An Aging U.S. Population and the Health Care Workforce: Factors Affecting the Need for Geriatric Care Workers

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EXECUTIVE SUMMARY

The population of the U.S. and much of the industrialized world is aging at unprecedented rates as life expectancy improves and baby boomers begin to reach retirement age. By the year 2030, nearly 20% of the population will be over age 65. National trends indicate that the elderly more frequently choose to receive long-term care services in a variety of settings that are less restrictive than nursing homes. In response to that trend, there has been rapid recent growth in the supply of those alternative services and a flattening of growth in the supply of nursing home beds.

Several attempts have been made to build models to project the demand for long-term care services. They are based upon data sources and assumptions that ultimately limit the models' ability to make accurate predictions. For example, one of the major modeling studies assumes that disability rates are decreasing in the population yet there is evidence that disability is perhaps increasing. While the models studied predict various rates of demand for long-term care, there is a general agreement in the models that there will be an increase in the demand for long-term care services simply due to the increasing number of elderly in the country.

The need for more workers to care for the elderly is expected to increase both to fill new positions and to replace older retiring workers. The type of workers and training needed vary by setting of care. Professional nursing staff are required for skilled nursing homes and some home and community based services. Assisted living facilities currently have few requirements for professional nursing staff but regulations vary by state. A great number of elderly receive informal paid and unpaid care from friends, relatives, or personal care workers who often have little or no training in health care.

Study Purpose and Methods

The objective of the study is to:

1. Identify and critique major long-term care projection models related to the demand for care of the elderly in three major settings: nursing homes, residential care, and home care.
2. Examine approaches that selected U.S. states and other developed countries are using to address workforce supply issues such as who is caring for the elderly and what services they provide in nursing home, residential care, and home care settings.
3. Identify what impact changes in the demand for care and new models of care will have on requirements for the geriatric workforce and for training and education of the workforce.

The study included several interrelated approaches including an extensive literature review, key informant interviews, and telephone interviews and data collection from each of the 50 states. An extensive search identified the most comprehensive long-term care utilization models nationally and internationally. Staff involved in the development of those models were interviewed and the data sources used for building the demand models were reviewed and critiqued.

Summary of Major Findings

Setting of Care

- Trends suggest that the most likely sectors of future growth in long-term care services will be in assisted living/residential care and home and community based services. The number of beds in assisted living has nearly doubled, an increase of 97% in the last twelve years. Consumers have expressed a preference for less restrictive settings of care.
- Nursing homes, while still a major component in the long-term care system, have had slow growth rates and lower occupancy rates in recent years. Nursing home beds growth declined by 2% between 1999 - 2002 and occupancy rates have declined by nearly 7% in the past twelve years.
- Quality of care in nursing homes will continue to be a concern among policymakers and consumers. Studies have linked a greater number of nursing hours of care to improved outcomes and have shown a threshold level for staffing where hours below the threshold result in harm to residents. The pressures for facilities to increase staffing and new regulatory requirements increase the demand for staff. Increased staffing standards (hours of care per day) have been adopted in several states. A Centers for Medicare and Medicaid Services study suggested that 90% of facilities have inadequate staffing levels. Consumers are increasingly using web-based nursing home rating information to select nursing homes.

- Informal care, delivered by family and friends, will continue to be an important component of the long-term care system. The need for family caregiver support and training will continue.

Workforce

- The demand for professionals (physicians, nurses, physical therapists, etc.) needed to care for the future aging population will be dwarfed by the need for unlicensed formal and informal caregivers. Retirees, youth, and part-time workers, as well as an increased number of immigrant workers, may be a source of the many new workers needed for long-term care.
- By the end of the decade, there will be growth in the number of jobs in all long-term care settings. The greatest increase in jobs for direct care workers will be in home health settings (70%), followed by assisted living/residential care (67%). Nursing home job growth is expected to be about 26%.
- Occupational injuries, primarily musculoskeletal, are common in long-term care settings, resulting in lost days from work and sometimes permanent disability. Back injuries are preventable with education and the use of lifting devices.
- Turnover rates of 71% each year in nursing homes and high turnover rates in home care create the need to constantly recruit and train new workers. Staff turnover is due to a number of factors including low pay and a lack of recognition from management and nursing supervisors. RNs in management roles in long-term care settings often lack critical skills and experience in leadership and management.

Demand for Long-Term Care

- Regardless of projections related to retirement and disability, there will be an increasing demand for long-term care services due the increasing size of the elderly population.
- Models forecasting the demand for long-term care have limitations in the data sources used and the underlying assumptions used to develop the models. Furthermore, much planning for elderly services occurs on a local and regional level, and national survey data has limited utility for local planning.
- Constraints in the Medicare and Medicaid programs may limit the availability to finance services in traditional settings and ultimately may provide more opportunity for innovation and support of home and community based services.

INTRODUCTION

The United States, as well as other developed countries, is experiencing an aging of the nation's population. Forecasts suggest that the number of people age 65 and over will increase from 39 million in 2010 to 69 million in 2030 and will comprise about 20% of the population (United States Census Bureau, 1996). An aging population bears a greater burden of chronic illness and disability, and a higher likelihood of chronic conditions, functional limitations, and disability (Spillman & Lubitz, 2002). The U.S. faces a challenge in preparing to provide high quality health and social services to an increasing number of aged.

Complicating the estimation of the demand for long-term care is that attitudes about aging and preferences for settings of care are changing. More elderly prefer to receive services at home or in home-like settings. The settings in which the elderly are likely to receive care in the future has implications for the number and type of long-term care workers needed. Presently, there are shortages in the nation's health workforce, particularly among nurses, nursing assistants, home care aides, and personal care workers. Informal care provided by friends and family is an important but not well-quantified component of the long-term care system. If we are to plan for the future aging baby boom generation, those born between the years 1946–1964, it is important to understand the relationship between the demand for services, the settings in which services will be delivered, and the workforce needed to provide those services.

Project Objectives

1. Identify and critique major long-term care projection models related to the demand for care of the elderly in three major settings: nursing homes, residential care, and home care.
2. Examine approaches that selected U.S. states and other developed countries are using to address workforce supply issues such as who is caring for the elderly and what services they provide in nursing home, residential care, and home care settings.
3. Identify what impact changes in the demand for care and new models of care will have on requirements for the geriatric workforce and for training and education of the workforce.

Methods

The study included several interrelated approaches including an extensive literature review, interviews with 30 key informants conducted between February 2002 through September 2002, and collection of data from each state on the supply of long-term care services for the years 2000 through 2002. These data included information on the number of facilities and the number of beds for nursing homes and assisted living/residential care. These data were added to previously collected data from 1990 through 1999 (Harrington, Carrillo, Wellin, & Shemirani, 2002).

Identification of Demand Models

An extensive search was performed to identify the most comprehensive long-term care utilization models both nationally and internationally. The two most comprehensive models are analyzed in detail, the Brookings/ICF Long-Term Care Financing Model

(Brookings Model) (Alecxih, 2002; Kennell, Alecxih, Wiener, & Hanley, 1992) in the U.S. and the Personal Social Services Research Unit Model (PSSRU) (Wittenberg, Pickard, Comas-Herrera, Davies, & Darton, 1998) in Great Britain.

Report Outline

In this report, trends in the national supply of long-term care services are reviewed. Data are presented on the supply of long-term care beds in nursing homes and assisted living facilities, and the workers who currently provide the bulk of care in long-term care facilities are described. In the next section, an examination is made of two prominent models used to determine the demand for long-term care services. The examination looks at the models' strengths and limitations in projecting the future demand for services in the U.S. The implications of changing trends in the demand for long-term care services on the type of workers and training likely to be needed are discussed. Innovative models developed by various U.S. states and other industrialized countries that may provide useful lessons for reshaping long-term care for the elderly in this country are also reviewed.

RECENT TRENDS IN LONG-TERM CARE FACILITIES IN THE U.S.

The Supply of Long-Term Care Services

There is general agreement that the continued growth of the aged and disabled population in the U.S. will result in an increasing demand for long-term care, including both institutional and home and community based services (Spillman & Lubitz, 2002; United States Department of Health and Human Services, 2003). Americans age 65 and older will increase from the current 12% of the population to 21% by 2050 (Congressional Budget Office, 2002). The increases are not only related to the aging of the population but also to the continuing increase in life expectancy. Shortened hospital stays and the growing use of technology outside the hospital (e.g. intravenous feedings, ventilators, and other special services) have also increased the demand for nursing home and home health care (Shaughnessy & Kramer, 1990).

Long-term care services are usually considered those needed for long periods, such as more than 90 days. These needs are generally associated with limitations in activities of daily living as well as limitations in cognitive functioning and mental illness. Although this project focuses on the elderly in long-term care, not all recipients of long-term care services are elderly. Fifty-three percent of those adults living in the community who have physical, emotional, or developmental disabilities and receive long-term care services are under age 65 (LaPlante, Harrington, & Kang, 2002).

About 1.5 million individuals live in nursing homes (Jones, 2002). Spillman and Lubitz (2002) found that the percentage of individuals in the U.S. ever having used a nursing home increased from 37.4% to 40.5% between 1986 and l993. They projected

that the likelihood of entry into a nursing home by those turning 65 in the next 20 years will increase to 45%.

Trends in the supply of long-term care institutions for the period of 1990-2002 by state were examined. Data were collected from repeated surveys of all licensed nursing homes and assisted living/residential care facilities in each state. Appendix A includes detailed data tables from these surveys. These data show a slow but steady increase in the total number of facilities and beds with the highest increase occurring in assisted living/residential care facilities and beds. There is also wide variation in supply across states. However, despite increases in the number of beds, occupancy rates have decreased over the past decade, indicating some movement away from traditional nursing home care.

Data Sources

Inventories of provider supply are available from two sources of data: licensed providers approved by state licensing agencies, and/or providers certified to provide Medicare and Medicaid services. All certified nursing homes are required to meet all state licensing standards, but not all long-term care providers are required to become certified. For example, assisted living/residential care traditionally has not received Medicare or Medicaid reimbursement, and therefore these facilities have not been certified. Licensing of these facilities is left to the discretion of the states. There is a great deal of variation in how states have approached licensing/certification issues for assisted living facilities (Mollica, 2002). In addition, there are many, often small, unlicensed facilities that provide care for the elderly. There is no reliable estimate of how

many of these types of facilities exist nor how many elderly are cared for in these settings.

Data Collection

Prior to this report, Harrington and colleagues collected primary data directly from state officials on state licensed long-term care providers, using separate surveys in 1992, 1994, and 1998 (DuNah, Harrington, Bedney, & Carrillo, 1995; Harrington, Carrillo, Mullan, & Swan, 1998; Harrington, Preston, Grant, & Swan, 1992). For this study, the same data were collected for 2000, 2001, and 2002. The data were collected by telephone and facsimile using a structured questionnaire that requested specific data on licensed providers for all types of long-term care programs and providers, including nursing homes and assisted living/residential care programs. State officials from each principal state agency responsible for licensing and/or certification were asked to respond to the questionnaire. Often a separate official was contacted for each separate licensing category.

For nursing homes, all licensed skilled nursing facilities (SNFs) and nursing facilities (NFs – the federal term for nursing home), regardless of whether or not the facilities were certified, and all hospital-based and freestanding facilities were included. All types of assisted living/residential care were included, regardless of the name that the state gave to the different types of assisted living/residential care facilities and regardless of the population served (aged, mentally ill, developmentally disabled, and others).

All states and the District of Columbia voluntarily participated in the study by providing data. Survey findings for nursing homes with the American Health Care Association report and the findings for assisted living/residential care facilities from

Mollica (American Health Care Association, 2002; Mollica, 2002) were compared to the data collected. Whenever major discrepancies were found in the reported data for each state over time or with other reports, follow-up phone calls were made to state officials to confirm the state reports and identify the source of the discrepancies. The data from this survey of states vary from other reports due to different time periods for the data collection (e.g. calendar year or fiscal), categories of facilities, state data sources, and other factors (American Health Care Association, 2002; Mollica, 2002; Prouty, Smith, & Lakin, 2002).

