previous years. Just under 40 percent were in a nursing home the entire year, compared with about 70 percent in the previous years. While discharges per bed have increased dramatically since the mid 1980s--from about 75 per bed in 1985 to 130 in 1997 (NCHS 2001)--the change observed in the MCBS data is clearly far too large to be real, and at least in part reflects missing SNF stays in the earlier years.

Assisted living residents in 1998 had significantly longer annual use than nursing home users, with only about 6 percent having entered and left assisted living within the calendar year and nearly 45 percent remaining in assisted living all year. The average length of time assisted living residents on October 1 spent in assisted living during the year was 258 days, compared with an average 183 days of nursing home use for nursing home residents. In fact, in 1998, assisted living residents with each residence pattern other than full year residence had longer use during the year than their counterparts in nursing homes.

Admissions to assisted living appear to have increased significantly in 1998. About 35 percent of assisted living residents on October 1 entered during the year and remained through the end of the year, compared with 26 percent and 22 percent in 1992 and 1996, respectively. Their 258-day average length of use during the 1998 was slightly below 280 days in the two earlier years, consistent with an increased proportion of new admissions, but there were no significant differences in mean use for those with the same residence pattern in the two prior years.

IV. DISCUSSION

The proportion of the elderly receiving long-term care in residential settings other than traditional nursing homes increased over the 1990s. Over that period, characteristics of both assisted living facilities and their residents also changed in ways that suggest residents with greater needs are being cared for in these alternative settings. Facilities became larger, with nearly three-quarters of residents living in facilities of at least 50 beds in 1998, and expansion appears to have been among nonprofits. Assisted living residents also were more likely to have a package of services at least nominally similar to that offered in nursing homes by 1998, including a large increase in routine availability of nursing or other medical care. Although assisted living residents in 1998 continued to be in better health than nursing home residents, they had worse perceived health and more disabilities than at the beginning of the decade, consistent with the idea that the service package in alternative residential settings may have increased in order to allow facilities to admit or retain higher need residents.

Our estimates also suggest the demographic makeup of the nursing home and assisted living populations has changed somewhat. Like others (Bishop 1999), we observed that blacks, long under-represented in nursing homes, recently have increased as a proportion of nursing home residents. But we also saw that the growth in the assisted living population appears to have been disproportionately among those who are *not* black. Both nursing home residents and assisted living residents in this study appear to have become better off financially over time. We were not able, however, to examine whether that also held for true long-term care residents of nursing homes, who are more likely to be Medicaid eligible. Further research should try to better understand whether demographic trends in the two populations suggest differential access and, if so, the source of those differences.

A primary motivation for state interest in alternatives to nursing home care is to reduce Medicaid spending on nursing home care. If the expansion of these alternatives to nursing home care differentially serves those with the means to pay privately for care, Medicaid programs may find that they need to pay more to assure Medicaid patients have access to residential care alternatives. Bishop (1999) notes that changes as a result of the Balanced Budget Act of 1997 are likely to reduce total reimbursements for nursing homes with similar effect. The regulatory structure and reimbursement methods and levels that states adopt for assisted living will help determine how many facilities will be willing to contract with Medicaid (Mollica 1998). In addition, however, because Medicaid pays for only services, low income individuals must have sufficient income to pay for room and board or receive other benefits to cover the difference between income and room and board costs. This may mean that alternatives to nursing home care will not be a viable financial alternative to nursing home care for many low income persons, despite the potential savings for state Medicaid programs. Hence, substitution of assisted living for

nursing home care may be more feasible for those with higher incomes than for those who are Medicaid eligible.

Finally, quality of care and the monitoring of it continue to be a thorny issue for nursing homes. States are grappling with definitions of assisted living and the extent of regulation and monitoring consistent with the idea of allowing residents to choose the degree of "managed risk" they are willing to assume to preserve privacy and autonomy in assisted living settings (Mollica 1998). Recently, press accounts have raised red flags about quality and safety oversight in assisted living, and Hawes, Phillips, and Rose (2000) found higher rates of hospitalization among assisted living residents than among the frailer nursing home population and other markers that may signal areas of concern. As newer data become available, studies should focus on better understanding the implications--both for residents and for health care costs--of risk tradeoffs implicit in assisted living and related alternatives to nursing home care.

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TABLE 1. Number of Elderly (Age 65 and Older) Medicare Enrollees by Use of Nursing Homes and Assisted Living Facilities

