



U.S. Department of Health and Human Services
Assistant Secretary for Planning and Evaluation
Office of Disability, Aging and Long-Term Care Policy



**THE SIZE AND
CHARACTERISTICS OF THE
RESIDENTIAL CARE
POPULATION:
EVIDENCE FROM THREE NATIONAL
SURVEYS**

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Office of the Assistant Secretary for Planning and Evaluation

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THE SIZE AND CHARACTERISTICS OF THE RESIDENTIAL CARE POPULATION: Evidence from Three National Surveys

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EXECUTIVE SUMMARY

National data collections have only recently begun to respond to the need for data on growth in residential care alternatives to both traditional nursing homes and care at home for older persons with disability. This information is critical to understanding the evolving long-term care delivery system and to the ability to monitor care arrangements and quality for public policy and for consumer information.

This report is the second of two prepared as part of a project to better understand the size and characteristics of the long-term care population in all settings. The first report reviewed existing estimates of the older population in residential care, generally divided into nursing homes and alternative residential care settings. Substantial variation was found across different types of data and even across studies using the same data, and differences in estimates generally were larger for residential alternatives than for nursing homes (Spillman and Black 2005). As part of that report, we identified a set of key methodological issues contributing to observed differences in existing estimates that could be investigated using available national surveys.

They are:

- age of the population examined,
- sample representation and weighting,
- methods for assigning individuals to the “facility” or “institutional” population (and conversely, the “community” or “noninstitutional” population),
- methods of identifying nursing homes,
- methods of identifying alternative residential care settings.

We also identified three recent federally supported surveys--the 2002 Health and Retirement Survey (HRS), the 2002 Medicare Current Beneficiary Survey (MCBS) Cost and Use file, and the National Long Term Care Survey (NLTCS)--as being best suited for the purpose because of their focus on the older population and data elements that allow identification of residential care alternatives by name, services, or both. In this study, we report on our analysis of these surveys and discuss the implications of our findings for improving collection of data on residential settings.

Methods and Data

Our analytic strategy was first to identify relevant residential care samples as consistently as possible across the three surveys analyzed and then to compare the characteristics of the populations identified. We defined the following residential categories that could be measured across surveys, excluding persons living in facilities for the mentally ill or mentally retarded, rehabilitation facilities, and other facilities not identified as nursing homes or alternative residential long-term care:

- Traditional private residences.
- Nontraditional residences, including retirement or senior housing or other such community settings not meeting criteria for residential care.
- Residential care settings:
 - Nursing homes;
 - Alternative community residential care;
 - Alternative facility residential care.

We drew on existing sources of guidance, including definitions developed by the Assisted Living Workgroup (ALW) formed by the U.S. Senate Special Committee on Aging in 2001, and a survey of state licensing practices (Han, Sirrocco, and Remsburg 2003) to develop feasible criteria for defining residential care settings using data elements on the three surveys. Alternative residential care settings encompass a variety of places and care arrangements that provide both housing and services outside of a nursing facility for those who are unable or unwilling to live independently. They include such diverse settings as small foster care homes, board and care or personal care homes, congregate housing, or assisted living facilities. Hallmark services generally include assistance with instrumental activities of daily living, such as meals and housekeeping, and activities of daily living (ADLs), such as bathing and dressing.

Our aim was to identify all residential care settings, rather than a subset qualifying as assisted living, *per se*. Therefore we followed a general strategy similar to one used by Hawes et al. (1998) in an earlier project to develop a survey of assisted living, which relied on either facility self-identification or services. To identify all settings, however, we used a broader array of place types and a less restrictive set of services, constrained by the type of data available on each survey. (Detailed specifications of our constructions for each survey are in Appendix A.)

Key Findings on the Size and Characteristics of the Residential Care Population

Estimates from the three major national surveys of the older population examined are in substantial agreement that about 6.5 percent of persons age 65 or older--about 2.2 million persons--live in some type of residential care other than settings for special populations such as the mentally ill or mentally retarded. The estimates indicate that most--about 1.45 million--live in nursing homes, but more than 750,000 live in alternative residential care settings.

The three surveys also provide a consistent picture of the characteristics of the residential care population. Relative to older persons remaining in traditional private housing, the residential care population was far more likely to receive help with ADLs and to suffer from Alzheimer's disease or other dementias. Estimates from the two

surveys that include the facility or institutional population, indicate that the prevalence of disability and dementias is dramatically higher in facility residential care than in community care settings, and higher yet in nursing homes.

Persons living in residential care facilities are more likely to be over age 85, more likely to be female, and more likely to be widowed, than are persons residing in traditional housing. Residential care facilities serve a broad income range. Persons living in those facilities are more likely to have incomes below \$10,000, roughly approximating the federal poverty level for older couples. In both the MCBS and the NLTCS the proportion who are nonWhite was lower than in either traditional private housing or nursing homes.

Discussion and Conclusions

The consistency of estimates across three major national surveys, after reducing methodological differences to the extent possible, provides confidence in the existing data on the size and characteristics of the residential care population. Two different methods are used to obtain data on the characteristics of the person's residence. Individuals are asked to describe their type of residence. The responses yield a set of place types (e.g., retirement community, assisted living, etc.). The other method is to ask individuals whether or not the place they live offers specific services, usually by asking about each service on the interviewer's list of potential services. However, accurately identifying a residential care facility as the place of residence through the use of survey questions is difficult. Neither named place type, as in the NLTCS, nor services alone, as in the HRS, appears to be sufficient to draw firm conclusions about the nature of the setting.

For example, the NLTCS, allows identification only by named setting type, and makes special effort to identify "assisted living." The NLTCS reports a larger proportion of community residents in generic types of "senior" or "retirement" housing than do the other two surveys. However, no information is gathered on services available, regardless of whether the respondent uses them. Consequently, it is difficult to determine whether these generic settings meet the criteria for alternative residential care, such as those proposed by the ALW or used in state licensing.

Among the MCBS community residential care population, which we identified using a combination of named place type and services offered, only about 30 percent identified their residence by name as assisted living or any other place type clearly associated with residential care. About 8 percent of the group reporting that their residence was assisted living reported that *none* of the services included in the survey were available, and only about three-quarters reported the availability of medication supervision, considered to be a hallmark service for higher quality residential care settings.

Finally, although the estimates of the characteristics of the residential care population from the three surveys show reasonable consistency, comparisons were complicated both by differences in measurement and availability of data across community and facility settings and by small sample sizes.

If, as widely believed, the older population in alternative residential care is growing rapidly, either as a substitute for or a precursor to traditional nursing homes, it is important to have reliable national data to document both the growth and the implications for the welfare of older persons with disability. The three major surveys of the older population we examined have made a first step in that direction. In fact, such data offer the only opportunity for an integrated understanding of the entire long-term care delivery system and those who use it, rather than piecemeal examination of sometimes artificially defined segments.

Nevertheless, improvements are needed if national surveys are to support studies that improve understanding of the residential care “missing link.” This analysis indicated several key areas for improvement:

- A hybrid approach to identifying settings would seem to be ideal, in which a broad screen for nontraditional settings is applied, as in the HRS, and then information on both services available and named place type is gathered. Ideally information similar to that in the HRS and MCBS on whether services are included in housing costs or cost extra and whether services are actually used also would be collected.
- More consistency is needed across all community and facility settings in the information collected on characteristics of settings and services offered, as well as the characteristics of residents, so that analyses can identify factors associated with choice of setting, transitions between settings, and outcomes.
- Existing sources of guidance, such as those cited here, can provide a foundation for survey organizations to identify the minimal array of key setting characteristics and services needed to identify and discriminate between residential care settings.
- Although growth over time eventually will increase sample sizes, a sound methodology for oversampling the population in alternative residential care is needed if national population-based surveys are to provide the data to support reliable estimates.

INTRODUCTION AND BACKGROUND

National data collections have only recently begun to respond to the need for data on growth in residential care alternatives to both traditional nursing homes and care at home for older persons with disability. There are a number of reasons. There is as yet no agreement on the full range of names that designate such settings or the characteristics by which they may be identified. And, although a federally funded project is underway, there is at present no national sampling frame of long-term care places other than nursing homes to guide survey efforts. The Decennial Census considers many of these settings "housing units" that are to date indistinguishable in Census data from traditional private residences, and similar places may appear in either the institutional or noninstitutional population under current Census definitions. As a result, considerable uncertainty exists about the types of accommodative settings providing care to older persons and the number and characteristics of persons living in them. This information is critical to understanding the evolving long-term care delivery system and to the ability to monitor care arrangements and quality for public policy and for consumer information.