Missing data were estimated between periods by calculating a simple average of the beds between the years in which data were available. Where data at the end of the period were missing, the data for the prior year were repeated. Estimated data are shown with an asterisk in the tables. The total number of long-term care beds were standardized per 10,000 population to better compare across states.

Nursing Homes

Nursing homes have dominated the long-term care market in terms of their size and expenditures. States have traditionally licensed nursing homes and began certifying nursing homes after the establishment of Medicare and Medicaid in 1965 (DuNah et al., 1995). Recent data indicate that there are 1.8 million nursing home beds in the U.S. (American Health Care Association, 2003). Most are Medicare/Medicaid certified beds. Periodic national nursing home surveys have been conducted, showing a growth in nursing homes from 18,000 in 1985 to 19,100 facilities in 1999, but these data included some facilities and beds that provided residential care (Spillman & Lubitz, 2002).

Recent policy changes have impacted nursing home growth. The adoption of the Balanced Budget Act (BBA, 1997) Prospective Payment System (PPS) affected care reimbursement for Medicare nursing facility residents (Angelelli, Gifford, Intrator, & Gozalo, 2002). The PPS reimbursement was based on resident case mix that set per day payments. Another impact of the BBA is that hospitals were reimbursed less for patients with 10 common diagnoses who were transferred to SNF beds with a shorter than average length of stay in the acute care bed. The purpose of this policy was to encourage hospitals to keep patients longer before discharging them. This policy resulted in a decrease in SNF admissions by 4% (United States General Accounting Office, 2002). A number of facilities declared bankruptcy in 1999 and 2000, but the fears of massive closures in SNF facilities have not been found in recent studies (Angelelli et al., 2002; United States General Accounting Office, 2000). Additionally, the Certificate of Need (CON) and moratoria programs have affected nursing home growth. CON requires state regulatory approval for the establishment or expansion of health facilities or services. This policy is designed to limit or plan provider supply. There has also been a moratoria placed on new construction for participation in the Medicaid program. Certificate of Need (CON) and moratoria have slowed growth in states with one or both of the factors operating (Harrington, Anzaldo, Burdin, Kitchener, & Miller, 2003).

Growth in Nursing Homes

Data in Appendix A, on nursing home growth by state and for the U.S., illustrates that total licensed nursing homes, including hospital based and free-standing facilities, grew from 16,367 in 1990 to 16,513 in 2002, or by 1% over the period. During this period, there was a steady upward trend in nursing facilities between 1990 and 1999, and

then a slight decline each year until 2002. At the same time, beds increased from 1.66 million in 1990 to 1.77 million in 2002, or by 7%. Bed growth also peaked in 1999 and then declined by 2% by 2002. The tables illustrate considerable variation in the growth across the states. Fifteen states lost beds over the 12-year period and a few had sizable reductions (Alaska, Connecticut, Kansas, Maine, and Oregon each lost at least 15% of their beds).

Assisted Living/Residential Care

Assisted living was originally a Scandinavian model of care that began to develop in the U.S. in the mid-1980s. Assisted living provides an option for care that is less than that provided by and required of nursing homes. The original Scandinavian philosophy of assisted living includes the concept of "aging in place." The Assisted Living Federation of America (ALFA) defines an assisted living residence as "a special combination of housing, personalized supportive services, and health care designed to meet the needs - both scheduled and unscheduled - of those who need help with activities of daily living" (Assisted Living Federation of America, 2004).

States have their own definitions and regulations for assisted living/residential care. We use the term generally for facilities that include many different types, both within states and across the states, including: residential care, assisted living, board and care, personal care homes, rest residential homes, sheltered care, foster care, and others (Mollica, 2002). Mollica found that many states have established a separate licensing category for assisted living and that some states used the term assisted living rather than residential care (Mollica, 2002). A l983 study found about 458,000 licensed residential care beds of all types throughout the country. Other reports suggest that unlicensed beds

may be double the number of beds that are licensed (Benjamin & Newcomer, 1986). Mollica reported 910,000 assisted living beds in 2002 but these did not include all residential care beds for the non-aged population.

Growth in Assisted Living/Residential Care

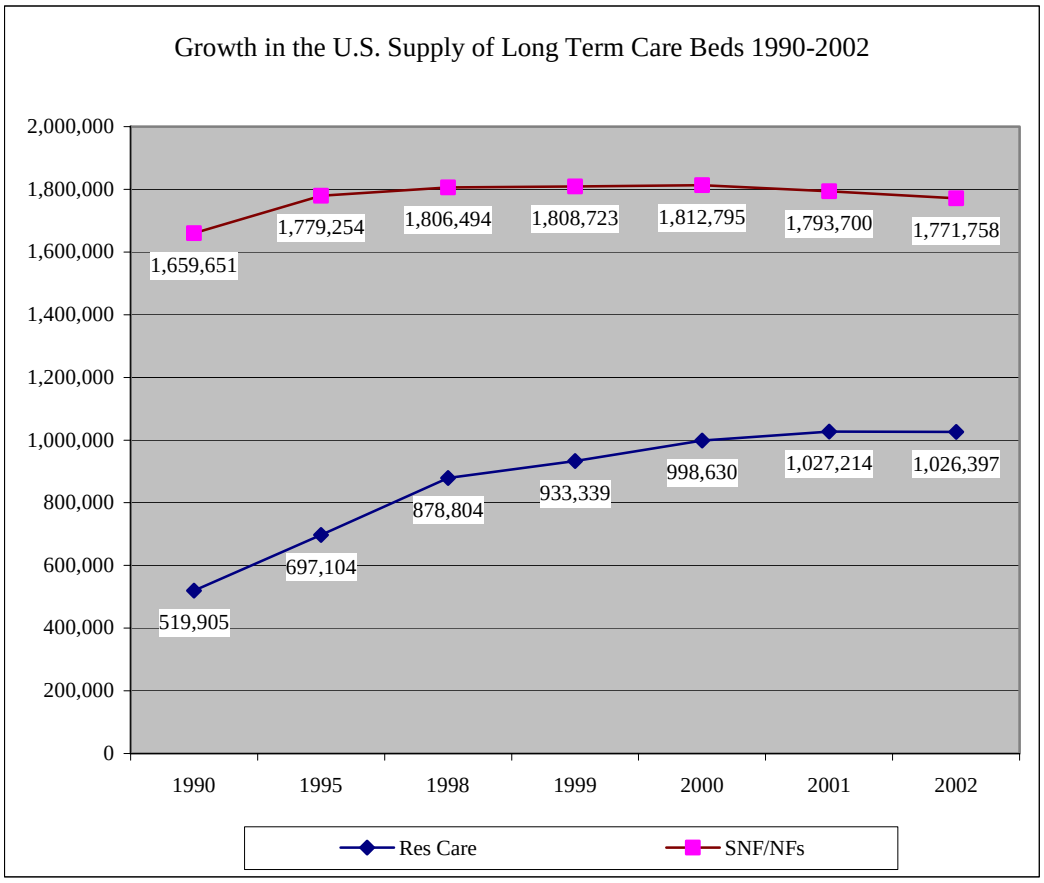
All states license residential care facilities and some states license assisted living as a separate category, while other states include assisted living as a category of the residential care. There was a sizable growth (57%) reported in assisted living and/or residential care facilities over the 12-year time period with 55,141 total licensed facilities reported in 2002. Appendix A, Table A2 includes data on the growth of assisted living in each state as well as for the U.S. as a whole from 1990 to 2002. Only 9 states reported a drop in facilities over the 12 years, while 13 states reported growth rates of over 200%. The number of beds showed a 97% growth rate over the 12 years for the U.S. as a whole. Only three states - Indiana, Kentucky, and the District of Columbia - showed a loss of beds or no growth in beds during the period. Some of the increase in assisted living may have been related to voluntary conversions of unlicensed to licensed beds. Other states have added licensing requirements to some types of facilities not previously licensed. Therefore, not all the growth may represent new beds.

Growth in Beds

Between 1990 and 2002, the rate of growth of licensed nursing facility beds was 7% while assisted living/residential care beds increased by 97%. However, nursing home beds continue to represent the bulk of long-term care beds in the country. This is because while there are a large number of assisted living facilities, they generally have a smaller number of beds than nursing homes. Figure 1 illustrates the fairly rapid growth of

assisted living/residential care and the relatively flat growth of nursing home beds in recent years.

Figure 1



Source: Harrington, Chapman, Miller, Miller, & Newcomer, 2004

Decline in Occupancy

Of the 1.79 million nursing home beds, about 1.52 million are estimated to be occupied. Nursing homes are confronting a paradox in declining occupancy rates at a time when the population of the aged and disabled is increasing. In spite of the increase in the aged population, the average certified nursing facility occupancy rates in states have declined from 89.7% in 1995 to only 82.8% in 2001 (American Health Care

Association, 2002; Benjamin & Newcomer, 1986). Only five states (Connecticut, Washington DC, Minnesota, New York, North Dakota, and South Dakota) reported occupancy rates of 92% or higher. Low occupancy rates could lead to financial problems in facilities, higher charges, and higher reimbursement rates by the Medicaid program to cover the cost of unused beds.

There appears to be excess nursing facility capacity in most states. At the same time, there are reports of wide variations within and across states (Wiener, Stevenson, & Goldenson, 1999). A recent report showed that the number of certified nursing facility beds per 1,000 persons aged 65 and older was lowest in urban areas and highest in small towns, and that isolated areas had fewer beds than small towns (Phillips, Hawes, & Leyk Williams, 2003).

The reductions in nursing home facility occupancy rates may be related to the growth in residential care and assisted living, which can substitute for nursing homes in some cases and may delay the admission to nursing homes in other cases. The reductions may also be directly related to the growth of home and community based services (HCBS).

Home and Community Based Services

In 1995, 13.2 million elderly and non-elderly adults living in non-institutional community settings in the U.S. received about 22 billion hours of paid and unpaid help. Of those who received help, they received an average of 31.4 hours of care per week at home (LaPlante et al., 2002). Of the total population living in the community that received long-term care, only 16% of the hours of care were paid care (about $32 billion), leaving 84% to be provided by informal caregivers (LaPlante et al., 2002).

Medicaid HCBS participants and expenditures in the states have been growing at a steady pace (Kitchener & Harrington, 2003a). At the national level, Medicaid HCBS waiver participation rose by 254% and expenditures increased by 557% from 1992-2001 (Kitchener, Ng, & Harrington, 2003). Combined, Medicaid home health, personal care services, and the home and community based waiver service served 2.1 million participants and expenditures were $22 billion in 2001 (Kitchener, Ng, & Harrington, 2003). These data include non-elderly participants and expenditures for assisted living/residential care for those with mental rehabilitation and developmental disabilities. In spite of the overall increase in spending on HCBS, 73% of Medicaid long term expenditures were for institutional care (Kitchener, Carrillo, & Harrington, 2004). The overall increase in care in the home and community may directly reduce the need for institutional long-term care services although it is unclear how this growth will impact the aging population.