	1992		1993		1994		1995		1996		1997		1998	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Annual Residence Pattern	**All Persons Age 65 or Older Enrolled in Medicare During the Year**													
Ever in a nursing home	1,843,144	5.6	1,981,810	5.9	2,051,275	6.0*	1,972,879	5.8	2,003,243	5.8	2,756,261	7.9*	2,619,468	7.5*
Ever in an assisted living facility	347,127	1.0	352,254	1.0	387,972	1.1	422,137	1.2	426,015	1.2	496,019	1.4*	569,111	1.6*
Ever nursing home or assisted living	2,145,163	6.5	2,267,609	6.7	2,379,638	7.0*	2,352,805	6.9	2,360,169	6.8	3,145,392	9.0*	3,034,801	8.7*
Nursing home (no assisted living)	1,798,036	5.4	1,915,355	5.7	1,991,666	5.9*	1,930,668	5.6	1,934,154	5.6	2,649,374	7.6*	2,465,690	7.1*
Nursing home and assisted living	45,108	0.1	66,456	0.2	59,609	0.2	42,211	0.1	69,090	0.2	106,888	0.3	153,778	0.4*
Assisted living (no nursing home)	302,019	0.9	285,798	0.9	328,363	1.0	379,926	1.1*	356,926	1.0*	389,131	1.1*	415,333	1.2*
Neither nursing home nor assisted living	30,954,244	93.5	31,353,646	93.3	31,626,156	93.0*	31,895,689	93.1*	32,397,400	93.2	31,655,034	91.0*	31,857,172	91.3*
Total	33,099,407	100.0	33,621,255	100.0	34,005,794	100.0	34,248,494	100.0	34,757,568	100.0	34,800,427	100.0	34,891,973	100.0
Residence on October 1	**Persons Age 65 or Older Enrolled in Medicare on October 1**													
Nursing home	1,413,596	4.5	1,420,215	4.5	1,427,833	4.4	1,416,950	4.4	1,459,548	4.4	1,392,565	4.2	1,346,119	4.1*
Assisted living facility	266,706	0.8	263,750	0.8	276,496	0.9	317,051	1.0	302,389	0.9	356,065	1.1*	416,768	1.3*
Neither nursing home or assisted living	29,862,088	94.7	30,145,551	94.7	30,671,455	94.7	30,714,524	94.7	31,335,410	94.7	31,292,707	94.7	31,413,150	94.7
Total	31,542,391	100.0	31,829,515	100.0	32,375,783	100.0	32,448,525	100.0	33,097,347	100.0	33,041,337	100.0	33,176,038	100.0

SOURCE: Tabulations of Medicare Current Beneficiary Survey, 1992 through 1998.
* Estimate is significantly different from 1992 estimate at the 5 percent level of significance in a two-tailed test.

TABLE 2. Distribution of Residents by Characteristics of Nursing Homes and Assisted Living Facilities[1]						
	Nursing Homes			Assisted Living Facilities		
	1992	1996	1998	1992	1996	1998
Bed Size						
10 and fewer	0.1	0.3	1.6*	21.5+	13.8+	8.9*+
11 - 25	0.0	0.2*	2.3*	10.2+	13.1+	6.7+
26 - 49	3.8	3.5	4.1	15.6+	10.6+	10.6+
50 or more	95.8	95.9	92.1*	52.7+	62.5+	73.2*+
Unknown	0.3	0.0	0.0	0.0	0.0	0.5
Total	100.0	100.0	100.0	100.0	100.0	100.0
Ownership						
For profit	70.4	64.9*	70.4	72.5	65.8	59.4*+
Non-profit	22.7	27.6*	23.1	24.1	31.5+	38.0*+
Government	6.9	7.5	6.2	1.1+	2.7+	2.6+
Unknown	0.0	0.0	0.3*	2.3	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Percent Routinely Providing[2]						
Nursing or medical care	94.1	99.4*	98.4*	56.4+	69.4*+	81.4*+
Supervision of self-administered medications[3]	65.9	69.2	99.4*	78.3+	85.5+	99.5*
Bathing help	93.6	99.4*	99.7*	91.6	97.1	99.0*
Shopping or correspondence help	93.6	98.6*	99.2*	89.2	93.6+	96.7*+
Eating help	94.0	99.4*	98.0*	78.8+	82.1+	91.8*+
Communication help	93.6	99.4*	99.4*	79.4+	86.6+	94.9*+
24-hour supervision[4]	95.8	100.0*	98.4*	91.4	96.5+	44.8*+

SOURCE: Tabulations of Medicare Current Beneficiary Survey, 1992, 1996, 1998.

* Estimate is significantly different from 1992 estimate at the 5 percent level of significance in a two-tailed test.

+ Assisted living estimate is significantly different from the nursing home estimate in the same year.

1. Supplemental assisted living sample in nonfacility group settings receiving ADL help are excluded (28 percent of assisted living population in 1992, 13 percent in 1996, and 4 percent in 1998).
2. In 1998, SNFs were not asked about services provided. We assumed they offered all listed services. In most cases this made little difference, since most nursing homes offered the services.
3. In 1998, this question changed to “supervision over medication,” probably accounting for the large increase in facilities reporting this service.
4. In 1998, facilities were asked whether they provided 24-hour, 7 days per week “on-site supervision by a caregiver.” In 1992 and 1996, facilities were asked whether they provided 24-hour, 7 days per week “supervision or nursing coverage,” a less restrictive definition.