Several trends continue to fuel growth in alternative residential care settings. Nursing homes have been the most common institutional setting for persons with disability since the advent of Medicaid funding in 1965, but states increasingly are looking for alternatives to contain costs and in response to beneficiary preferences for noninstitutional care. The 1999 Olmstead Decision, which mandates that reasonable alternative accommodations be available for persons preferring noninstitutional settings, added impetus to state efforts (Fox-Grage, Folkemer, and Lewis 2003; Rosenbaum 2000). More recent federal Medicaid initiatives such as "Money Follows the Person" and "Systems Change Grants for Community Living" seek to increase noninstitutional infrastructure and incentives for persons with disability to remain in or return to the community (Crisp et al. 2003). In addition, there has been independent growth of residential care alternatives--often labeled assistive living--to serve primarily an older private pay clientele no longer able or willing to perform activities needed for independent living at home.

Simultaneously, the rate of nursing home use among the older population has leveled off or even declined slightly in some surveys even in the face of an aging population. This has led one researcher to ask, "Where are the missing elders?" (Bishop 1999). At least part of the answer lies in measurement issues in national data collections. For example, Rhoades (2000) argued that as states have added licensing categories for alternative residential care, facilities--and particularly small facilities--formerly licensed as nursing homes have not disappeared, but simply moved to new licensing categories so that they no longer appear in nursing home estimates (Rhoades 2000). Between 1977 and 1999, a stable proportion of the population in facilities identified as nursing homes by the National Nursing Home Survey (NNHS) were long stayers, but the size of nursing homes increased, along with both the age and disability level of residents and the number of short, post-acute stays (Decker 2005). These

trends may suggest that a so far poorly understood array of alternative settings may be functioning as a way station that, for some persons, delays or obviates long-term placement in nursing homes. Thus, it is imperative that national surveys develop the capacity to provide information about the new generation of care settings and their residents.

This report is the second of two prepared as part of a project to better understand the size and characteristics of the long-term care population in all settings. The first report reviewed existing estimates of the older population in residential care, generally divided into nursing homes and alternative residential care settings. Substantial variation was found across different types of data and even across studies using the same data, and differences in estimates generally were larger for residential alternatives than for nursing homes (Spillman and Black 2005). As part of that report, we identified a set of key methodological issues contributing to observed differences in existing estimates that could be investigated using available national surveys. They are:

- Age of the population examined,
- Sample representation and weighting,
- Methods for assigning individuals to the “facility” or “institutional” population (and conversely, the “community” or “noninstitutional” population),
- Methods of identifying nursing homes,
- Methods of identifying alternative residential care settings.

We also identified three recent federally supported surveys--the 2002 Health and Retirement Survey (HRS), the 2002 Medicare Current Beneficiary Survey (MCBS) Cost and Use file, and the National Long Term Care Survey (NLTCS)--as being best suited for the purpose because of their focus on the older population and data elements that allow identification of residential care alternatives by name, services available, or both. In this study, we report on our analysis of these surveys and discuss the implications of our findings for improving collection of data on residential settings.

METHODS AND DATA

In this section, we describe the methodology used to construct our estimates of the older population in alternative residential care and nursing homes. Our strategy was to identify the relevant samples as consistently as possible across the three surveys analyzed and then to compare the characteristics of the populations identified. We defined the following basic residential categories that could be measured across surveys, excluding persons living in facilities for the mentally ill or mentally retarded, rehabilitation facilities, and other facilities not identified as nursing homes or alternative residential long-term care:

- Traditional private residences.
- Nontraditional residences, including retirement or senior housing or other such community settings not meeting criteria for residential care.
- Residential care settings:
 - Nursing homes;
 - Alternative community residential care;
 - Alternative facility residential care.

We first describe the three surveys analyzed and then describe our methodology for identifying residential setting and for measuring population characteristics as consistently as possible across the three surveys. Survey characteristics relevant to identifying residential setting are summarized in Table 1.

Health and Retirement Survey (HRS)

The 2002 HRS is a household survey representing only the community, or noninstitutional, population ages 51 or older, based on Census definitions of the noninstitutional population. The HRS originated as a survey of community residents age 51-61 in 1992, and the companion Assets and Health of the Oldest Old (AHEAD) survey began in 1993 with a sample of community residing persons age 70 or older. In 1998, the two surveys merged and expanded to represent the noninstitutional population ages 51 or older. The survey is repeated every two years and employs a dual frame sample consisting of an area probability sample and a supplementary probability sample of persons age 80 or older drawn from Medicare enrollment files. Weights adjust for complex sample design and are post-stratified using population control totals for the noninstitutional population from the Current Population Survey March Supplement.

Individuals originally sampled in the community are followed if they are institutionalized, but have a zero cross-sectional weight for any wave in which they are

in an institution as defined by the survey. We construct estimates only for the noninstitutional cross-section in 2002. The excluded institutional population includes persons in nursing homes or other facilities, which the HRS defines as places that dispense medication and provide 24-hour nursing assistance and supervision, personal assistance, and room and meals.

The HRS methodology for identifying persons in noninstitutional residential care is distinct from methods used in the other two surveys in that the HRS does not use a list of place names or types associated with alternative residential care. Rather, it screens respondents broadly for residence in a retirement community, senior housing, or other housing providing services. All respondents reporting that they live in any of these generic residence types are asked whether specified services are available, whether they are included in housing costs, whether the respondent actually uses the services, and whether the respondent could remain in the residence if they needed “substantial care.” Included services are group meals; housekeeping; transportation; help with bathing, dressing, or eating; emergency call button or checks on residents; and nursing or a special resident facility for those who need nursing care.

Medicare Current Beneficiary Survey (MCBS)

The MCBS is a probability sample drawn from all Medicare beneficiaries, regardless of their place of residence and thus includes both the noninstitutional and institutional populations. The survey began in 1992 and is conducted annually. Participants are interviewed over a four-year period. The annual sample includes an over-sample of persons age 85 or older (Adler 1994; Laschober and Olin 1996; Liu and Sharma 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 (Liu and Sharma 2002). Since 1994, the supplemental sample has been representative of persons alive and eligible on January 1 of the survey year.

Two files are released each year. The first released is the Access to Care file, which represents only persons continuously enrolled in Medicare during the year, and the second is the Cost and Use file, which represents all persons ever enrolled in Medicare during the year, including persons who die or enroll during the year. The Cost and Use file also includes a residential timeline identifying where sample members were living at each point during the calendar year. In this study we use the 2002 Cost and Use file, which contains information on about 13,000 enrollees.¹ Sample weights are based on Medicare enrollment data.

Respondents are interviewed wherever they are on the interview date, using either a community or a facility questionnaire, depending on whether the respondent is in a

¹ We originally intended to provide estimates from both the Access to Care and Cost and Use files, but found that estimates were very similar, and the Cost and Use file provides the ability to approximate a cross-section of enrollees more comparable to samples in the other surveys.

facility as identified by MCBS criteria. They are followed as they make residential changes. Through 2000, the MCBS collected information on residential care only in long-term care “facilities,” which the MCBS defines more broadly than either of the other two surveys, as places offering long-term care services or supervision, as well as places offering nursing care and other licensed facilities. Specifically, the MCBS defines a facility as a place with three or more beds and

- Medicare or Medicaid certified or state licensed as a nursing home or other long term care facility, *or*
- providing supervision of medications or help with activities of daily living (ADLs) or instrumental activities of daily living (IADLs), *or*
- providing 24-hour caregiver supervision.

Facility type, including nursing home, assisted living, and various other types of residential care, is determined from the facility’s self-designation in a facility screening questionnaire. The facility respondent also is asked whether the facility provides medication supervision or help with bathing, dressing, shopping, walking, eating, or communication.

Since 2001, the survey also has collected information about residential setting from all persons in the community. Respondents are asked whether their residence is in a retirement community, senior citizens housing, assisted living facility, continuing care retirement community (CCRC), staged living community, retirement apartments, or a personal or residential care home and can specify another type. Community residents reporting any such special setting are asked whether services are available, whether services cost extra, and whether they would have to move out or to another part of the community if they needed “substantial care.” Specific service questions for community respondents are more limited than in the HRS/AHEAD. An important distinction is that the MCBS services include no ADL items, presumably because places identified as providing these services would be classified as facilities on the MCBS. On its face, this would imply that the HRS residential care population would include an unknown proportion of persons who would be appear in the MCBS facility, rather than community, population. MCBS community service questions ask about the availability of assistance with meals, housekeeping, transportation, medication assistance, and recreational activities.

National Long Term Care Survey (NLTCS)

The NLTCS is a national sample of Medicare beneficiaries aged 65 or older weighted to represent the complete elderly population using Census data on the noninstitutional and institutional populations. It is designed to identify persons who are chronically disabled in a screening interview, and then to collect detailed data on a wide range of characteristics. When the survey began in 1982, only community residents who had “screened in” as disabled were eligible to receive a detailed interview. The survey was repeated in 1984 and 1989, adding detailed interviews of residents of

“institutions” as defined by NLTCS. In 1994 and 1999, samples of nondisabled community residents also received the detailed interview, so that complete information is available in those two years for the full Medicare population age 65 or older in all settings.