CURRENT STATUS OF THE LONG-TERM CARE WORKFORCE

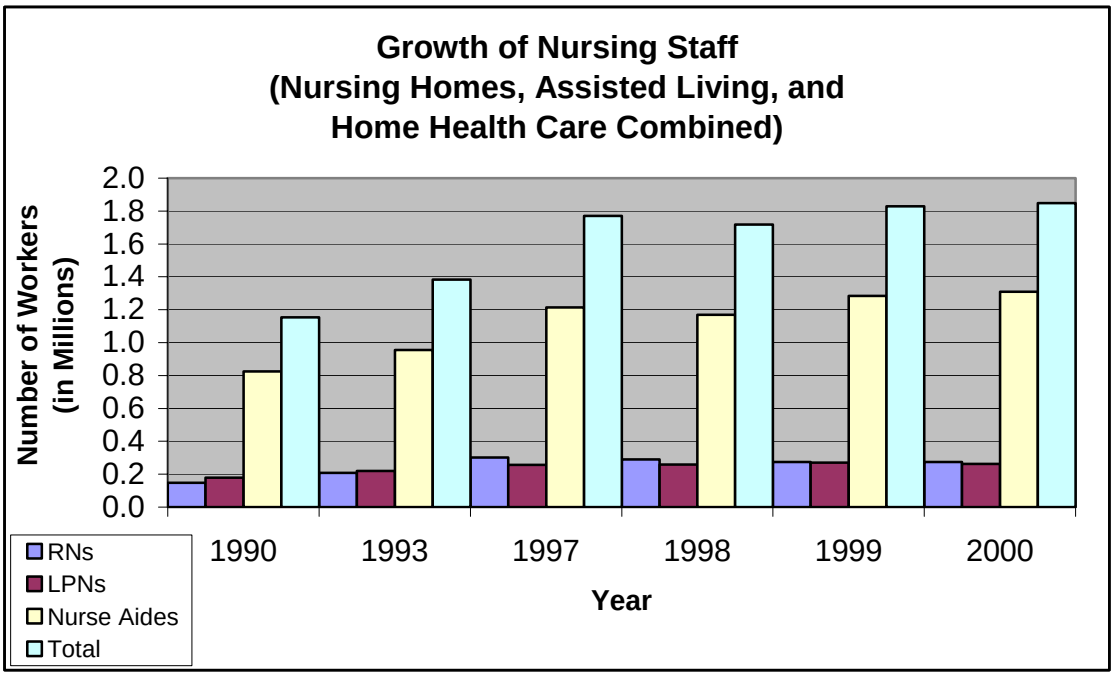
The approach that the U.S. takes toward meeting the growing demand of an aging population for long-term care services will influence the long-term care workforce needed to provide that care. Resources should be directed toward matching the human resources needed – RNs, LPNs, aides, and home care workers – to the settings in which care is most likely to be delivered.

The current long-term care workforce includes registered nurses (RNs), licensed practical or vocational nurses (LPNs, LVNs), nurse aides and assistants, and informal caregivers. Several terms are used for the nursing assistant workforce including nursing aide, personal care worker, orderly, attendant, and home health aide. These categories

generally all refer to the same type of worker except that certified nurse assistants and certified home health aides have specific federally mandated training and certification requirements. These workers are often referred to as "direct care workers" in that they provide the bulk of bedside care. It is estimated that 8 out of every 10 hours of paid care received by a long-term care client is provided by a direct care provider: a home health aide, a personal care attendant, or a certified nurse aide (Dawson & Surpin, 2001). Informal caregivers may be family or friends who provide paid or unpaid care and usually have no training as a health care professional.

According to the Bureau of Labor Statistics (BLS) 2000 data, there were an estimated 1.85 million workers in long-term care settings (Bureau of Labor Statistics, 2002a). Figure 2 displays BLS data on the employment of long-term care workers in three industries including nursing homes, assisted living, and home health care. These data were collected in 1990, 1993, and then on an annual basis after 1997. According to the data, which is based on the Standard Industrial Classification system (SIC), the number of RNs working in the long-term care industry decreased by 9% from 1997-2000, the number of LPNs increased by 3%, and the number of nursing assistants and aides increased by 4%. Figure 2 illustrates that nursing assistants and aides provide, by far, the majority of long-term care services. In addition to these workers who are tracked by BLS, there are many client-paid personal care workers and unpaid informal caregivers whose numbers are not known. It is estimated that including these workers brings the total long-term care workforce to 2 million or more.

Figure 2



Source: BLS Occupational Employment Statistics Survey
(includes SIC Codes 805, 808, & 836)

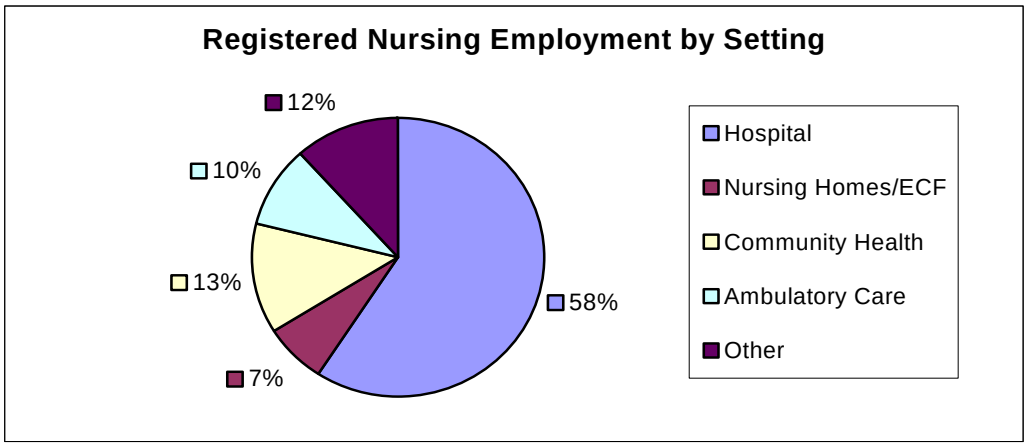
In 2002, the Occupational Employment Statistics (OES) survey changed from industry coding based on the Standard Industrial Classification (SIC) system to that based on the North American Industry Classification System (NAICS). Due to differences in NAICS and SIC structures, OES industry data for 2002 are not comparable with the SIC-based data for earlier years.

Registered Nurses (RNs)

According to the 2000 National Sample Survey of Registered Nurses (NSSRN), over 2,200,000 registered nurses (RNs) are employed in nursing in the U.S. (Spratley, Johnson, Sochalski, Fritz, & Spencer, 2000). Figure 3 shows that only about 7% of nurses in the country are employed in nursing homes or extended care facilities while the

majority (nearly 60%) are employed by hospitals. This compares to 8% working in nursing homes/extended care facilities in 1996. In addition, 13% work in community health settings, which includes home health care.

Figure 3



Source: 2000 National Sample Survey of Registered Nurses

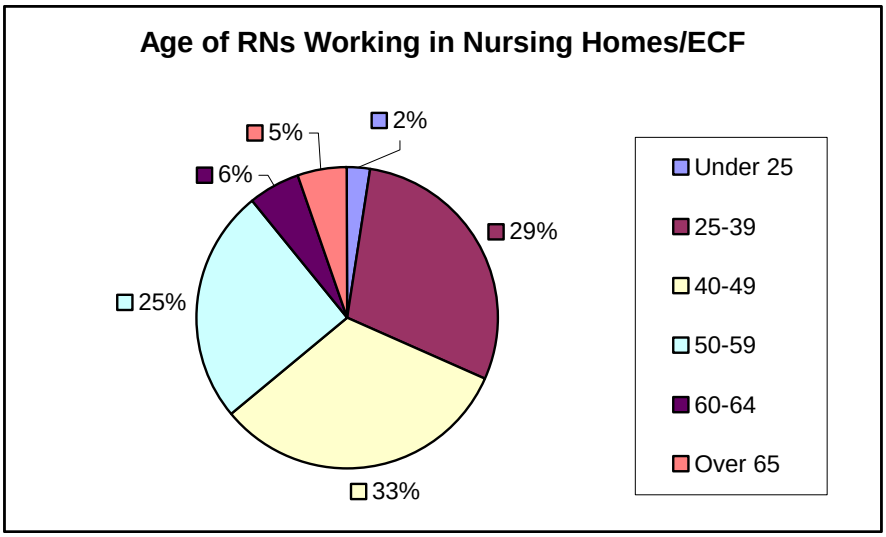
Most RNs working in nursing homes have administrative and supervisory roles. More than 87% have positions as head or assistant head nurse, director of nursing, or assistant director of nursing (Institute of Medicine, 1996). The primary role of RNs in nursing homes is to assess residents' health condition, develop treatment plans, and supervise licensed practical nurses and nursing assistants (Bureau of Labor Statistics, 2002a).

With the growing shortage in nursing across the country, there is concern whether there will be an adequate supply of RNs to meet future needs in long-term care settings. Nursing home settings are not often the first choice of employment setting for RNs. Turnover rates for RNs in nursing homes are higher than in other settings, probably due to a number of factors, including lower wages and more responsibility for administrative

work and supervision rather than direct patient care (United States Department of Health and Human Services, 2003; Institute of Medicine, 2001). Unfortunately, little is known about which RNs are attracted to working in long-term care settings and what factors make this a setting of choice for some nurses, as well as what incentives or working conditions might be effective in retaining RNs in long-term care settings.

RNs working in nursing homes are older than those in other health care settings such as hospitals and ambulatory care settings. Figure 4 shows that 36% of nurses working in nursing homes are age 50 or over; about 10% of those are over age 60. This compares to only 22% of nurses in hospitals over age 50. Of further concern is that the number of younger RNs working in long-term care seems to be decreasing. In 2000, the number of RNs under 45 years of age employed in nursing homes and other extended care facilities was 18% lower than in 1996 (Spratley et al., 2000). Older nurses may continue to be attracted to long-term care settings, perhaps because the work may be less physically demanding and often involves more paperwork than direct patient care. With the pending retirement of an aging nursing workforce, it will be critical to develop strategies to attract younger nurses, as well as older ones, to work in long-term care settings.

Figure 4



Source: 2000 National Sample Survey of Registered Nurses

As mentioned previously, one of the primary functions of RNs in long-term care settings is the management and supervision of LPNs, nurse aides, and other health care professionals. However, many of the RNs working in long-term care have not received training in management and leadership. This lack of management skills has been cited in several studies as a factor contributing to turnover and job dissatisfaction among nurse aides (Bowers & Becker, 1992; Bowers, Esmond, & Jacobson, 2003; Institute of Medicine, 2001).

Salary is a critical issue in attracting and retaining nurses to work in long-term care settings. In the 2000 Registered Nurse Sample Survey, the average salary for nurses working in nursing homes/extended care facilities, $43,779, was 6.4% less than the overall average RN salary ($46,782) and 8.3% lower than the average for RNs working in hospitals ($47,759) (Spratley et al., 2000).

Job satisfaction for RNs overall was rated at 69.5% in the national sample survey. For RNs working in nursing homes/extended care facilities, job satisfaction was 65%, the lowest level of satisfaction across all categories reported. RN satisfaction in other settings ranged from 67% in hospitals to 83% in nursing education (Spratley et al., 2000). In comparison, 85% of workers in general and 90% of professional workers expressed satisfaction with their job from 1986 through 1996, according to data from the General Social Survey of the National Opinion Research Center (National Opinion Research Center, 2000).

Licensed Practical Nurses (LPNs)

Licensed practical nurses (LPNs) are an important component of the health care workforce in long-term care settings, particularly in nursing homes. In 2000, LPNs accounted for about 46% of the licensed nurses in long-term care settings (Bureau of Labor Statistics, 2001). Recent data show that 29% of the total 700,000 LPNs in the U.S. were employed in nursing homes (Bureau of Labor Statistics, 2002a). In general, LPN practice is more limited than for RNs but there is wide variation among states in licensed scope of practice. The future role of LPNs in long-term care settings is likely to be significant due to the RN shortage. To date, little information is available about the scope of practice of LPNs in long-term care or acute care settings and how that might be expanded or altered to meet the growing needs of the elderly.

Though LPNs are not licensed to formally plan health care, they often serve in the capacity of charge nurse in nursing home facilities (Institute of Medicine, 1996). LPNs supervise nursing assistants and monitor residents' conditions. According to the Bureau

of Labor Statistics, mean annual earnings for LPNs are considerably less than for RNs; $32,300 for LPNs and $49,840 for RNs in 2002 (Bureau of Labor Statistics, 2003).

A study of nursing hours in Medicare and Medicaid nursing homes showed that from 2000-2002, LPNs provided an average of 0.7 hours (42 minutes) of care per resident per day. This number was higher than the average of RN hours, which was 0.5 hours or 30 minutes per resident per day (Harrington, Carrillo, Wellin, & Burdin, 2003). Data shows a slight trend toward increasing the amount of LPN care in nursing homes, compared to a total average of 6 minutes per day of LPN care between 1996 and 1999.

Preparation for supervision and leadership of nursing aides and other workers is important for LPNs but is not a component of LPN training programs, which are typically between 12 to 18 months in length. Training programs to develop leadership and management skills may be added to the curriculum or in continuing education in order to give LPNs the skills they need to work in long-term care settings. For example, the state of Iowa has a mandatory course for LPNs to obtain state certification in order to work in supervisory positions in nursing homes. The course is offered at community colleges across the state. LPNs take this course after they have been working in long-term care for six months to a year and are required for advancement to a supervisory level.