TABLE 3. Demographic and Health Characteristics of Nursing Home and Assisted Living Facility Residents						
	Nursing Homes			Assisted Living Facilities		
	1992	1996	1998	1992	1996	1998
Demographic Characteristics						
Age						
65 - 74	13.4	13.4	13.6	19.9	14.0	14.0
75 - 84	36.7	37.1	34.3	35.3	31.9	35.6
85 and older	49.9	49.6	52.1	44.8	54.1*	50.4
Total	100.0	100.0	100.0	100.0	100.0	100.0
Race						
White	91.2	89.8	86.1*	91.3	90.2	96.2*+
Non-White	8.8	10.2	13.9*	8.7	9.8	3.8*
Total	100.0	100.0	100.0	100.0	100.0	100.0
Sex						
Male	24.7	26.6	26.7	24.9	20.4	22.8
Female	75.3	73.4	73.3	75.1	79.6	77.2+
Total	100.0	100.0	100.0	100.0	100.0	100.0
Marital Status						
Married	15.4	18.0	17.6	10.7+	13.2	16.6*
Widowed/Divorced/Separated	68.9	69.0	73.2*	69.4	74.0	71.5
Never Married	14.3	11.9	8.6*	19.1	11.6*	11.9*
Unknown	1.4	1.1	0.7	0.8	1.3	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Income						
Less than $10,000	69.2	65.8	54.4*	55.4+	44.6*+	47.5+
$10,000 - $20,000	18.6	21.0	26.4*	30.9+	31.5+	27.1
More than $20,000	12.2	13.2	19.2*	13.6	23.9*+	25.5*+
Total	100.0	100.0	100.0	100.0	100.0	100.0

	Nursing Homes			Assisted Living Facilities		
	1992	1996	1998	1992	1996	1998
Disability and Health						
Functional Status						
No ADL/IADL	2.9	2.2	2.2	5.0	7.7+	3.8
1 - 2 ADLs	13.4	11.6	19.9*	38.5+	33.2+	32.5+
3 or more ADLs	77.1	81.6*	74.4	34.6+	50.7*+	52.1*+
IADL only	2.3	2.1	2.9	20.4+	7.0*+	11.1*+
Some ADL or IADL[1]	4.0	2.5	0.0	1.4+	1.5	0.0*
Unknown	0.2	0.0	0.7	0.0	0.0	0.4
Total	100.0	100.0	100.0	100.0	100.0	100.0
General Health						
Excellent or very good	10.7	8.4	5.1*	26.0+	21.4+	11.5*+
Good	33.9	33.8	26.2*	28.2	30.2	37.9*+
Fair or Poor	55.1	57.7	66.9*	45.8+	48.4+	49.6+
Unknown	0.3	0.1	1.8*	0.0	0.0	1.0*
Total	100.0	100.0	100.0	100.0	100.0	100.0
Percent with Specific Condition[2]						
Alzheimer's disease and other dementia	48.4	55.5*	46.1	28.1+	40.1*+	35.3+
Diabetes	19.8	21.3	19.7	13.3	18.8	14.9+
Hip fracture	27.0	27.3	5.4*	22.1	26.0	6.8*
Emphysema/asthma/COPD	14.5	15.7	9.6*	10.8	11.3+	8.5
Mental disorder	19.7	30.6*	28.9*	24.1	24.5	25.2
Stroke	36.3	40.3	21.5*	18.7+	31.3*+	14.9+

SOURCE: Tabulations of Medicare Current Beneficiary Survey, 1992, 1996, 1998.
* Estimate is significantly different from 1992 estimate at the 5 percent level of significance in a two-tailed test.
+ Assisted living estimate is significantly different from the nursing home estimate in the same year.
1. Data indicate at least one ADL or IADL limitation, but missing data prevents an ADL count.
2. Beginning in 1997, the MCBS facility interview questions redesigned to be more consistent with the Minimum Data Set (MDS) information CMS requires from all certified facilities. This reduces the comparability of these items over time. For example, in 1992 and 1996, respondents were asked whether the sample person ever had a hip fracture. In 1998, respondents are asked to report the existence of this condition on the date of the most recent patient assessment.

TABLE 4. Distribution and Mean Length of Residence during the Year for Residents Age 65 or Older on October 1						
	Nursing Homes			Assisted Living Facilities		
	1992	1996	1998	1992	1996	1998
Distribution (percent)						
All residents	100.0	100.0	100.0	100.0	100.0	100.0
Entered and discharged within the year	4.0	3.4	38.4*	6.0	6.0	6.3+
Resident Jan. 1 and discharged within the year	5.1	3.0*	3.8	11.7+	14.3+	14.2+
Entered during the year and remained through Dec. 31	23.0	23.6	18.0*	26.0	22.1	34.9*+
Resident throughout the year	67.9	70.0	39.7*	56.3+	57.6+	44.6*
Mean Length of Stay (days)						
All residents	302	307	183*	281+	280+	258*+
Entered and discharged within the year	73	75	21*	102	113+	112+
Resident Jan. 1 and discharged within the year	205	203	105*	214	178	199+
Entered during the year and remained through Dec. 31	173	177	146*	166	166	173+
Resident throughout the year	366	366	365	366	366	365

SOURCE: Tabulations of Medicare Current Beneficiary Survey, 1992, 1996, 1998.
* Estimate is significantly different from 1992 estimate at the 5 percent level of significance in a two-tailed test.
+ Assisted living estimate is significantly different from the nursing home estimate in the same year.