The samples are drawn from Medicare enrollment files and refreshed in each wave with a new sample of persons who turned 65 since the previous survey, so that both longitudinal and cross-sectional estimates can be made. In 1994 and 1999, supplemental samples of persons aged 95 or older were added to increase precision of estimates for the very old. The 1999 sample, including all persons screened for the survey, is about 17,000, about 6,000 of whom were eligible for and responded to the detailed interview.

Information on residential setting is elicited on an instrument called the Control Card. This instrument is administered just prior to the detailed interview and determines whether an individual receives a community or institutional interview. In 1999 “assisted living” was added as a separate residential category on the Control Card. Historically, an institution in the NLTCS has been any institutional setting as defined by the Decennial Census or any other setting with three or more unrelated residents, provided that a health professional of some type is on duty every day. When the assisted living category was added in 1999, persons identified as being in assisted living were asked whether their residence provided a list of services *to the sampled person* rather than whether services are offered, as in the HRS and MCBS. The services are meals, housekeeping, eating assistance, mobility assistance, and “substantial nursing of any kind.” The screen for institutional residence among person identified as being in assisted living is that they report receiving substantial nursing. All others in assisted living receive the community interview. In the institutional interview, facilities identify themselves by named type only. No information on services provided is collected from facilities.

Respondents to the community interview are also asked whether their residence is in a building or community for older or disabled persons or is another type of residential care setting, including retirement home, boarding home, group home or community residential facility. No information about services is collected from additional community respondents who identify their residence as any of these types but were not identified as being in assisted living on the Control Card.

Sample Representation and Weighting

For all three surveys we started by selecting samples of persons age 65 or older. We also made further adjustments to the sample and weights for the MCBS and to weights for the NLTCS to improve comparability.

The MCBS Cost and Use file is designed to represent all persons ever enrolled in Medicare during the year, whereas the HRS and the NLTCS are designed to represent

cross-sections. To approximate a cross-section using the MCBS data, we selected persons alive and enrolled on September 1 and used the residential timeline to identify place of residence on that date, so that our approximated cross-section and associated residential information is for a date near the data of the fall interview in which health characteristics are collected. Because this sample somewhat under-represents a cross-section of enrollees that could be drawn on September 1, we obtained control totals for Medicare enrollees by age and adjusted sample weights to those totals.² We did not attempt to adjust the weights to the full elderly population including the 3-5 percent of the older population not enrolled in Medicare.

Although the NLTCS is drawn from Medicare enrollment files and represents the Medicare population age 65 or older, survey weights historically have been constructed to represent the full elderly population, using control totals for the noninstitutional and institutional populations from Census population projections. A different methodology was used in 1999, in which only the community sample was post-stratified to these external control totals. Estimates of the nursing home population using the survey provided weights are far below estimates from other sources, such as the NNHS produced by the National Center for Health Statistics (Spillman and Black 2005). To improve comparability with the HRS and MCBS, we post-stratified the survey weights so that both the community and institutional samples were consistent with appropriate Census population estimates (Spillman 2004). Because the residential setting information is provided only for persons selected for detailed interview--including the subset reporting no disability--we further adjusted the weights so that the sample receiving a detailed interview represents the total population age 65 or older.

We made no adjustment to the weights provided with the HRS, which are post-stratified to totals from the March Current Population Survey. However, we wanted to compare the implied size of the excluded institutional population for comparison with the facility and institutional populations defined on the MCBS and NLTCS, respectively. In order to estimate the excluded population, we constructed a denominator representing the resident population age 65 or older. The difference between this denominator and the noninstitutional population estimate from the HRS weights for persons age 65 or older is our estimate of the excluded institutional population.³

² Frank Eppig, of the Center for Medicare and Medicaid Services' Office of Research, Development, and Information suggested this approach for approximating a cross-section of enrollees and provided the enrollment control totals.

³ To construct this denominator, we examined Census estimates of the noninstitutional population and found that the sum of the HRS weights for persons age 65 or older most closely matched the noninstitutional population estimate for April 1, 2003 (found at http://www.census.gov/popest/national/asrh/2003_nat_ni.html). Because Census resident population estimates were available only for July 1, we calculated the average monthly change between estimates for July 1, 2002, and July 1, 2003 (found at <http://www.census.gov/popest/national/asrh/NC-EST2003-as.html>), and increased the July 1, 2002 resident population to reflect the 9 months between July 1, 2002, and April 1, 2003.

Identification of Residential Care

Our ability to identify settings is, of course, limited by the data available on each survey. We drew on existing sources of guidance to develop feasible criteria using data elements on the three surveys. Alternative residential care settings encompass a variety of places and care arrangements that provide both housing and services outside of a nursing facility for those who are unable or unwilling to live independently. They include such diverse settings as small foster care homes, board and care or personal care homes, congregate housing, or assisted living facilities. Hallmark services generally include assistance with IADLs, such as meals and housekeeping, and ADLs, such as bathing and dressing.

Although “assisted living” appears to have replaced older designations, such as board and care, as the generic name for alternative residential care, some argue that the name should be reserved for settings adhering to a specific model. In 2001, the U.S. Senate Special Committee on Aging formed the Assisted Living Workgroup (ALW), to consider specific criteria for facilities representing this model. The ALW definition was settings that provide 24-hour supervision, provision and oversight of personal and supportive services, health related services, social services, recreational activities, meals, housekeeping and laundry, and transportation services (Han, Sirrocco, and Remsburg 2003).

The only survey to date focusing solely on alternative residential care (Hawes, Rose, and Phillips 1999) used a combination of facility self-designation or services offered to identify eligible facilities. Specifically, the survey included facilities that *either* identified themselves by name as assisted living *or* offered 24-hour oversight, housekeeping, at least two meals per day, and help with at least two activities, such as medications, bathing, or dressing. Evidence from a survey of state licensing practices suggests, however, that neither name nor service package is necessarily a reliable way to identify either assisted living specifically or other alternative residential care settings. The Inventory of Long-Term Care Residential Places project, funded jointly by several federal agencies in an effort to build a comprehensive provider frame, used state regulations to develop a typology of names and characteristics of licensed residential settings that house older adults (Han, Sirrocco, and Remsburg 2003). They found that in 22 states, small boarding homes would be included in the same licensing category as places offering the range of services, privacy, and autonomy associated with assisted living by the ALW. Further, although 42 states licensed facilities meeting the assisted living criteria, only about half of the 42 states actually used the term assisted living.

Our aim is to identify all residential care settings, rather than a subset qualifying as assisted living, *per se*. Therefore we followed a general hybrid strategy similar to Hawes’ reliance on either facility self-identification or services, but used a broader set of place types and a less restrictive set of services, constrained by the type of data available on each survey. (Detailed specifications of our constructions for each survey are in the Technical Appendix.)

HRS Community Residential Care

For the HRS/AHEAD, we relied entirely on information about services offered because only generic place types are identified. We included in our residential care population all persons who reported that their residence offered assistance with ADLs (bathing, dressing, or eating), or who reported that their residence did not offer ADL assistance but offered either oversight (an emergency call button or checks on residents) or nursing, housekeeping, and group meals. Persons living in these generically identified places but not reporting this combination of services were considered to be in other nontraditional settings. The remainder of the sample was considered to be in traditional private residences.

MCBS Community and Facility Settings

For the MCBS, where information about both setting name and services is available, we first included all places with any place type associated with alternative residential care and then considered services in identifying additional, more ambiguously named community settings as residential care. In the 2002 MCBS, assisted living was the only explicit residential care type actually occurring in the community data. In addition, we included as being in community residential care persons who identified a more ambiguous residence type (i.e., retirement community, senior citizens housing, CCRC, staged living community, and retirement apartments) but reported that the place offered meals, housekeeping or laundry, and medication assistance. All settings identified as facilities on the MCBS met at least one of the criteria for residential care by definition.

We included as nursing homes all facilities self-identified as nursing homes, and a few additional facilities with names otherwise associated with alternative residential care (i.e., CCRC, retirement community, or assisted living facility) but reporting that all beds were certified for Medicaid or Medicare. Alternative facility residential care included residents in all other places identified as CCRCs, retirement communities, assisted living facilities, board and care homes, domiciliary homes, personal care homes, rest or retirement homes, or adult group homes and not reporting that all beds were certified.