Nurse Aides and Home Care Aides

Demographics

As mentioned previously, most direct long-term care services are provided by nurse aides and home care aides. Nurses aides, home health aides, and personal care aides work in nursing homes, personal care facilities, home care agencies, residential care, or other organizations (e.g., hospitals, rehabilitation centers) providing assistance

with activities of daily living (ADLs) and instrumental activities of daily living (IADLs) for persons with disabilities and the aged (Bureau of Labor Statistics, 2001). Government reports and publications varyingly refer to this array of services as personal assistant services, paraprofessional long-term care, and direct care. Definitional distinctions are important, such as in training and certification, but the potential workforce for these positions draws from the same population, and workers move between long-term care sectors.

The Paraprofessional Healthcare Institute estimates about 1.8 million workers with the following breakdown of direct care workers employed in long-term care related settings in 2000 (Harmuth & Dyson, 2002).

- Nurse aides, orderlies, and attendants – 1,050,000 (53%)
- Home health aides – 561,000 (28%)
- Personal and home care aides – 371,300 (19%)

This figure does not include the self-employed paraprofessionals directly hired by families or individuals to provide personal care at home care. Nor does it include informal caregivers - the paid and unpaid services provided by spouses, other family members, and friends. One study estimates that self-employed direct care workers account for about 30% of the total number of personal care/direct service providers (Leon & Franco, 1998). All of this suggests a substantial margin of error in the estimates of the size of the long-term care direct care workforce.

Between 80-90% of direct care workers are women and approximately 30% are Black, Hispanic, or Native American, with this proportion varying widely within and between communities (United States General Accounting Office, 2001). The typical

worker is a single mother between the age of 25 and 54 (United States General Accounting Office, 2001). Table B.2 in Appendix B includes demographic, employment, and earning information from a General Accounting Office report comparing nurse aides to other service workers and the general workforce (United States General Accounting Office, 2001). The nurse assistant (aide) workforce is similar to other service workers on several variables including age and education but different on important variables such as race/ethnicity and income.

Factors Affecting the Shortage of Nurse Aides and Home Care Aides

Salary, Benefits, and Advancement Opportunities

A number of factors contribute to the undersupply of direct care workers, particularly wages and benefits. Median hourly wages in 2001 ranged from $7.50 to $9.20, or an annual wage of between $15,960 and $19,100 - assuming the worker works full time. Because many work much less than full time, the median annual income for all nursing home direct care staff in 2001 was $13,290. The comparable figure for home-based care personnel was even lower at $12,300 (Bureau of Labor Statistics, 2002a). Not surprisingly, almost 30% of direct care paraprofessionals live in poverty and are more likely than other workers to rely on public benefits to supplement their wages (Brady, Case, Himmelstein, & Woolhandler, 2002). Among single-parent workers, 30-35% receive food stamps. A similar proportion of workers also rely on publicly funded health care (United States General Accounting Office, 2001). Even those working for provider organizations (as opposed to those who are self-employed) have limited benefits. For example, 40% of home health aides have no health insurance and 75% have no employer-

sponsored pensions (Crown, Ahlburg, & MacAdam, 1995). Access to insurance and other benefits is even lower among self-employed and family caregiver aides.

There are limited requirements and skills needed to become a direct care worker. The position does not require a high school education. English proficiency and formal training and certification as a certified nursing assistant are required for employment in a Medicare or Medicaid certified organization, but the federal requirement is minimal (75 hours, including didactic and clinical training) (Institute of Medicine, 1996). These limited requirements place direct care work in competition with entry-level jobs in other service industry sectors of the economy (e.g., fast food) that pay comparable or higher hourly wages. These other sources of employment may offer more certainty with respect to work schedules and may even offer some benefits such as sick days, paid holidays, and health insurance (United States General Accounting Office, 2001).

Further complicating matters is that direct care positions are physically and emotionally demanding and present limited opportunities for advancement. Moreover, persons doing this work often perceive that their positions lack respect both from supervisors and care recipients within the long-term care sector and from the public (Atchley, 1996; Bowers et al., 2003).

Risk of Injury

There is a greater than average risk for disabling injury for direct care workers in long-term care settings. These are primarily musculoskeletal injuries to the lower back and may be due to limited training and supervision of proper lifting technique, or due to the lack of equipment or staff to assist in lifting patients. Data released by the U.S. Department of Labor reveals that in 2002, the occupational group “Nursing Aides,

Orderlies, and Attendants" had the second-highest number of occupational injuries and illnesses (next to truck drivers) that resulted in missed workdays, compared to all other occupational groups. The data indicate that most (91%) of the 79,000 injured nursing aides, orderlies, and attendants were women who suffered back injuries related to lifting or moving patients (Bureau of Labor Statistics, 2002b). Workers are also said to suffer abuse, often inflicted by cognitively impaired clients with severe behavioral problems.

Staff Turnover

In combination, the working situation, injuries, low wages, and poor benefits contribute to a high rate of annual staff turnover. This rate was 71% for nursing assistants and was about 50% for registered nurse and licensed practical staff nurses in 2002, about three out of four workers leave each year (American Health Care Association, 2003; Stone & Wiener, 2001). Turnover rates are directly related to low wages and heavy work loads in nursing homes. Nursing homes that have higher staffing levels report lower turnover and higher wages (Harrington & Swan, 2003; Centers for Medicare and Medicaid Services, 2001).

Some programs report that one third or more of persons going through training either never take positions or leave positions within the first three months. These rates suggest problems in recruitment and screening of position applicants, as well as perhaps the training itself. The high rate of staff turnover once on the job is problematic both for quality and continuity of care. Among other things, turnover is a burden for clients who must continually gain confidence in their care provider. It is also a burden on organizations and payers who must continually provide training, and it is a burden on co-workers who must absorb the increased workload (Stone, 2000). For elderly persons

receiving care at home, the need to continually train new workers for their specific care required (and the anxiety over whether workers show up for work or stay on the job for even a short period of time) is stressful and time-consuming.

The Future of Nurse Aides and Home Care Aides

It is estimated that an additional 1.5 million new jobs will be created in long-term care by the end of this decade (Bureau of Labor Statistics 2002c). About 800,000 of these will be for nurse aides, home care workers, and personal care. The increase in positions will be greatest in home care settings (70%) followed by assisted living/residential care (67%). More modest growth of 26% is projected for nursing homes (United States Department of Health and Human Services, 2003). Some of this growth replaces workers leaving this type of employment, but at least one third of the growth is due to an increase in the population needing long-term care services. Beyond 2010, the need for direct care workers is expected to climb even further due largely to growth in the number of persons age 85 and over (Bureau of Labor Statistics, 2001).

One way of viewing the match between supply of labor and demand has been termed the "Elderly Support Ratio" by the General Accounting Office (GAO). In 2000, the ratio of women age 20-54 (the gender and age group currently providing the vast majority of care) to persons age 85+ was 16:1. By 2010, the ratio drops to about 12:1. These ratios fall to 9:1 and 6:1 by 2030 and 2040 respectively (United States General Accounting Office, 1999). Recognizing that the aged are but one source of demand for long-term care services, it is apparent that the workforce supply will become increasingly problematic if retention problems are not resolved or if a new labor source is not

identified. This affects both formal (paid) direct care paraprofessionals as well as family caregivers.

Supplying the U.S. with needed direct care workers will not be met even with a liberalization of current immigration policy. For example, the census projections used in the above analyses assumed relatively high net international annual migration (almost 1 million persons annually) through 2030 (Hollmann, Mulder, & Kallan, 2000). It appears that other sources of labor, such as youth (persons under age 20), males, and people over the age of 54 may have to be attracted to do this work if even today's relative supply of workers is to be maintained.

Informal Caregivers

Informal caregivers are a critical component of the long-term care workforce. They provide close to 80% of care needs of the frail at home (Stone & Wiener, 2001). An informal caregiver may be a family member or friend who provides paid or unpaid care, primarily in the home setting. Informal caregivers usually have no formal training or certification as health care professionals. According to data from the Department of Health and Human Services (DHHS), each year an estimated one in three Americans, or about 52 million persons, care for one or more ill or disabled family member or friend of all ages (National Institute of Nursing Research, 2001). The caregiver role brings enormous emotional, physical, and financial hardships. Care providers juggle work, family, and caregiving responsibilities, often resulting in work disruptions and lost productivity.

Perhaps because of the growing shortage in formal caregiving, as well as consumer preference toward more choice in hiring their own care providers, support is

growing for publicly funded programs for informal caregivers (Polivka, 2001). About 75% of informal workers are family members or friends of the care recipient. At least 35 states allow family members to be paid as a home or personal care provider.

Recognizing the vital importance of informal caregiving, the government established the *National Family Caregiver Support Program* (The Older Americans Act Amendments of 2000). This program provides five basic services for family caregivers: (a) information about services and assistance in gaining access to supportive services; (b) individual counseling; (c) organization of support groups; (d) caregiver training to assist caregivers in making decisions and solving problems related to their caregiving roles; and (e) respite services to give caregivers temporary relief from their responsibilities, and supplemental services, on a limited basis, to compliment the care provided by caregivers.

Because this is a new program there are no available data evaluating its effect on family caregiving.

Staffing Requirements and Links to Quality of Care

Studies have shown a relationship between staffing levels in nursing homes and the resulting quality of care. Harrington and colleagues (Harrington et al., 2000) discuss the link between staffing of RNs in nursing home settings and patient outcomes such as pressure sores, urinary tract infections, and the probability of longer life. Increased RN staffing hours are linked to better patient outcomes on all these measures. Recommendations for increased nurse staffing included 24 hour RN coverage, more RN staffing in direct patient care, increased RN staffing during patient meal times, and increases in education and training levels (Institute of Medicine, 2001, 2003).

Hours of Care in Nursing Homes

A report from an expert panel convened by the John A. Hartford Institute recommended minimum staffing levels for nursing homes (4.13 direct care hours per patient per day, including all RNs, LVNs, and nursing assistants) to ensure quality of care (Harrington et al., 2000). In 2001, the Centers for Medicare and Medicaid Services submitted a report to Congress recommending a minimum of 4.1 hours of direct care nursing staff per patient per day (Centers for Medicare and Medicaid Services, 2001). It was recommended that RN staff should comprise .75 of those hours. Ninety percent of all nursing homes in the U.S. did not meet these recommended standards (Centers for Medicare and Medicaid Services, 2001).

A number of states have increased the staffing standards in nursing homes in recent years (United States Department of Health and Human Services, 2003). In 2000, the state of California enacted staffing requirements for nursing homes requiring a minimum nursing staff of 3.2 hours of direct care per patient per day (National Conference of State Legislatures, 2003). Yet, in a follow-up study of compliance, 44% of the state's nursing homes failed to meet this requirement. Maine and Florida have higher standards than California (United States Department of Health and Human Services, 2003) and other states are also considering mandating hours of care (Riggs, 2002).

Staffing Requirements in Assisted Living Facilities

There are no federal regulations regarding staffing, training, background checks, or staffing ratios in assisted living facilities aside from a requirement stating that "sufficient staff must be employed to deliver services required by residents" (Mollica,

2002). Each state sets its own regulations for assisted living. Some states require that administrators of assisted living facilities complete a course of instruction and training, carry a Nursing Home Administrator Certification, or carry an Assisted Living Facility Certification. Some states require that assisted living facility staff complete on-the-job training or have related experience. Some states require that the owner/licensee of an assisted living facility have access to any criminal history record information from a criminal agency for all persons responsible for the care and welfare of assisted facility residents. Further regulation of the assisted living industry is being studied and discussed at the state and federal level, yet major differences of opinion among industry, government, and interest groups need to be overcome before decisive actions will be taken.

FACTORS AFFECTING THE PROJECTED NEED FOR LONG-TERM CARE WORKERS

A conceptual model for the future long-term care workforce should include the population size, needs of the population in terms of level of disability, types of services available in the community, financing mechanisms, and utilization rates. In discussions of the trends in aging that will impact utilization of long-term care services, the rate of disability in the elderly population and changing social patterns of work and retirement have received a great deal of attention.