NLTCS Community and Institutional Settings

For the NLTCS, because no information was collected on services *offered*, and services received were reported only by the subset identified on the Control Card as being in an assisted living community, we used only named type of setting to identify residential care, using a combination of information from the Control Card and the community and institutional interviews (see Appendix A for details). Bed totals and number of certified and uncertified beds could not be reconciled for facilities in the NLTCS institutional sample. We therefore did not use certification in identifying *whether* a setting was a nursing home, but rather only to identify the subset of nursing homes reporting any certified beds.

Other Key Variables

To compare characteristics of residents across settings we selected health and demographic characteristics that could be measured relatively comparably across surveys. Health characteristics are disability, measured by the number of IADLs and ADLs, self-reported health status, and self-reported or facility reported health conditions or events associated with disability. Demographic characteristics are age, gender, race, marital status, and income.

In this section, we focus on clarifying construction of measures where we had to make analytic decisions about measurement. Given different question wording and content even for these characteristics, we still would expect to observe differences in measures across the three surveys. We would also expect, however, that health and other characteristics would vary in similar ways across settings. For example, we generally would expect movement from the least to the most health care oriented setting to be associated with greater proportions of residents with disability or poor health on each survey.

Disability Measures

Differences in the way surveys measure disability sometimes results in large differences in estimates (Freedman et al. 2005; Wiener et al. 1990). To make measures as comparable as possible, we settled on receiving active help (excluding supervision or “standby help”) with ADLs or IADLs because of health or disability as the measure we could operationalize in all three surveys. We included only the disability items that were available on all three surveys. The included ADLs for the community population are bathing, dressing, transferring (to or from bed or chair), getting around inside or walking, toileting, and eating. Only the NLTCS ties help to a reference period, asking if help was received with each ADL in the last week. The common IADLs across the three surveys are preparing meals, shopping, telephoning, and managing money. Because neither the HRS/AHEAD nor the MCBS asks about the duration of the difficulty or help, we do not consider duration in our estimates, although it is typical to do so in the NLTCS because the NLTCS screening instrument considers duration.

The same six ADLs are collected for the facility population on the MCBS and the institutional population on the NLTCS and are included in our estimates. We also included three IADLs (telephoning, shopping for personal items, money management) collected on the MCBS facility questionnaire. No IADL information is collected for the institutional population on the NLTCS.

Remaining differences that may affect our estimates primarily relate to screening. The HRS/AHEAD asks about help with each ADL only if a respondent has reported both physical limitation (e.g., difficulty walking short distances or climbing stairs) and difficulty with the specific ADL item. The MCBS does not screen on physical limitations but does limit questions about active help with each ADL to persons who have reported difficulty

performing the activity. Both surveys limit IADL questions to persons reporting difficulty.⁴ The 1999 NLTCS has no universal screen for difficulty. Rather the survey screened only the minority of respondents who were newly selected for the sample or were continuing sample members who had not previously been selected for the detailed interview. The screen asks if the respondent has “problems” performing ADLs or inability to perform IADLs and whether the problems or inability have lasted or are expected to last at least 3 months. NLTCS estimates of IADL help are limited to persons who report that help is received with included IADLs because of health or disability, with the exception of help taking medicine, which has no such qualifier.

Health Conditions

We selected as disability-related conditions cognitive difficulties, diabetes, hip fracture, chronic lung disease, and stroke. These conditions are measured for community residents on all three surveys, but for all settings only on the MCBS. We also included mental disorders for the HRS and MCBS. Mental illness is not included as a condition on the NLTCS. For community residents, both the HRS and the MCBS ask whether a doctor has said the person has the included conditions. The NLTCS asks only if the sampled person currently has diabetes or cognitive problems, and whether the sampled person had lung disease, a broken hip, or stroke in the previous 12 months. The MCBS facility questionnaire uses information from Minimum Data Set assessments.

The content of the measures we were able to construct for specific conditions also differs across surveys. For cognitive problems, the HRS and MCBS ask about Alzheimer’s disease or other dementia. For the NLTCS we combined individual questions about Alzheimer’s disease and senility. Mental disorders are measured on the HRS as “emotional, nervous, or psychiatric problems” and on the MCBS community interview as “a mental or psychiatric disorder, including depression.” Our mental disorders measure for the MCBS facility population includes anxiety disorder, depression, bipolar disease, and schizophrenia. Chronic lung disease is also measured differently on the three surveys. The HRS asks about “chronic lung disease, such as chronic bronchitis or emphysema,” specifically excluding asthma in interviewer instructions. The MCBS community interview asks a question combining emphysema, asthma, or chronic obstructive pulmonary disease (COPD). For the MCBS facility interview we combined separate questions about asthma and emphysema or COPD. The NLTCS asks separately about emphysema, asthma, and bronchitis in the last 12 months. We included only emphysema and asthma in our NLTCS chronic lung disease measure because bronchitis may not be chronic. About one-third of persons reporting bronchitis also reported one or the other of the chronic lung problems we included.

⁴ An additional IADL, help with housework, also appears on all three surveys, but was not included in our disability measure because the HRS item refers to help with housework or yard work and, unlike the remaining IADL items, is not conditioned on difficulty or otherwise linked with need for help.

Income

Income presented the greatest problems of comparability. Continuous income data is reported on the MCBS and HRS for individuals or individual and spouse, if married. The MCBS income variable is edited using information from other rounds if missing or imputed and had no missing values. For the HRS, we used the imputed total income variable from a file produced by the RAND Corporation (St. Clair et al. 2005).

The NLTCS income measures are categorical, measuring categorical income in the last *year* for the sampled person or sampled person and spouse for community respondents and categorical income in the last *month* for person or person and spouse for institutional respondents. We used a hot deck procedure to impute categorical income for 28.5 percent of community residents and 30.3 percent of institutional residents missing the information (Iannachone 1982).⁵

To construct relatively comparable estimates across surveys, we created annual income categories of less than \$10,000, which loosely corresponds to the federal poverty level for persons and couples age 65 or older, \$10,000 to less than \$20,000, \$20,000-\$40,000, and \$40,000 or more, which could be measured for the HRS, MCBS, and the NLTCS community population. We constructed roughly corresponding categories from the monthly categorical income data for the NLTCS institutional population (less than \$10,788, \$10,788 to less than \$17,988, \$17,988-\$41,988, and \$41,988 or more).

⁵ For the community sample we used marital status, age, gender, education, and race as classification variables, collapsing when necessary because of small cells. For about 12 percent of the community sample, we were also able to use information on broad income categories collected through “unfolding” questions designed to bracket missing values. For the institutional sample, where sample sizes were smaller, we used whether Medicaid was reported as a payment source, marital status, and age as classification variables.

SIZE OF THE RESIDENTIAL CARE POPULATION

The three surveys yield remarkably similar estimates of the distribution of the population age 65 or older by residential setting, considering differences in methodology (Table 2). Remaining differences appear to trace primarily to the different ways the samples are sorted into noninstitutional and institutional or community and facility settings.

Looking across all three surveys, about 95 percent of the older population lives outside of explicitly institutional settings (top panel of Table 2). The HRS and the NLTCS, both of which rely more closely than the MCBS on Census definitions of the institutional population, yield similar estimates of the total institutional population in all settings--about 1.6 million persons or just under 5 percent of the older population. The larger MCBS estimate of nearly 2 million persons, or 5.7 percent of the population, in facilities is consistent with the broader definition of the "facility" population used in that survey.

The middle panel of Table 2 focuses on traditional private housing and all other types of settings. Here again, the three surveys provide reasonably similar estimates of persons in traditional residences, excluding all types of retirement, group or facility settings, ranging from the NLTCS estimate of 85.6 percent of the older population to the MCBS estimate of 88.8 percent. A larger proportion of NLTCS respondents (8 percent) report that they live in some type of community retirement setting that is not identified as residential care, with the majority reporting that their residence was in a building or community for older, retired, or disabled persons. With no information on either services or place type for this group, there is no way to refine this category. The MCBS estimate of persons in these nontraditional settings may be lower in part because the survey uses a list of place types to identify these settings, rather than more general language, such as that used on the HRS and the NLTCS.

In fact, excluding the tiny proportion of the population in settings for special populations such as the mentally retarded, our MCBS and NLTCS estimates of the total residential care population are nearly identical--2.2 million persons, or about 6.5 percent of the older population. (The HRS, of course, cannot measure the entire residential care population because of its noninstitutional sample.) The numerical similarity of the MCBS Medicare enrollee population estimates for 2002 to the 1999 estimates from the NLTCS may be explained by the roughly 3-5 percent of the older population not enrolled in Medicare. There is no *a priori* reason to believe that this "missing" population in the MCBS estimates is large enough or different enough in characteristics to affect the distribution of the population by setting.

Population by Type of Residential Care

Finally, considering how the residential care population is distributed across settings as defined by our criteria (last panel of Table 2), estimates from both the NLTCS and the MCBS indicate that 1.45 million persons, or about 4.2 percent of the older population, reside in nursing homes, about 1.3 million of them in facilities with beds certified by either Medicare or Medicaid. Both estimates are below, but reasonably similar to estimates of 1.47 million nursing home residents age 65 or older and 1.44 million in certified facilities from the 1999 NNHS (Spillman and Black 2005).

The MCBS and NLTCS estimates of the total population in alternative residential long-term care also are very similar, at 2.2-2.3 percent of the older population. They differ, however, in the proportions in “community” and “facility” settings. The MCBS alternative residential care population is about evenly divided between community (1.1 percent) and facility settings (1.2 percent), as defined by the survey. The NLTCS estimate of “community” residential care is higher, about 1.7 percent, and its “institutional” residential care estimate of 0.5 percent is correspondingly, perhaps owing to the more restrictive NLTCS requirement that “institutional” settings have a health professional on duty daily or provide substantial nursing to respondents in settings identified as assisted living. It seems reasonable to assume that some NLTCS community residents would be considered facility residents by MCBS definitions.

The HRS “community” residential care estimate is larger--nearly 2 percent of the older population--approaching the MCBS and NLTCS estimates for community and facility residential care combined. The larger HRS estimate also presumably includes some persons who would be considered facility residents under the broader MCBS facility definition, including all places that have at least three residents and offer ADL or IADL assistance or supervision. It also may be that some proportion of the larger NLTCS population in nontraditional settings would have been classified as residential care under our criteria if information on services similar to that in the HRS had been available on the NLTCS.

Services in Residential Care and Other Nontraditional Settings

Table 3 compares information on available services reported on the HRS and MCBS by persons we classified as being in residential care with available services reported by persons who reported living in a more ambiguous retirement setting but did not report a combination of services consistent with residential care. We also discuss in this section but do not report in Table 3 services provided to the subset of NLTCS respondents in residential care who received service questions.

Considering the HRS first, because we defined community residential care settings in part by the availability of ADL help, no respondents in nontraditional housing but about 62 percent of persons living in community residential care reported the availability of help with bathing, dressing or eating. About 96 percent of persons in

settings we identified as residential care reported availability of group meals and housekeeping. More than 90 percent reported that their residence provided an emergency call button or checked on residents, and a majority (56.1 percent) reported availability of nursing care or an onsite nurse. About half reported their residence would allow them to remain if they needed more care.

In contrast, of HRS respondents living in other nontraditional settings, about 60 percent reported none of the services (not shown), 27.3 percent had an emergency call button or oversight, 16.3 percent had access to group meals, only 4.1 percent had access to housekeeping, and 7.2 percent reported nursing or a nurse on site. Nearly three-quarters reported that they would be allowed to stay in their residence if they needed more care.

For the MCBS, only a little over 30 percent of our residential care population identified their residence as assisted living, which was the only explicit residential care category appearing in the data. The remaining almost 70 percent identified their residence ambiguously (e.g. retirement community, senior citizen housing), but met our criteria that prepared meals, housekeeping or laundry, and supervision of medications were available. Thus, it is not surprising that most of our MCBS residential care population reported the availability of meals (96.9 percent), housekeeping (96.1 percent), and medication supervision (92.6 percent). It is worth emphasizing, however, that even though we used service criteria to identify residential care that were less restrictive than the criteria proposed by the ALW to identify assisted living, *all* persons in our residential care population who did not report availability of the identifying services had characterized their residence as assisted living. Of these, about 8 percent reported no services, and nearly one-quarter reported no supervision of medications (not shown). As on the HRS, about half (47.1 percent) of our MCBS residential care population reported that they could remain if they needed “a much greater” level of care.

Only about 42 percent of MCBS respondents in nontraditional housing reported the availability of *any* services (not shown), the most common being prepared meals (19.5 percent). Only 2.6 percent reported medication supervision. Less than half of this group were asked whether they would be allowed to remain if needs increased, primarily persons who had reported the availability of at least one service. Of persons receiving the question, 51.6 percent reported that they could remain, similar to the proportion than for our MCBS residential care population.

Service responses are not reported in Table 3 for the NLTCS because the questions are asked only of the 58 percent of our NLTCS residential care sample who were identified on the control card as being in assisted living and refer to whether services actually are provided *to the sampled person* rather than whether they are available or offered. Despite the identification of their residence specifically as *assisted living* 12.6 percent of community respondents who received the questions reported receiving none of the listed services, and most of the remainder reported receiving only meals, housekeeping, or both. Only 6.3 percent reported receiving help with eating, and 12.1 percent reported help with mobility, the two ADLs included in the NLTCS

service list. In contrast, all persons in the NLTCS facility residential care population who were identified as being in *assisted living* and received the service questions, reported that their facility provided receiving meals and housekeeping to them. Two-thirds reported that they received mobility help from their facility, and 58.1 percent reported receiving help with eating.

CHARACTERISTICS OF THE RESIDENTIAL CARE POPULATION

Using available data to construct estimates of the residential care population that are as comparable as possible supports similar conclusions about the size of this population across the three surveys, despite important differences in survey methodology. In this section, we compare health and other characteristics of the population across settings to examine the characteristics associated with each setting, but also to examine whether the criteria used to identify residential care appear to be capturing similar populations. Because of remaining differences in measures of characteristics, we are less concerned with differences in the characteristics across the surveys than with whether characteristics change in similar and expected ways when moving from one residential situation to another.

An issue we highlight is that, like the population estimates, comparisons of the characteristics of subpopulations across the surveys are complicated not only by differences in the way characteristics are measured, but also by differences in the way the surveys define the community and facility populations. To make distinctions as clear as possible, we use the population in traditional private residences as the base and compare their characteristics with those of persons in “community” residential care, “facility” residential care, combined community and facility alternative residential care, and nursing homes.

Because of the differences in how surveys define “facility” residential care, the combined population may provide a more reliable picture of alternative residential care in cases where similar measures are available for both community and facility populations. Combining the samples also provides greater sample size and more precision. As will be seen, although most estimates meet a reasonable standard for precision, in some cases small alternative residential care sample sizes result in imprecise estimates.⁶ Unweighted residential care sample sizes range from 111 (NLTCS facility residential care) to 228 (NLTCS community residential care). (See Appendix for details.)

Health Characteristics

All three surveys indicate the expected increase in the prevalence of disability and poorer health moving from traditional private housing to residential care to nursing homes (Table 4). The pattern is clearest for disability in IADLs and ADLs, general health, Alzheimer’s disease and other dementias, mental disorders, and recent stroke. Patterns are mixed for other conditions. The lack of information about IADLs and about

⁶ Estimates with a relative standard error (the ratio of the standard error to its associated estimate) of 30 percent or greater are indicated in the tables by the “#” sign.

conditions other than Alzheimer's or other dementia for NLTCS institutional residents is a limitation.

Disability Composition

The MCBS and the HRS estimates suggest that about two-thirds to 70 percent of persons living in community residential care receive no help with ADL or IADL disability compared with more than 80 percent of persons living in traditional private homes.⁷ The NLTCS provides a fairly similar profile of disability in traditional housing, but finds a lower rate of IADL disability in both traditional housing and community residential care, and a higher rate of ADL disability in community residential care. Only 55 percent of the NLTCS community residential care population receive no help with any of the included ADLs or IADLs. The HRS and the MCBS indicate that only 14-15 percent of the community residential care population are receiving ADL help, compared with the NLTCS estimate of about one-third.

The disability distributions within the MCBS and NLTCS community and facility residential care populations appear to support the importance of community and facility definitions in observed population composition. As expected, both surveys indicate higher disability levels moving from community to facility residential care settings and from alternative residential care to nursing homes, with the NLTCS finding far higher prevalence of three or more ADLs in all settings. When the community and facility residential care populations are combined, however, estimates from the two surveys are far more similar, with about 40-45 percent reporting at least one ADL disability, compared with 84-97 percent of nursing home residents. It should be recalled that no IADL information is collected for institutional residents on the NLTCS. As a result, we do not report NLTCS estimates of either the proportion with no disabilities or the proportion with IADL only disabilities.

Self-Reported Health

The general pattern of poorer self-reported health for persons living in community residential care settings relative to persons in traditional housing is evident in both the HRS and the NLTCS. The MCBS does not show significantly poorer self-reported health among persons in community residential care. Again, this finding is consistent with our speculation that the broader MCBS facility definition captures some persons who would be in community residential care, according to HRS and NLTCS definitions. Because the NLTCS does not collect self-reported health for its institutional population, the progression from community to facility care can be observed only in the MCBS, but estimates support the expectation of poorer health in facility settings and in nursing homes relative to alternative residential care. Most strikingly, only 30.7 percent of residents in combined community and facility residential care settings report fair or poor health, compared with more than twice that proportion in nursing homes.