Disability in the Aging Population

Researchers have long debated whether an increase in longevity necessarily leads to an increase in chronic illness and disability. To-date there is little, if any, consensus regarding future trends in disability rates. However, regardless of whether we project an increase, a continuation of current rates, or even a decline in disability rates, the “estimate

of older Americans expected to have a long-term disability in 2040 ranges from 14.8 to 22.6 million people, compared to approximately 5.1 million in 1986" (Kunkel & Applebaum, 1991). This corresponds to an increase in the number of disabled ranging from 190-343%.

Long-Term Care and Retirement

Over the next several decades, the demand for long-term care is expected to increase drastically. Meanwhile, aging Americans are changing their attitudes about aging and preference for settings in which their long-term care is provided (Benjamin & Snyder, 2002; Frey & DeVol, 2000). Socioeconomic changes, globalization, and changes in immigration policies have accelerated immigration to the United States, and have contributed to major shifts in the demography of the country.

Today, the U.S. population is more racially and ethnically diverse than ever before in the nation's history. According to the Milken Institute (Frey & DeVol, 2000), heartland regions of the country will become older and less diverse, while melting pot regions, (California, Texas, Southern Florida, and the eastern seaboard) will become younger and multi-ethnic. The baby-boom generation will be distributed unevenly across the country. "Boomer-driven elderly growth through 2025 will be dominated by western states, led by Utah, where the senior population will increase by 143% during the next 25 years" (Frey & DeVol, 2000). The fastest growing areas for the elderly are Nevada, Alaska, Arizona, Hawaii, Utah, Colorado, and New Mexico (Frey & DeVol, 2000).

Aging in place, with a greater emphasis on aging as a couple due to a joint rise in life expectancy, will become more common (Jacobzone, Cambois, Robine, & Chaplain, 1998; United States Department of Health and Human Services, 2003). Recent data

indicate that 70% of seniors spend the rest of their life in the place where they celebrated their 65th birthday (Senior Resource, 2002). Trends also show a phased-in transition to retirement as more Americans delay their retirement through transitional full-time or part-time employment. Traditional, planned retirement communities may no longer be in high demand, while more diverse communities may be attractive as more elderly prefer to receive services at home or in home-like settings and prefer to remain in more diverse, multigenerational communities (Dey, 1997; Lawler, 2001; Prosper, Sherman, & Howe, 2001).

Long-Term Care Utilization Modeling: Demand Models

A number of projection models for long-term care have been developed in the U.S. and other countries (Kennell et al., 1992; Kunkel & Applebaum, 1991; Wittenberg et al., 1998). These models have a common goal of projecting the number of individuals with different levels of impairment. They vary in assumptions about mortality and disability rates, and on the transition rates into various long-term care services.

Brookings/Lewin Long-Term Care Financing Model

Description of the Model

In the late 1980s the Office of the Assistant Secretary for Planning and Evaluation (ASPE) contracted with Lewin-ICF and the Brookings Institution to develop a public use version of the Brookings/Lewin Long-Term Care Financing Model that had been developed earlier in the decade. In February 1992, Lewin-ICF published the model, which included a public use version of the model code and accompanying documentation, revised assumptions, new data, and new findings.

The model has two major components: the *Pension and Retirement Income Simulation Model (PRISM),* which projects work and family history, retirement income, disability, and nursing home use; and the *Long-Term Care Financing Model (LTCFM),* which projects utilization and expenditures for long-term care services (Alecxih, 2002; Kennell et al., 1992).

The model projects the number of individuals age 65 and older receiving services as well as the expenditures for nursing homes, assisted living, and home care. These estimates simulate the effects of assumptions of morbidity and mortality and various financing and organizational reform options on future public and private expenditures for nursing home, assisted living, and home care.

A revision of the model was initiated in 2002 (Alecxih, 2002) to enable projections of long-term care utilization and expenditures to 2050. This work has yet to be released by the DHHS.

Data Sources, Variables, and Assumptions

The Brookings/Lewin Model uses national data and does not analyze regional variations. Data for the model comes from a number of data sources, including the following:

- 1994 National Long-Term Care Survey (NLTCS) (Duke, 1994),
- 1992 Medicare Current Beneficiary Survey (United States Department of Health and Human Services, 1992),
- SALF (Survey of Assisted Living Facilities) (Hawes, Rose, & Phillips, 1999),
- The National Nursing Home Survey, and

- The Medical Expenditure Panel Survey (Alecxih, 2002; Kennell et al., 1992).

For the full diagram of data sources utilized in the model, refer to Appendix B.

Table 1 includes a brief description of these five surveys and limitations that impact the utility of these data to make accurate projections. One important limitation is that the surveys omit non-aged disabled persons who are not eligible for Medicare or include only small samples of these groups. Another limitation is that the samples are drawn to provide national probability estimates, and do not generally apply to individual states. Because of this, state variations in service supply, practice patterns, and long-term care benefit eligibility – and how these might affect long-term care service use – are not reflected in the utilization estimates. A third notable limitation is that the sampling designs underrepresent persons in supportive housing, a growing option in long-term care.

Table 1

Limitations of Data Sources Utilized in the Brookings Model

Data Source	Description	Limitation
1994 National Long-Term Care Survey (NLTCS) (Duke University, 1994)	• Longitudinal survey of the health and well-being of elderly Americans. • Conducted in 1982,1984, and every five years thereafter. • Identifies changes in physical and mental health, insurance coverage, financial status, and family support systems of Americans over 65. • Representative of community residents and those moving into nursing homes.	• Sample drawn from Medicare enrollment files. • Excludes non-Medicare disabled population. • Baseline excludes persons in non-community settings (licensed housing such as assisted living and residential care).

Data Source	Description	Limitation
The 1992 Medicare Current Beneficiary Survey (MCBS) (United States Department of Health and Human Services, 1992)	• Longitudinal survey of a national sample of approximately 12,000 Medicare beneficiaries in six age categories (under 45, 45-64, 65-69, 70-74, 75-79, 80-84, and 85 and over).	• Does not over sample for low prevalence subgroups, (e.g., those in supportive housing, rural populations, ethnic minorities). Thus utilization rates and changes rates for these subgroups have large standard errors.

Data Source	Description	Limitation
Survey of Assisted Living Facilities (SALF) (Hawes et al., 1999)	• Survey of a nationally representative sample of 2,945 settings identified as assisted living facilities.	• Limited to facilities licensed and identified as assisted living. This ignores a substantial inventory of residential care and other supportive housing units. • Lack of common nomenclature among states that defines certain living arrangements as assisted living.
The National Nursing Home Survey (NHHS)	• Continuing series of sample surveys of nursing homes, their residents, and their staff.	• Sample does not make estimates for individual states. • May include residential care facilities and beds that cannot be subtracted from the total. • Inaccurate estimate of disability by including residential care.

Data Source	Description	Limitation
The Medical Expenditure Panel Survey (MEPS)/ Household Component (HC) Surveys[1] (Alecxih, 2002; Kennell et al., 1992)	• Began in 1996 with sample of 9,000 households and 21,571 individuals. • Consists of four components, households, nursing homes, medical providers, and insurance providers. • 1997 sample increased to 13,000 households and 32,626 individuals. • Large-scale survey based on self-reported information.	• Not designed to support state or county-level estimates. • Uses National Health Interview Survey sample design, and thus excludes the population in supportive housing.

[1] We do not have information regarding which year data was utilized in the Brookings/Lewin Model.

In addition to the limitations inherent in the data sets, the Brookings/Lewin Model uses a number of limiting assumptions. Two of these are particularly notable. One is an assumption of declining disability rates, based on findings from the National Long-Term Care Survey. This is a finding not universally endorsed by other studies of population trends (Lakdawalla, Goldman, & Bhattacharya, 2001; Verbrugge, 1989, 1990). A second assumption is that of constant rates of long-term care service utilization of nursing home admission over time, on an age/sex/marital status basis, for disabled and non-disabled persons. This does not recognize variation among states, or how nursing home utilization alters the availability of home care and assisted living beds.

Data from the 1999 Social Security Trustees Report are also a component of the Brookings/Lewin Model, although it was not clear how they were used in the model. The Trustees report projects that the age-sex adjusted death rate is expected to decrease 34% from 1998 to 2073. Current life expectancy at birth is projected at 79.4 years for men and 84.1 years for women (Social Security Administration, 1999).

Utilization of the Brookings/Lewin Long-Term Care Financial Model

The Brookings/Lewin Model has been used in federal and state efforts to forecast needs for long-term care, including disability projections, projections of future long-term care needs, long-term care insurance, spending, and financing. Examples of studies or planning efforts in which the model has been used include the following:

- The United States Department of Health and Human Services used the model in an analysis of proposed options to address long-term care reform. The options included a) purchase of private long-term care insurance, b) voluntary public insurance, and c) federal regulation of private long-term care insurance.

Estimates based on results from the Lewin Long-Term Care Model were used for data on public and private spending for long-term care.

- The Congressional Budget Office used the Brookings/Lewin Model for analysis and forecasts of national expenditures for long-term care services for the elderly (Congressional Budget Office, 1999). The model was utilized to obtain estimates for per capita expenditures, as well as projections of the disability status of the U.S. population age 65 and older.
- Maine and Massachusetts used the model for analysis and future projections of long-term care utilization and reform at the state level (Mitchell et al., 2002; Sheils, Haught, & Kirby, 1998). The Commission on Financing of Long-Term Care in Maine utilized the Lewin Model to predict future long-term care needs. Interestingly, the accuracy of Lewin estimates was questioned by Maine's Blue Ribbon Commission to Address the Financing of Long-Term Care because of the disparity between the estimates from the Department of Human Services in Maine and those based on the Brookings/Lewin Model. The former estimates of the number of disabled individuals were higher than the estimates based on the Brookings/Lewin Model (Mitchell et al., 2002).

Appendix C includes more detailed information and discussion on the Brookings/Lewin Model, a table of disability rates, and further analysis of the model.

Personal Social Services Research Unit Model (PSSRU)

The British Personal Social Services Research Unit Model (PSSRU) was chosen to illustrate the complexity of modeling efforts (known and unknown factors/variables in the modeling equation are just one example of the complexity), to provide another

example of a modeling study, and to discuss major differences in the approaches and projections between the two modeling studies.

Description of the Model

The PSSRU conducted a simulation modeling study, "Demand for Long-Term Care: Projections of Long-Term Care Finance for Elderly People," with a goal of making projections of demand and expenditures in long-term care services in England through 2030 (Wittenberg, Pickard, Comas-Herrera, Davies, & Darton 1998). The underlining assumption of the model was that half of the growth in overall numbers of the elderly was expected to occur between 2020 and 2030.

Differences in Models

The PSSRU Model, in contrast to the Brookings/Lewin Model, did not assume a decline in disability rates. The model provided several scenarios with variations in disability rates. PPSRU projected an expansion of home and community based care services by around 61% due to the growth of the numbers of disabled elderly in England.

Another major difference between the Brookings/Lewin Model and the PSSRU Model is that the latter stresses the sensitivity of projections of long-term care needs to assumptions about age-specific rates of dependency. The PSSRU researchers emphasized utilizing longitudinal data to look at trends in transition rates between health and dependency states. The PSSRU Model considers the association between dependency and other variables, such as age, gender, and household composition. The following example illustrates the sensitivity of long-term care projections to changes in socio-demographics. A sensitivity analysis illustrates that the impact on long-term care services of a 1% per year decrease in the proportion of elderly who were married or

cohabiting, and a 1% decrease in the proportion of single individuals who live with others is that the projected number of elderly people living alone would rise by 116% (68% base case). Under the same scenario, the number of home care services recipients would rise by 72% (base case 56%) (Wittenberg et al., 1998).

In addition to variables such as disability rates, mortality rates, and fertility rates, the model includes numerous unknowns, such as advances in biomedical sciences and technology that could affect the demand but are not usually incorporated into demand modeling.

Further information and discussion on the PSSRU Model and its focus on dependency and informal care is included in Appendix C.