⁷ As a reminder, the disability measure is help with the subset of ADLs and IADLs that can be measured on all surveys. The ADLs are bathing, dressing, transferring (to or from bed or chair), getting around inside or walking, toileting, and eating. The IADLs are shopping, meal preparation, telephoning, and managing money.

Medical Conditions

Among the medical conditions examined, the clearest result is for Alzheimer's and other dementias, which are measured in all settings on both the MCBS and the NLTCS. Alzheimer's and other dementias are more common in all residential care settings, and, not surprisingly most common among nursing home residents. All three surveys indicate a very low prevalence of cognitive problems among persons in traditional private homes--roughly 2-3 percent. The HRS and MCBS both show a prevalence of cognitive problems in community residential care twice that in traditional residences (about 5 percent and 8 percent respectively), but neither estimate is precise. The corresponding NLTCS estimate is 13.3 percent. Question wording may contribute to the higher NLTCS estimate. Both the HRS and the MCBS ask whether a doctor has identified the cognitive problems, but the NLTCS does not, and the NLTCS measure includes the arguably broader "senility." The NLTCS facility residential care estimate (42.4 percent) is similar to the MCBS estimate for facility residential care (40.7 percent). When the community and facility residential care populations are combined, estimates from the two surveys are also similar. About 20 percent of the NLTCS population in all alternative residential care settings suffer from cognitive problems, compared with about 25 percent of the similar MCBS population.

All three surveys indicate higher rates of recent stroke in community residential care, although the apparently higher rates for the MCBS alternative residential care samples are not significantly different from the rate in traditional housing. Both the HRS and the MCBS show higher rates of mental disorders other than dementia in the residential care population, although the MCBS estimates are significantly higher only for facility and combined residential care. Estimates from all three surveys indicate that neither diabetes nor chronic lung disease is more common in community residential care than in traditional housing. In fact, the MCBS finds diabetes to be only modestly more common among nursing home residents. Hip fracture appears to be more common in community residential care according to the MCBS and NLTCS estimates--in fact more common in these settings than in any other on the MCBS--but the HRS finds it no more common than among person living in traditional residences.

Demographic Characteristics

The three surveys provide a consistent broad demographic profile of the residential care population, with a few notable exceptions. Relative to older persons remaining in traditional housing, the population in all residential alternatives to nursing homes is substantially older, and more likely to be female and unmarried. All three surveys indicate that a larger proportion of persons in alternative residential care are White, although the difference for the HRS community residential care population is not significant. All three surveys also appear to show a higher proportion of the alternative residential care population with very low income, but, again, the HRS estimate for community residential care is not significantly different from the estimate for persons in

traditional housing. Only the MCBS also finds that a significantly higher proportion of the community residential care population has income above \$40,000.

There is considerable agreement across the surveys about the composition of the population in traditional housing, with more than half between age 65 and 75, about one in ten age 85 or older, 87-89 percent White, about 57 percent women, and a similar proportion married. There is less agreement with respect to very low incomes among the population in traditional housing, with the HRS finding the smallest proportion (11.3 percent) and the NLTCS the highest (19 percent).

Less consistency is seen in comparisons of the HRS community residential care population with either the community or combined community and facility alternative residential care populations on the MCBS and NLTCS. The most striking differences are for age, race, and gender composition. Only about one-third of the HRS community residential care population is age 85 or older, compared with estimates of about half of the community and facility alternative residential care populations from the MCBS, and about 40 percent of the combined alternative residential care population from the NLTCS. About 9 percent of the HRS residential care population are nonWhite, compared with half that proportion of community and combined alternative residential care populations from the MCBS and NLTCS. HRS respondents in residential care are also somewhat less likely to be female--about two-thirds, compared with about three-quarters of persons in alternative residential care settings on the other two surveys.

Comparison of the residential care populations from the MCBS and the NLTCS reveal more regularity, although, again, with some notable differences. Comparing the combined alternative residential care population and the nursing home population in the two surveys, both surveys find that nursing home residents are more likely to be nonWhite but no significant difference in the distribution by gender. The NLTCS nursing home population is more likely than the alternative residential care population to be very old, whereas the MCBS populations in the two settings are similar in age distribution. Both surveys indicate that a majority of residents in alternative residential care and nursing homes are widows, although the NLTCS finds a somewhat larger proportion--about two-thirds compared with about 60 percent for the MCBS. Both surveys also indicate that about one-quarter of persons in alternative residential care and about 40 percent of nursing home residents have annual incomes below \$10,000. The two surveys differ, however, with respect to the rest of the income distribution for persons in alternative residential care and nursing homes, with the MCBS generally indicating lower incomes in both settings, but particularly in nursing homes, where only 6 percent of the nursing home population has income of \$40,000 or more, compared with 27 percent of NLTCS nursing home residents. We investigated different income categories on the MCBS and also examined the NLTCS income distribution excluding imputed cases but could find no ready explanation for why the two surveys yield such different results regarding higher incomes in nursing homes.

SUMMARY AND CONCLUSIONS

Estimates from three major national surveys of the older population indicate that about 6.5 percent of persons age 65 or older--about 2.2 million persons--live in some type of residential care other than settings for special populations such as the mentally ill or mentally retarded. The estimates indicate that most--about 1.45 million--live in nursing homes, but more than 750,000 live in alternative residential care settings.

We also found consistency in the characteristics of the residential care population across the three surveys. As expected, estimates from all three surveys indicate that, relative to elders remaining in traditional private housing, this residential care population was far more likely to receive help with ADLs and to suffer from Alzheimer's disease or other dementias. Estimates from the two surveys including the facility or institutional populations, indicate that the prevalence of disability and dementias is dramatically higher in facility residential care than in community care settings, and higher yet in nursing homes. Persons living in residential care facilities are more likely to be over age 85, more likely to be female, and more likely to be widowed, than are persons residing in traditional housing. Residential care facilities serve a broad income range. Persons living in those facilities are more likely to have incomes below \$10,000, roughly approximating the federal poverty level for older couples. Only the MCBS estimates indicated that the community residential care population was also more likely to have high income above \$40,000 than persons in all other types of residence. In both the MCBS and the NLTCs the proportion who are nonWhite was lower than in either traditional private housing or nursing homes.

The consistency of estimates across three major national surveys, after reducing methodological differences to the extent possible, provides confidence in the existing data on the size and characteristics of the residential care population. Two different methods are used to obtain data on the characteristics of the person's residence. Individuals are asked to describe their type of residence. The responses yield a set of place types (e.g., retirement community, assisted living, etc.). The other method is to ask individuals whether or not the place they live offers specific services, usually by asking about each service on the interviewer's list of potential services. However, accurately identifying a residential care facility as the place of residence through the use of survey questions is difficult. Neither named place type, as in the NLTCs, nor services alone, as in the HRS, appears to be sufficient to draw firm conclusions about the nature of the setting.

For example, the NLTCs allows identification only by named setting type, and makes special effort to identify "assisted living." The NLTCs reports a larger proportion of community residents in generic types of "senior" or "retirement" housing than do the other two surveys. However, no information is gathered on services available, regardless of whether the respondent uses them. Consequently, it is difficult to determine whether these generic settings meet the criteria for alternative residential care, such as those proposed by the ALW or used in state licensing.

Among the MCBS community residential care population, which we identified using a combination of named place type and services offered, only about 30 percent identified their residence by name as assisted living or any other place type clearly associated with residential care. About 8 percent of the group reporting that their residence was assisted living reported that none of the services included in the survey were available, and only about three-quarters reported the availability of medication supervision, considered to be a hallmark service for higher quality residential care settings.

Finally, although the estimates of the characteristics of the residential care population provided here show reasonable consistency, comparisons were complicated both by differences in measurement and availability of data across community and facility settings and by small sample sizes.

If, as widely believed, the older population in alternative residential care is growing rapidly, either as a substitute for or a precursor to traditional nursing homes, it is important to have reliable national data to document both the growth and the implications for the welfare of older persons with disability. The three major surveys of the older population we examined have made a first step in that direction. In fact, such data offer the only opportunity for an integrated understanding of the entire long-term care delivery system and those who use it, rather than piecemeal examination of sometimes artificially defined segments.

Nevertheless, we conclude that improvements are needed if national surveys are to support studies that improve understanding of the residential care “missing link.” Our analysis suggests indicated several key areas for improvement:

- A hybrid approach to identifying settings would seem to be ideal, in which a broad screen for nontraditional settings is applied, as in the HRS, and then information on both services available and named place type is gathered. Ideally information similar to that in the HRS and MCBS on whether services are included in housing costs or cost extra and whether services are actually used also would be collected.
- More consistency is needed across all community and facility settings in the information collected on characteristics of settings and services offered, as well as the characteristics of residents, so that analyses can identify factors associated with choice of setting, transitions between settings, and outcomes.
- Existing sources of guidance, such as those cited here, can provide a foundation for survey organizations to identify the minimal array of key setting characteristics and services needed to identify and discriminate between residential care settings.

- Although growth over time eventually will increase sample sizes, a sound methodology for oversampling the population in alternative residential care is needed if national population-based surveys are to provide the data to support reliable estimates.

REFERENCES

- Adler, GS. 1994. *A Profile of the Medicare Current Beneficiary Survey*. Health Care Financing Review 15 (4):153-163.
- Bishop, CE. 1999. "Where Are the Missing Elders? The Decline in Nursing Home Use, 1985 and 1995," *Health Affairs* 18(4):146-155.
- Crisp, S, S Eiken, K Gerst, and D Justice. 2003. "Money Follows the Person and Balancing Long-Term Care Systems: State Examples." Prepared for DHHS/CMS/Disabled and Elderly Health Programs Division. (<http://new.cms.hhs.gov/PromisingPractices/Downloads/mfp92903.pdf>). Accessed December 2005.
- Decker, FC. "Nursing Homes, 1977-1999: What Has Changed, What Has Not?" National Center for Health Statistics, 2005. (http://www.cdc.gov/nchs/data/nnhsd/NursingHomes1977_99.pdf). Accessed December 2005.
- Fox-Grage, W, D Folkemer, and J Lewis. 2003. *The States' Response to the Olmstead Decision: How Are States Complying?* National Conference of State Legislatures, Forum for State Health Policy Leadership. Washington, D.C.
- Freedman, VA, E Crimmins, RF Schoeni, BC Spillman et al. 2004. "Resolving Inconsistencies in Old-Age Disability Trends: Report from a Technical Working Group." *Demography* 41(3):417-441.
- Han, B, A Sirrocco, and R Remsburg. 2003. *Developing a Typology of Long-Term Care Residential Places: The First Step*. National Center for Health Statistics, Center for Disease Control and Prevention.
- Hawes, C, M Rose, and CD Phillips. 1999. *A National Study of Assisted Living for the Frail Elderly: Results of a National Survey of Facilities*. U.S. Department of Health and Human Services Contract no. 100-94-0024, 100-98-0013 and Research Triangle Institute. (<http://aspe.hhs.gov/daltcp/reports/facres.htm>). Accessed December 2005.
- Iannacchione, VG. 1982. "Weighted Sequential Hot Deck Imputation Macros." Paper presented at the Seventh Annual SAS User's Group International Conference, San Francisco.
- Laschober, MA, and GL Olin. 1996. *Health and Health Care of the Medicare Population: Data from the 1992 Medicare Current Beneficiary Survey*. Rockville, MD: Westat, Inc.

- Liu, H, and R Sharma. 2002. *Health and Health Care of the Medicare Population: Data from the 1999 Medicare Beneficiary Survey*. Prepared by WESTAT under contract to the Centers for Medicare and Medicaid Services, U.S. Department of Health and Human Services. Rockville, MD.
- Rhoades, J. 2000. "Where Are The Missing Nursing Homes?" *Health Affairs* 19(5):249-50.
- Rosenbaum, S. 2000. The Olmstead Decision: Implications for Medicaid. Kaiser Commission on Medicaid and the Uninsured. (<http://www.kff.org/medicaid/2185-index.cfm>). Accessed December 2005.
- Spillman, BC. 2004. "Changes in Elderly Disability Rates and the Implications for Health Care Utilization and Cost." *The Milbank Quarterly* 82(1):157-194.
- Spillman, BC, and KJ Black. 2005. "The Size of the Long-Term Care Population in Residential Care: A Review of Estimates and Methodology." Report to the Department of Health and Human Services, Assistant Secretary for Planning and Evaluation, Office of Disability, Aging and Long-Term Care Policy. (<http://aspe.hhs.gov/daltcp/reports/ltcpopsz.htm>). Accessed December 2005.
- St. Clair, P, D Bugliari, S Chien, S Haider, O Hayden, M Hurd, S Ilchuk, G Lopez, D Loughran, C Panis, P Pantoja, A Rastegar, M Reti, S Rohwedder, E Roth, and J Zissimopoulos. 2005. *RAND HRS Data Documentation, Version E*. RAND Center for the Study of Aging. (<http://www.rand.org/labor/aging/dataproduct/randhrse.pdf>). Accessed December 2005.
- Wiener, JM, RJ Hanley, R Clark, and JF Van Nostrand. 1990. "Measuring the Activities of Daily Living: Comparisons across National Surveys." *Journal of Gerontology: Social Sciences* 45(6):S229-S37. (<http://aspe.hhs.gov/daltcp/reports/meacmpes.htm>).

TABLE 1. Comparison of Surveys for Analysis			
	HRS/AHEAD	MCBS Cost and Use	NLTCS
Year	2002	2002	1999
Population representation after age selection	Cross-section of noninstitutional population age 65 or older	Population age 65 or older ever enrolled in Medicare during year	Cross-section of Medicare enrollees age 65 or older
Universe of residential care settings	Community only	Community and facility	Community and facility
Screen for facility residence	Excludes from current cross-section all persons residing in nursing homes or other health facilities, defined as providing all of the following services for residents: dispensing of medication, 24-hour nursing assistance and supervision, personal assistance, and room and meals.	Facilities are defined as places that: (1) have 3 or more beds, and (2) are certified by Medicaid or Medicare (nursing facilities) or licensed as a nursing home or other long-term care facility, or provide at least 1 personal care service (supervision of medications or help with bathing, dressing, shopping, walking, eating, or communication), or provide 24-hour, 7 days a week supervision by a caretaker.	Residents unit in nursing, convalescent or rest home or home for the aged, patient's unit in mental/long-stay hospital, nonstaff unit in other institution or any other setting with 3 or more unrelated persons and a health professional on duty every day; or assisted living community and provides substantial nursing care of any kind to the sampled person .
Facility types identified	n.a.	CCRC Nursing home Retirement community Hospital Assisted living Board & care home Domiciliary care facility Personal care facility Rest home/retirement home Mental health center psychiatric setting Mentally retarded/ developmentally disabled (MR/DD) Rehabilitation facility Adult/group home Other	Assisted living providing substantial nursing care to the sampled person Skilled nursing facility (SNF) Intermediate care facility (ICF) Hospital, other than SNF or ICF unit Other (noncertified) nursing home Domiciliary or personal care facility Institution/facility for the MR/DD Mental health center/facility Other
Facility certification status identified	n.a.	Yes	Yes
Facility licensure status identified	n.a.	Yes	No
Facility license other than nursing facility identified (e.g., assisted living, personal care)	n.a.	Yes	No
Community residential care types identified	No explicit types: Retirement community, senior citizens' housing, or some other type of housing that provides services.	Retirement community Senior citizens housing Assisted living facility CCRC Staged living community Retirement apartments Personal or residential care home Other	Control Card: Assisted living community Community questionnaire: Retirement home Boarding home Boarding home, rooming house, or rented room Group home or community residential facility Assisted living with services
ABILITY TO IMPLEMENT OTHER CRITERIA			
Number of unrelated individuals	Yes	Yes	Yes
Nursing or other health services available	Yes, for those identifying housing with services	Yes, facility only	Yes, if identified as assisted living or other group setting on Control Card
Other services available	Yes, for those identifying housing with services	Yes, facility only	Yes, but only for respondents identified as living in an assisted living community on the Control Card

TABLE 1 (continued)			
	HRS/AHEAD	MCBS Cost and Use	NLCS
Questionnaire language used	Even if you don't use them now, does the place you live offer...	Facility only: Does the facility provide...	Does the Assisted Living Community provide any of the following services to sampled person?
IADL services	Group meals Transportation Housekeeping	Community: Meals Housekeeping Laundry Medication assistance Transportation Facility: Medication supervision Shopping	Community or facility assisted living only: Meals Housekeeping
ADL services	Bathing Dressing Eating	Community: None Facility: Bathing Dressing Eating Walking	Community or facility assisted living only: Eating Mobility
Other services	Emergency call button Nursing care or onsite nurse Special facility for persons needing nursing care	Communication	No