Consumer Demand and Preferences for Setting of Long-Term Care

As Kitchener and Harrington point out, all states face three major pressures to expand their Medicaid home and community based services (HCBS) programs (Kitchener & Harrington, 2003b). First, the public increasingly reports a preference for long-term care provided at home as opposed to services in institutions (The NewsHour with Jim Lehrer/Kaiser Family Foundation/Harvard School of Public Health, 2001). Second, concerns about the quality of nursing home care have increased the demand for HCBS as an alternative to institutional care (Institute of Medicine, 2001). Finally, the 1990 *Americans with Disabilities Act* (ADA) and the subsequent legal judgment in the 1999 *Olmstead* Supreme Court decision require that states must not discriminate against persons with disabilities by refusing to provide community services when they are available and appropriate (Rosenbaum, 2001). Clearly, some states have been active in rapidly expanding their HCBS programs, while others lag behind, continuing to rely

heavily on institutional services. This variation in HCBS could account for state variation in the supply of institutional long-term care services.

Factors Influencing Future Settings of Care

Future trends in long-term care provider supply may be more dependent upon financing than the need for long-term care services. Clearly, the need for long-term care will increase due to an aging population, but the lack of financing may mean that need is not translated into greater use of services. Perhaps the greatest constraint to the long-term care supply is the fact that most providers are heavily dependent upon the Medicaid program for financing. In 2002, total nursing home expenditures were $103 billion (Heffler et al., 2004). The projected increases for nursing homes are expected to be 9% in coming years. Of total nursing home expenditures in 2000, the government paid 49%, private long-term care insurance paid 5%, and individuals paid 46% out of pocket (Centers for Medicare and Medicaid Services, 2000). Of the government portion, most was from the Medicaid program (41%). For home care services, the government paid about 33% nearly equally between Medicare and Medicaid, with the bulk of payment (62%) paid out of pocket by individuals (Centers for Medicare and Medicaid Services, 2000).

States are concerned about their own budget crises, and some are freezing or reducing Medicaid provider reimbursement rates, including those for nursing homes (Boyd, 2003; Smith, Gifford, Ramesh, & Wachino, 2003). Because nursing homes are heavily dependent upon Medicaid and Medicare funding, reimbursement policy changes could have an important impact on the future growth rate of nursing homes. As states

constrain their Medicaid rates, fewer nursing homes are likely to be built (Boyd, 2003; Smith et al., 2003).

There has been rapid growth in assisted living/residential care over the past decade. Mollica attributes this shift to a change in consumer demand because of the philosophy and organization of assisted living/residential care organizations. These settings seek to emphasize privacy, independence, choice and autonomy, offer a more residential type setting, and provide flexibility in the amount and type of services delivered (Mollica, 2002). Wiener and colleagues (1999) suggest that some growth was fueled by the entry of large chains such as Marriott and Hyatt into the assisted living market, targeted primarily to the private pay market. The lines between assisted living/residential care and nursing homes are increasingly blurred as some organizations allow individuals to arrange for or provide nursing and health related services for those individuals who may meet the level of care criteria for nursing home admission (Mollica, 2002).

There is also some evidence of low occupancy rates for assisted living/residential care facilities as these facilities compete with nursing facilities and among themselves (Mollica, 2002). Supply may have been overbuilt in some areas because the prices are high and the demand is less than expected. Consumers and the assisted living industry have advocated for states to pay for such services under the Medicaid HCBS waiver program, arguing that assisted living/residential care is often less expensive and less restrictive than nursing facilities (Mollica, 2002; Wiener et al., 1999). Changes in reimbursement policy, increased marketing to consumers with flexible packaging of

services, and changes in the mix of services allowed by licensing in each state may have an impact on the future demand for assisted living/residential care.

Although the current supply of nursing home beds appears to be adequate and the growth rate for residential/assisted living beds has been high, it is not known if there is a sufficient supply of beds for the future. Not only does the rapid aging of the baby boomers needs to be taken into account, but disability rates, Medicaid reimbursement and certificate of need policies, per capita income, and many other factors need to be examined as well (Congressional Budget Office, 2002). Such projections must also take into account that consumer preferences are changing. The rapid growth in home and community based services (HCBS) may be contributing to the lower occupancy rates in institutional long-term care beds at the present time, but it is not clear that the HCBS growth will also be sufficient to meet the future demand for long-term care services. Home and community based services are facing many of the same financial constraints from Medicaid that are experienced by institutional long-term care services.

INNOVATIONS IN LONG-TERM CARE

Innovations to Address Consumer Concern About Nursing Home Care

There have been ongoing efforts to address growing dissatisfaction with traditional nursing home care, to change the environment of nursing homes, and to radically alter the culture of traditional nursing facilities. Although the innovations vary somewhat, they all strive to make the nursing home setting less institutionalized by adding plants, pets, and/or children to the setting. Some models have sought to improve the environment by addressing job satisfaction and retention among nurses and nursing assistants through the development of more collaborative and multidisciplinary care

models. Three of the leading models on innovation in nursing home care are described in Table 2.

Table 2

Innovations in Nursing Home Care

Name	Description	Evaluation
The Eden Alternative (*Drew,1999*)	• Objective is to change the institutional environment. • Most visible changes are the presence of plants, animals, and children.	• Pilot intervention and evaluation study in Texas.
Applewood Living Center (*Colorado Department of Public Health and Environment, 2001*)	• A 120 bed skilled nursing facility with an "intergenerational" approach, which combines a nursing home facility with a childcare center on-site. (It is not clear whether employees have access to the childcare facility for their own children - a potentially important factor in employee retention.) • Creates a positive, life-giving environment. • Helps nursing home residents suffering from various forms of depression. • Helps with recruitment issues.	• No evaluation study conducted to-date.

Name	Description	Evaluation
Wellspring (*Stone et al., 2002*)	• Confederation of 11 nonprofit nursing homes in Wisconsin. • Redesigned the way staff are trained to include cross-disciplinary clinical training in teams representing all levels of staff. • Focuses on collaborative problem solving and responsibility sharing.	• Evaluation was conducted by the Institute for the Future of Aging Services. • Findings indicated that retention rates of registered nurses increased from 64% to 82%. • To-date, this model has been tested and evaluated only in Wisconsin.

While the evaluation of some of these models has shown improved staff satisfaction and retention, it is unclear what impact they have on changing consumer perceptions. It is also unclear whether the models are replicable in other states or with a different mix of residents and workers.

There are ongoing efforts at the federal and state level to improve the quality of care in nursing homes, improve consumer satisfaction, and provide adequate and timely information on nursing home quality. Medicare's *Nursing Home Compare* (http://www.medicare.gov/NHCompare/home.asp) is an example of one such effort. *Nursing Home Compare* is an interactive web-based tool that provides consumers with

comprehensive detailed information about the past performance of every Medicare and Medicaid certified nursing home in the country. It includes data on the average number of hours worked by registered nurses, licensed practical or vocational nurses, and certified nursing assistants per resident per day, the percentage of residents with pressure (bed) sores, the percentage of residents with physical restraints, and other important information. A similar resource was developed by the California HealthCare Foundation to assist residents of California in making informed choices about nursing home care for themselves, friends, or family members. The website for this resource, (http://www.calnhs.org), was heavily utilized by consumers in just the first few months of operation.

State Initiatives in Long-Term Care

Changing consumer preferences, court decisions mandating community care options, and financial imperatives have created a climate of innovation and experimentation as states attempt to restructure their long-term care services.

There is a wide spectrum of state programs and initiatives attempting to respond to the needs of elderly Americans with home and community based models of care. Some programs have been underway for quite some time and have evaluation findings. Other programs are relatively new; therefore, the outcomes of their efforts are not yet known.

A number of state-funded long-term care programs using alternative sources of revenue have been developed to supplement public funding, therefore expanding the number of eligible elderly. This supplemental funding is used to provide in-home services to people who would otherwise not qualify for means-tested programs like

Medicaid. It also permits expansion of the range of services. Such programs include the use of tobacco settlement funds (Florida), revenue from the state lottery (Pennsylvania), funds from general revenue (Indiana), local property taxes (Ohio; Franklin County), and others (Summer, 2001).

In 1996, more than $1.2 billion was spent on state-funded home care programs for the elderly (Summer, 2001). Though services provided through state programs represent just a small fraction of the services to the disabled elderly in this country, the current expansion of state-funded services signifies the states' response to the needs for particular services for the elderly disabled Americans.

Cash and Counseling

A federal demonstration cash program (Cash and Counseling Demonstration and Evaluation Program) is being tested in three states: Arkansas, Florida, and New Jersey. It is a means-tested program with a primary goal of increasing consumer control over their personal care and assistance, enhancing their satisfaction with care, and meeting their needs without increasing costs. The program allows recipients to spend, at their own discretion, a monthly cash allotment to purchase services and equipment, and to make home modifications that help mobility. A survey conducted by Mathematica Policy Research, Inc. (Brown, 2000) showed that the cash program's participants prefer to hire their family to take care of their needs (78%), followed by friends, neighbors, and church members (15%). The unique feature of the program is that the consumer can also use the monthly allowance to purchase items of need. The preliminary data show that one third of consumers bought or repaired equipment, one fifth of consumers bought or repaired equipment for meal preparation or housekeeping chores, and some purchased medicine

(Brown, 2000). Although the evaluation of the Cash and Counseling program is not yet complete, early findings show that consumers liked the program (Benjamin & Snyder, 2003).

Initiatives in Home and Community Based Care

The National Governors Association (NGA) (http://www.nga.org) conducted an extensive review of state-funded home and community based service programs that were not Medicaid waiver based. The five programs presented in the NGA report (Summer, 2001) provide home and community based services for people who may not qualify for the state's Medicaid program. One common element of the five programs is that they often serve as a point of entry into the long-term care system in the state. Another commonality is that they all rely on locally based case managers to make eligibility determinations and develop care plans for clients. Table 3 presents a description of the key elements of these five programs.

Table 3

Examples of State-Funded Home and Community Based Services

Program	Type	Services Provided	Evaluation
California The Residual Program, under California's In-Home Supportive Services Program (IHSS)	Medicaid program, a state and county funded home and community based services program for individuals who are aged, disabled, or blind.	House cleaning, meal preparation, help with laundry and grocery shopping, personal care services, other services. Clients hire and supervise service providers including family members.	U.S. Department of Health and Human Services, April 1999 (http://aspe.hhs.gov).
Florida Community Care for the Elderly Program (CCE)	Provides home and community based services to functionally impaired individuals who are age 60 and older.	A large array of services including adult care and legal assistance are provided.	No evaluation found.

Program	Type	Services Provided	Evaluation
Indiana Community and Home Options to Institutional Care for the Elderly and Disabled Program (CHOICE)	About four fifths of the program clients are age 60 and older.	Provides home health, homemaker, attendant care, respite care, adult daycare, transportation, meals, rehabilitation, home modification, adaptive equipment, and other services.	Some evaluation of the program can be found on http://www.ncsl.org/
Ohio Senior Options Program	State-funded demonstration project in two counties. Program provides services to county residents age 60 and older.	Full range of services to residents who have difficulties with particular activities of daily living.	No evaluation found.
Pennsylvania OPTIONS Program	Services are provided to residents age 60 and older who need assistance at home.	Provides a wide range of home and community based services.	No evaluation found.

The National Conference of State Legislatures (NCSL) also compiled and reviewed information on state initiatives (Coleman, Fox-Grage, & Folkemer, 2002). The goal of the NCSL project was to obtain insights into recent state long-term care public policy reforms. States differ considerably in their allocation of Medicaid long-term care funds to institutional care versus home and community based services. Vermont apportioned only 45% to institutional care in 2001, and 55% to home care. Washington allocated 52% to institutional care in 2001 and 48% to home care. In contrast, Mississippi spent 91% of its Medicaid long-term care funds on institutional care and only 9% on home care (Coleman, Fox-Grage, & Folkemer, 2002). NCSL found that a number of state legislative initiatives involved expanding home and community based options for people with disabilities, including actions to regulate nursing homes and assisted living facilities. For example, in Minnesota, legislation resulted in $183 million in appropriations for long-term care reforms for 2002-2003. More than $75 million was invested in expanding home and community based service options. This increased spending was expected to be partially offset by $44 million in savings from downsizing the nursing home industry (Coleman, Fox-Grage, & Folkemer, 2002).

Initiatives Integrating Medicaid and Medicare

Some state initiatives are aimed at serving 6.4 million seniors and individuals with disabilities dually eligible for coverage under the Medicare and Medicaid programs. Such programs attempt to integrate Medicaid's long-term care benefits with Medicare's acute care coverage. These are the *Program of All-Inclusive Care for the Elderly* (*PACE*), and the *Medicare/Medicaid Integration Program* (*MMIP*) supported by the Robert Wood Johnson Foundation.

The Program of All-Inclusive Care for the Elderly (PACE) serves chronically ill elderly in a community setting whenever possible. The program serves individuals aged 55 or older who are certified by their state to need nursing home care, are able to live safely in the community at the time of enrollment, and are living in a PACE service area. Although all PACE participants must be nursing home eligible to enroll in PACE, nationally only about 7% of PACE participants reside in a nursing home. For PACE enrollees receiving nursing home care, the PACE program pays and continues to coordinate his or her care (National PACE Association, 2002).

The Balanced Budget Act (BBA) of 1997 provided for expansion of PACE projects nationwide. Twenty-five PACE sites are operating in 14 states and are planned for an additional 10 states (Defino, 2000; Greenwood, 2001).

Mathematica Policy Research, Inc. was awarded a four-year contract from the Centers for Medicare & Medicaid Services to evaluate PACE. Mathematica will assess the most important effects of PACE on its members and on the Medicare and Medicaid programs by comparing outcomes of enrollees in the program with those of a comparison group. The final report from this evaluation is scheduled for September 2004.

The Medicare/Medicaid Integration Program (MMIP) was established in 1996 by the Robert Wood Johnson Foundation and the University of Maryland Center on Aging. The program aims to demonstrate that the integration of acute and long-term care services in a managed care environment will result in improved client outcomes and improved client satisfaction while not increasing costs. MMIP projects are underway in 14 states (Colorado, Florida, Minnesota, Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Oregon, Vermont, Texas, Washington, Wisconsin, and New York).

In addition, several other states have initiatives using a variety of approaches. These approaches include the integration of acute and long-term care services in managed care systems, single point of entry programs, programs designed to promote the growth of assisted living or convert nursing home beds into assisted living, and programs that redesign state and county systems in an effort to enhance flexibility of services and eliminate fragmentation. Appendix D includes a description of these individual state initiatives. Most of them have not been formally evaluated. Therefore, their impact and their ability to be replicated are largely unknown.

Olmstead and State Initiatives

Following the Olmstead decision, which requires states to provide services in the community, states are working on programs and initiatives to assure that disabled Americans are given a choice as to where to receive the long-term care services that they require (United States Department of Health and Human Services, 2003). The DHHS has created a special website (http://www.hhs.gov/ocr/mis.htm) that provides the most recent information on federal and state initiatives, programs, and accomplishments in creating the most integrating environment for disabled. The Centers for Medicare and Medicaid Services (CMS) is creating a database of Promising Practices in Home and Community Based Services to assist states in strengthening their long-term care support systems (Centers for Medicare and Medicaid Services, 2002). The Cash and Counseling Demonstration Program, Wisconsin Family Care, and Oregon's Independent Choices Program are just few examples of those initiatives (Centers for Medicare and Medicaid Services, 2002).

Workforce Innovations

A number of resources have emerged in the past few years attempting to stimulate the development of initiatives directed to solve problems with the shortage of workers, high turnover rates, low morale, and other problems with the direct care workforce. Among these are information clearinghouses facilitating the identification and dissemination of information about these initiatives. There are also a number of government and foundation funded demonstrations, with a few studies underway (or recently completed) evaluating the larger initiatives.

The Paraprofessional Institute and the North Carolina Department of Health and Human Services conducted a survey of states to obtain information about actions taken or being considered to address the shortage of direct care workers and to consolidate the information into a single report (Harmuth & Dyson, 2002). The full report can be found on the Direct Care Clearinghouse website at http://www.directcareclearinghouse.org/download/2002_Nat_Survey_State_Initiatives.pdf

Figure 5 displays information on some of the areas targeted by the initiatives such as wages, benefits, recruitment, and training. While not an exhaustive list, this table highlights areas receiving the most attention in state initiatives to address the direct care workforce shortage.

Figure 5

Direct Care Workforce Initiatives

Wages

- Reimbursement rate increases; minimum hours guarantee; special pay for afternoon, night, and weekend service; Wage Pass Through, experience differentials; compensatory time
- Legislation relative to collective bargaining

Benefits

- Health care benefits via Medicaid buy-in, access to the State Health Insurance Program (SCHIP); or other health insurance coverage and pooled risk purchasing
- Daycare benefits, assistance with transportation, vacation, and sick leave
- Childcare, and tax credits for employers who provide childcare

Training

- Model training approaches
- Mentoring role
- Collaborations to share training costs between providers and public agencies; other funding for training
- Minimum training standards/requirements

Retention

- Expanded scope of duties; career ladder
- Quality Assurance/Improvement Initiative (e.g., Eden Alternative, Wellspring)

Recruitment

- Marketing/advertising/recruitment models and materials
- Coordination with Department of Education and links to high school counselors
- Coordination with Department of Labor (or Employment), Human Services and/or Vocational Rehabilitation regarding training or retraining, job fairs
- Outreach programs to high school and college students
- Outreach to hard to place unemployed and homeless; Welfare to Work Initiatives
- Use of AmeriCorp or Senior Corps volunteers; other short term (e.g., one year) immersion programs

Employee Screening

- Employee evaluation/screening criteria to identify suitable direct support workers
- Criminal background checks

Communications and Coordination

- Nurses Aide/PAS registry
- Public Authorities as "employers" for personal care workers
- Cash allowances and support services for people with disabilities

Source: Compiled from (Harmuth & Dyson, 2002)

The areas attracting the bulk of attention have been wages and benefits, recruitment processes and collaborations, training, and employee evaluation. Included among these approaches are several directed to worker retention such as career ladders and changes in supervision practices (including those associated with direct hire practices for personal care recipients) to recognize and involve the direct care worker in decision-making about care. Initiatives directed to expanding the workforce include both variations in recruitment approaches, and payments made to assist or retain family and informal caregiver involvement.

The context within which an initiative operates may be important in understanding its initiation and operational success. For example, a variety of state policies or market behaviors can affect the supply of direct care workers. Among these contextual factors are policies such as required nursing home staffing ratios, the relative supply of affordable assisted living and other supported housing, nurse delegation policies, Medicaid waiver programs or state-funded HCBS program rules affecting access to technology, or other benefits.

In addition to the list of state initiatives listed above, the Institute for the Future of Aging Services (at the American Association of Homes and Services for the Aged - AAHSA) and the Paraprofessional Healthcare Institute (a national nonprofit health care employment and advocacy organization) have developed a National Clearinghouse on the Direct Care Workforce (NCDCW). This is a project funded by ASPE - Office of Disability, Aging and Long-Term Care Policy (DALTCP). Among other activities, the clearinghouse project:

1) Develops specifications for new program demonstration grants designed to bring about changes in provider practice and public policy that reduce the rate of vacancy and turnover among paraprofessional staff and improve the quality of their jobs.

2) Designs a public awareness strategy to increase the public recognition of the role of direct care worker in long-term care.

3) Creates a database of promising provider practices designed to improve worker recruitment, retention, and job quality.

4) Creates a database of research and evaluation studies related to the nature, causes, and impact of direct care workforce problems, and attempted solutions.

The collaborative report published by the Department of Health and Human Services and the Department of Labor in May 2003 presents a list of recommendations aimed at assuring that an adequate supply of health care workers is available to take care of the needs of the disabled elderly in the U.S. (United States Department of Health and Human Services, 2003). Among these recommendations are:

1) Exploring with faith and community based organizations their role in recruiting volunteers for respite care for family members, “back-up” services, and home based support.
2) Encourage state and local efforts in promoting One-Stop Career Center systems that provide information on the full spectrum of long-term care services, training requirements, and benefits to job seekers in long-term care.
3) Encourage state and local efforts in enhancing training and education in long-term care, including support of the implementation of the Nurse Reinvestment Act.

4) Explore new sources of workers, including military personnel transitioning to civilian life, individuals with experience providing care to family members, immigrants, and young workers.

LONG-TERM CARE MODELS IN OTHER INDUSTRIALIZED COUNTRIES

There are social, economic, cultural, and other differences between the U.S. and other industrialized counties that influence how policymakers attempt to create a fair and efficient long-term care system to serve the needs of the elderly. According to the Organisation for Economic Co-operation and Development (OECD), the world's aging population can be roughly divided into three groups of countries: 1) those with a moderate increase of older population (Germany, Sweden, United Kingdom); 2) those with a strong demographic increase of the older population (France, the Netherlands, the U.S.); and 3) those with a deep and fast demographic increase of the older population (Australia, Canada, Japan) (Jacobzone et al., 1998). The U.S. is not alone in its efforts to resolve the pressing problems of the aging population (Merlis, 2000; Tilly, Wiener, & Cuellar, 2000; Visco, 2001).[2] Other countries with a fast growing aging population and developed social systems have investigated ways to create solutions to the numerous strains that an aging population puts on society.

There are several elements that are common to the approaches that other industrialized countries have taken in providing long-term care to an increasing number of aged in their population. Those program elements are listed below.

- A shift from institutional care toward more consumer oriented care delivery.

[2] There are countries who 'age' at a much more significant pace than the U.S. According to the data of Organisation for Economic Co-operation and Development (OECD) (Jacobzone et al., 1998)

- A broader use of caregiver incentives and care allowances.
- An emphasis on paid informal care including family caregivers.
- More flexibility in dispersing care allowances, including purchasing services, home renovations, and equipment purchasing.
- Less regulation, therefore allowing for broader self-determination by consumers.

There is little information available about the impact of these programs and little formal evaluation of these programs. Therefore, it is difficult to determine which components might specifically be applicable in the U.S. However, clearly we can learn from looking at the experience of other countries that are creatively addressing the needs of an aging population.

Explicit deinstitutionalization policies with an emphasis on community care settings are the major trend found in international long-term care policy development. The availability of informal care seems to be the primary focus of European countries in their efforts to find the means of addressing an increasing proportion of aged in the population. Governments are using a *care benefit* as a potential incentive to substitute informal caregiving for other paid employment, and to address a shortage of formal caregivers (Jenson & Jaconzone, 2000). A care benefit is a cash incentive provided either directly to the consumer (elderly or disabled) or to the caregiver who provides services to the consumer. Appendix E includes a table describing long-term care programs in several European countries.

A Systematic Approach to Long-Term Care in Germany

Golden Plan, a long-term care program for the aged, (Campbell, 2000; Ihara, n.d.; Imai, 2002) in Japan, and *Soziale Pflegeversicherung*, a universal social insurance

program in Germany are two examples of systematic international approachs to long-term care (Anderson & Hussey, 2000; Butler, 1999; Cuellar & Wiener, 2000; Geraedts, Heller, & Harrington, 2000; Harrington, Geraedts, & Heller, 2001; Merlis, 2000; Tilly et al., 2000; Wilbers, n.d.). We focus on the initiatives of Germany because its previous long-term care system resembled the existing system in the U.S. in that it was means-tested and state administered (Cuellar & Wiener, 2000).

In 1994, Germany enacted a mandatory universal social insurance program for long-term care that provides benefits to all people with disabilities, regardless of their financial status (Cuellar & Wiener, 2000). The long-term care insurance premium is uniform and fixed at 1.7% of salary, shared between employers and employees. Cost-control measures ensure that spending does not exceed revenues. The maximum monthly benefits are fixed by disability level and service setting. Benefits are controlled by legislation and are not inflation driven. There are three eligibility categories, which vary by dependency level. Maximum expenditures per person are capped at levels that vary by disability level and institutional status. For beneficiaries receiving services outside of an institution, the cash benefit "voucher" is much less than the value of the service benefit (care benefit is between $200-$650; service benefit is between $375-$1,875 per month). The service benefit must be used to purchase long-term care services. The cash benefit is an unrestricted cash payment that may be spent on whatever the recipient chooses. There are no restrictions on how the cash is used. It can be used to purchase services, pay for home improvements, and other needs.