TABLE 2. Estimates of the Residential Care Population						
	HRS/AHEAD¹		MCBS Cost and Use²		NLTCS³	
	2002		2002		1999	
	Number	Percent	Number	Percent	Number	Percent
Noninstitutional/Institutional						
Total population age 65 or older	35,841,266	100.0	34,435,442	100.0	34,459,236	100.0
Noninstitutional/community population (survey defined)	34,200,170	95.4	32,488,776	94.3	32,798,096	95.2
Institutional/facility population (survey defined)	1,641,096	4.6	1,946,666	5.7	1,661,140	4.8
Traditional Private Residence/Other Settings						
Population in traditional private residences	31,413,011	87.6	30,574,382	88.8	29,482,355	85.6
Nontraditional residences: Community retirement or group settings, neither a named residential care type nor offering assisted living type services	2,111,175	5.9	1,545,638	4.5	2,743,234	8.0
Other facility settings that are not a named residential care type (i.e., mental health, MR/DD and unspecified facilities)	---	---	87,821	0.3	24,772	0.1
All residential care settings defined by name or by offering assisted living type services	---	---	2,227,600	6.5	2,208,876	6.4
Residential Care Population by Type of Setting						
Nursing facilities	---	---	1,445,619	4.2	1,449,068	4.2
Certified nursing facility			1,317,375	3.8	1,281,937	3.7
Uncertified nursing facility			128,244	0.4	167,131	0.5
Other residential care, not nursing facility	---	---	781,981	2.3	759,808	2.2
Community residential care	675,984	1.9	368,755	1.1	572,507	1.7
Facility residential care	---	---	413,227	1.2	187,301	0.5
Certified and other beds			53,943	0.2	39,518	0.1
No certified beds			359,283	1.0	147,783	0.4
<ol style="list-style-type: none"> All HRS/AHEAD estimates include the noninstitutional population only. Control total for survey weights is taken from the March 2003 Current Population Survey. April 1 denominator for the full population age 65 or older is the July 1, 2002, resident population age 65 or older increased by 9 months using the average monthly change between the July 1, 2002, and July 1, 2003, estimates. (Available at http://www.census.gov/popest/national/asrh/NC-EST2003-as.html.) MCBS estimates include only Medicare enrollees. Weights for the cross-section of persons alive and enrolled on September 1 used in the estimates were adjusted by age to enrollment totals provided by the Centers for Medicare and Medicaid Services. About 2.8 million NLTCS respondents report their residences are in "a building or community intended for older or retired, or disabled persons." Only about 500,000 of them identify a type of residential care setting, including retirement home. 						

TABLE 3. Access to Services in Residential Care Settings and Nontraditional Housing						
	Nontraditional Housing		Community Residential Care		Facility Residential Care	Nursing Homes
	HRS	MCBS Cost and Use	HRS	MCBS Cost and Use	MCBS Cost and Use	MCBS Cost and Use
Number of persons	2,111,175	1,545,638	675,984	368,755	413,227	1,445,619
Percent Offering Service						
Nursing or medical care	7.2	---	56.1	---	100.0	99.4
Bathing, dressing or eating	0.0	---	61.9	---	---	---
Bathing help	---	---	---	---	99.0	99.5
Mobility help	---	---	---	---	90.4	99.0
Eating help	---	---	---	---	88.0	98.7
Supervision of medications	---	2.6	---	92.6	99.0	99.5
Shopping or correspondence help	---	---	---	---	96.3	99.2
Meals	16.3	19.5	96.1	96.9	---	---
Housekeeping	4.1	17.7	95.8	96.1	---	---
Laundry	---	15.7	---	86.5	---	---
Emergency call button or someone checks on residents	30.6	---	91.1	---	---	---
Communication help	---	---	---	---	93.4	99.2
Allow resident to stay if need more care ¹	73.4	51.6	52.3	47.1	---	---
1. Slightly less than half of the MCBS sample in nontraditional housing received this question. Estimate shown is for persons receiving the question. Most who did not receive the question were among the 57.6 percent of persons in nontraditional housing who did not report that any of the listed services were available.						

TABLE 4. Health Characteristics of Persons in Traditional Homes, Alternative Residential Care and Nursing Homes

	HRS		MCBS Cost and Use					NLTCs				
	TH	CRC	TH	CRC	FRC	All ARC	NH	TH	CRC	FRC	All ARC	NH
Functional Status												
No ADL/ IADL ¹	84.6	66.4	82.5	70.4	11.3	39.2	5.5	89.5	55.2	---	---	---
IADL only	7.3	18.1	8.8	14.6	24.7	19.9	9.3	3.4	10.4	---	---	---
1-2 ADLs	5.4	11.2	5.2	11.0	27.3	19.6	13.2	4.0	20.7	27.5	22.4	13.4
3 or more ADLs	2.8	4.3 #	3.2	3.0 #	34.6	19.7	70.5	3.1	13.7	52.7	23.4	83.4
Unknown	---	---	0.3	1.0	2.2	1.6	1.5	---	---	---	---	---
General Health												
Excellent/very good/good	70.6	57.7	78.0	75.0	60.4	67.3	32.9	70.4	58.6	---	---	---
Fair or poor	29.3	42.3	21.5	24.3	36.5	30.7	65.1	27.3	36.6	---	---	---
Unknown	0.1	0.0	0.5	0.7	3.1	2.0	2.0	2.3	4.8	---	---	---
Selected Conditions												
Alzheimer's/other dementia	2.3	5.1 #	3.2	8.0 #	40.7	25.3	47.8	1.7	13.3	42.4	20.5	58.3
Diabetes	18.1	14.3	19.5	16.6	18.8	17.7	24.3	14.6	14.5	---	---	---
Hip fracture	1.2	1.1 #	3.4	14.9	1.7 #	8.0	5.1	0.8	4.5 #	---	---	---
Chronic lung disease	10.9	10.3	14.1	11.3	11.7	11.5	12.3	9.4	11.8 #	---	---	---
Mental disorder	13.0	22.0	12.6	16.0	28.2	22.5	41.9	---	---	---	---	---
Stroke	9.0	16.2	11.4	15.3	12.7	13.9	19.9	4.0	7.9	---	---	---

Estimate does not meet precision criterion that its relative standard error is less than 30%.

1. Disability is measured as active help (excluding supervision) with included activities, which were selected based on availability in all three surveys. Included IADL items are shopping, meal preparation, telephoning, and managing money, and included ADL items are bathing, dressing, transferring (to or from bed or chair), getting around inside or walking, toileting, and eating.

TH = Traditional Housing
 CRC = Community Residential Care
 FRC = Facility Residential Care
 ARC = Alternative Residential Care
 NH = Nursing Home

TABLE 5. Demographic Characteristics of Persons in Traditional Private Housing, Alternative Residential Care and Nursing Homes

	HRS		MCBS Cost and Use					NLTCs				
	TH	CRC	TH	CRC	FRC	All ARC	NH	TH	CRC	FRC	All ARC	NH
Age												
65-74	54.9	19.5	52.9	9.4	13.0	11.3	13.2	57.0	14.0	4.6	11.7	13.5
75-84	35.7	48.0	36.4	40.2	33.0	36.4	37.9	33.9	49.0	41.7	47.2	36.7
85 and older	9.4	32.5	10.7	50.4	53.9	52.3	48.9	9.1	37.0	53.7	41.2	49.7
Race												
White	88.5	91.0	86.5	95.6	97.0	96.4	87.2	87.3	96.4	92.8	95.5	91.2
Other	11.5	9.0	13.5	4.4	3.0	3.6	12.8	12.7	3.6	7.2	4.5	8.8
Sex												
Male	43.1	33.9	43.2	24.8	25.4	25.2	29.1	43.3	22.5	27.5	23.7	26.6
Female	56.9	66.1	56.8	75.2	74.6	74.8	70.9	56.7	77.5	72.5	76.3	73.4
Marital Status												
Married	57.2	33.1	56.8	27.7	14.4	20.7	23.2	58.0	21.1	12.6	19.0	15.5
Widowed	30.9	55.4	32.0	56.8	63.1	60.1	56.3	32.3	67.4	73.0	68.8	66.9
Other unmarried	11.7	11.5	11.1	15.5	22.0	19.0	20.3	9.7	11.5	14.4	12.2	17.6
Unknown	0.2	0.0	0.1	0.0	0.5	0.3	0.3	---	---	---	---	---
Income												
Less than \$10,000	11.3	14.4	15.5	23.8	22.9	23.3	43.9	19.0	26.3	18.5	24.4	39.4
\$10,000 to less than \$20,000	23.2	26.2	28.3	23.1	36.9	30.4	30.1	18.2	21.8	26.1	22.9	18.3
\$20,000 to less than \$40,000	32.6	32.8	34.1	22.1	26.3	24.3	20.1	45.6	37.6	30.9	35.9	15.1
\$40,000 or more	33.0	26.6	22.1	31.0	13.9	21.9	6.0	17.3	14.2	24.5	16.8	27.2
TH = Traditional Housing CRC = Community Residential Care FRC = Facility Residential Care ARC = Alternative Residential Care NH = Nursing Home												