Many personal caregivers in Germany are immigrants from countries of the former socialist block. Their labor is much cheaper, and they readily accept tasks that are

considered less desirable by the native population of Germany. A substantial majority of beneficiaries (76%) choose cash over services. Since cash given to family members is not taxed as income, it promotes family caregiving (Cuellar & Wiener, 2000).

This universal social insurance program for long-term care in Germany is an example of a non-means tested model, with few restrictions, where payments are based on the level of disability, and where cash is usually chosen over services. The cash is primarily used to pay informal caregivers, thus alleviating pressure to recruit and train more formal long-term care workers. Clearly, the aging population and issues of how to provide care and a sufficient number of caregivers are global problems. Each country confronting these issues, including the U.S., can learn from each other and develop better ways to share data and best practices.

SUMMARY OF FINDINGS

Major findings from the study are discussed below. Findings are separated into three main categories related to the supply of long-term care services, workforce issues, and the future demand for long-term care.

Findings Related to the Supply of Long-Term Care Services

1) **Recent trends suggest that the most likely sectors of growth in long-term care services will be in assisted living/residential care and in home and community based services.**

Since 1990, assisted living/residential care facilities have increased by 57% and the number of beds has increased by 97%. Assisted living offers less skilled care than nursing homes and has become increasingly popular among consumers whose needs can

be adequately met in these settings. Care of the aging population in home and community based programs is also increasing. Over the past decade there has been more than a twofold increase in participants in Medicaid home and community based services.

2) **Nursing homes and nursing home care, while major components in the long-term care system, have had slow growth rates in recent years and lower occupancy as non-institutional service alternatives have expanded.**

Nationally between 1990 and 2002, there was a 1% growth in the number of nursing home facilities and a 7% growth in the number of beds. Yet nursing home growth slowed considerably over the decade and the number of beds has begun to decrease. Nursing home beds peaked in 2000 and then declined by 1% in 2002. Occupancy rates in nursing homes have declined nearly 7% from 1995 – 2001, despite continued growth of the elderly population in recent years. Consumer preference for alternative settings and the growth in assisted living/residential care as well as in home and community based programs accounts for some of the shift away from nursing home care.

3) **There is considerable variation among states in the growth of nursing home facilities and beds and assisted living/residential care facilities and beds.**

Fifteen states lost nursing home beds during the period from 1990 to 2002. Most of the bed loss occurred after 1998. A few states (Alaska, Connecticut, Kansas, Maine, and Oregon) lost about 15% of their nursing home beds. In contrast, most states increased the number of assisted living/residential care beds during the period. Twelve states reported growth rates over 200%. Only two states, (Kentucky, Indiana) reported a loss of assisted

living beds and those losses were 13% and 2% respectively. The District of Columbia report a loss of 66% of its assisted living beds over the study period, most of that loss occurring in the past two years.

4) **Assuring the quality of care in nursing homes will continue to be a concern among policymakers and consumers.**

Staffing levels have been linked to quality of care in nursing homes. A higher number of hours of care per day has been linked to better patient outcomes in nutrition, urinary tract functioning, and pressure sores. Lower staff turnover rates are also related to improved resident functioning. Consumers and advocacy groups have increased public attention to the quality of care delivered in nursing homes. Individuals and families who choose nursing home care have public access to web-based information on individual nursing homes including staffing levels and patient outcome measures. In markets where there is competition among nursing homes, consumers may pay more attention to quality measures and patient outcomes in the selection process.

Findings Related to the Long-Term Care Workforce

5) **Current trends in long-term care with an emphasis on informal caregiving, a shift from institutional care, and the promotion of a wide range of less restrictive care environments will impact the type of long-term care workers needed and the training needed in different settings.**

The shifting of care toward less restrictive setting will have an impact on the number and type of care providers needed and as well as training requirements. In assisted

living/residential care facilities, staffing standards and requirements are regulated by the states and there is considerable variation in staffing. Generally there are few requirements for assisted living facilities to hire trained professional nursing staff. These requirements may shift and there may be a move to introduce federal regulation as elderly residents require higher levels of care and the industry attempts to provide a variety of care services in assisted living facilities.

6) **Despite the flat growth in nursing home facilities, more nurses and nursing personnel will be needed due the increased number of elderly who will require nursing home care and to fill new and replacement positions.**

The current and pending national nursing shortage will more severely impact the nursing home industry because it is difficult to fill RN positions in long-term care settings. New graduates and experienced nurses are not attracted to nursing home settings for a variety of reasons that include lower salaries than in acute care. Other factors may include the lack of professional affiliation or prestige and the heavy emphasis on paper work and supervision of nurse assistants.

7) **High turnover rates of nursing assistants in the nursing home industry create a constant demand to recruit and train new certified and licensed workers for nursing homes.**

Turnover rates have been linked to low wages and benefits, lack of recognition from supervisors, and the physical hardship and potential for injury in this work. Numerous studies have shown that RNs skilled in management and leadership can reduce staff

turnover rates and improve morale, yet little training is focused on developing these skills in nurse managers in long-term care. Programs focused on employee participation in care planning and recognition for the role of nursing assistants have also been found to be effective yet have not yet been widely adopted. Resources directed toward addressing shortage issues are often focused on recruitment and training with little or no attention given to keeping new staff.

8) **The demand for professionals (physicians, nurses, physical therapists, etc.) needed to care for the future aging population will be dwarfed by the vast number of non-licensed formal and informal caregivers need to care for the elderly in home and community based settings.**

Estimates are that the size of the non-licensed and informal care workforce may need to triple. Even with liberal immigration policies, the U.S. cannot rely on the traditional sources of new, entry-level workers to meet our needs. New sources of workers may include retirees, youth, or more part time workers. In addition, family caregiving will continue to be an important and sizeable component of care at home. More resources will be needed to support, train, and compensate family and other informal caregivers.

Findings Related to Modeling of Long-Term Care Demand

9) **There are limitations in the models that use existing data to attempt to forecast the future demand for long-term care services.**

There are limitations in the data sources used and the underlying assumptions used to develop the models. Data used in developing the models may exclude the non-elderly

users of long-term care, may exclude some long-term care settings, and include only small samples of the elderly in certain settings. There are a number of limitations within the measures and sample frames used by the national surveys. Among these are an under sampling of persons in group housing, racial/ethnic groups, and geographic regions. A consequence of this is unstable or un-estimated service needs and capabilities among these subgroups.

10) **Regardless of limitations of forecasting models, most experts agree that there will be an increasing demand for long-term care services, merely due the increasing numbers of the elderly in our population.**

Population projections alone make it clear that there will be an increase in demand for long-term care services for the elderly. It is not clear how demand will vary among states or among population ethnic and racial groups. How demand distributes within states, and how it is affected by service alternatives are issues not well understood. There will be an increased need for skilled care in all settings due to an increased number of elderly with mental and physical disabilities.

11) **Financial constraints in the Medicare and Medicaid programs make it imperative that states further develop innovative programs in long-term care.**

Adequate financing will impact institutional growth, staffing, and the ability to recruit and pay staff. Budget cuts in traditional Medicare and Medicaid long-term care programs may force more innovation in home and community based services provided that funding

for these alternatives is sustained. Participation in Medicaid home and community based waiver programs doubled over the past decade yet is reliant on adequate state and federal funding. Most of the innovation in long-term care is occurring at the state level and depends upon state fiscal health for continuation as well as for evaluations of effectiveness.

CONCLUSION

Much attention has been given to the aging of the population in the U.S. and our nation's future ability to provide high quality long-term care services in a variety of settings. It is critical that we have an adequate number of long-term care workers with caregiving skills and a willingness to provide care in institutions and in home and community settings. There are currently shortages in the nation's long-term care workforce, particularly among nurses, nursing assistants, and home and personal care workers. Many elderly rely heavily upon paid and unpaid informal care provided by friends and family in order to get the care they need.

In this report, first, the supply of long-term care services was addressed and data were presented on the state of the U.S. supply of beds and facilities in both nursing homes and assisted living/residential care facilities. In the U.S. we have experienced a shifting of resources with more new growth in less restrictive settings of care, primarily in response to consumer demand. Second, the supply of workers, primarily direct care workers, who are currently providing care in long-term care facilities or in homes were described. The current shortage of health care workers, particularly RNs, is expected to worsen in the next decade. That shortage may be even more severe in long-term care

settings as acute care settings draw many of the new nursing graduates with higher pay and other enticements not affordable by many long-term care facilities.

Two of the most prominent models that attempt to predict the demand for and financing of long-term care services were reviewed. While these models have been used in national planning efforts, they have limited utility at the state and regional level where much long-term care planning and coordination occurs.

The report concludes with some general findings about the supply and demand for services and implications for the long-term care workforce. These findings highlight areas that need to be addressed as the nation prepares a workforce to care for an increasingly aged society.

Appendix A

Table A1

Nursing Home Facilities and Beds in the U.S. from 1990-2002

	Nursing Facilities							Nursing Facility Beds								Beds Per
							Percent								Total %	10,000
	1990	1995	1998	1999	2000	2001	Change	1990	1995	1998	1999	2000	2001	2002	Change	Pop
AK	21	15	15	15	15	15	-29%	1,016	717	719	724 *	727	744	728	-27%	11.7
AL	217	230	231	232	229	233	7%	22,555	24,179	25,713	26,751	25,438	26,993	27,588	20%	60.5
AR	247	241	235	239	239	239	-3%	22,533	24,857	25,083	25,243	25,243	26,234	25,333	16%	97.4
AZ	136	159	167	160	155	146	7%	16,051	17,430	18,245	18,354	18,035	17,305	16,979	8%	32.6
CA	1,352	1,397	1,456	1,390	1,390	1,420	5%	123,870	130,125	131,941	130,431	130,431	134,089	133,168	8%	38.9
CO	210	226	234	230	229	227	8%	20,115	20,251	20,270	20,369 *	20,488	20,368	20,662	1%	46.1
CT	332	240	321	292 *	262	257	-23%	29,172	32,255	31,948	32,241 *	32,534	31,178	24,437	7%	91.0
DC	19	21	21	21 *	20	21	11%	3,054	3,280	3,055	3,056 *	3,057	3,096	3,114	1%	54.1
DE	46	57	48	47	47	46	0%	4,465	5,594	5,226	5,069	4,869	4,819	4,771	8%	60.5
FL	559	678	698	751	745	738	32%	64,472	77,145	81,172	82,090	82,504	83,005	80,656	29%	50.6
GA	351	364	377	383	378	377	7%	37,148	39,487	40,516	40,922	40,466	40,816	40,855	10%	48.7
HI	40	43	46	48	48	48	20%	3,401	3,430	3,973	4,010	4,126	4,152	4,069	22%	33.9
IA	460	479	479	484	482	479	4%	32,737	34,915	35,131	36,172	35,423	35,147	32,333	7%	120.2
ID	71	83	89	92	95	95	34%	5,551	6,071	6,677	6,354	6,318	6,340	6,217	14%	48.0
IL	836	791	808	929	924	931	11%	97,655	99,945	108,222	111,283	111,302	110,336	110,819	13%	88.4
IN	572	591	571	581	566	548	-4%	58,482	63,601	63,350	58,097	57,520	53,210	53,400	-9%	87.0
KS	427	433	407	491	576	572	34%	30,383	29,365	26,309	31,202	34,912	34,861	25,368	15%	129.4
KY	249	319	326	328 *	330 *	332	33%	22,657	26,987	27,096	27,006 *	26,916 *	26,826	26,990	18%	66.0
LA	317	344	349	345	336	333	5%	37,277	39,657	40,059	40,949	40,667	40,109	39,852	8%	89.8
MA	567	591	516	525	501	481	-15%	51,165	56,912	54,881	56,113	54,834	53,146	52,158	4%	83.3
MD	224	240	265	263 *	262	249	11%	26,899	28,893	30,756	30,414	30,299	29,604	28,793	10%	55.1
ME	164	137	128	118	118	117	-29%	9,909	9,918	8,820	8,248	8,042	7,800	7,593	-21%	60.6
MI	453	453	457	454	449	447	-1%	51,496	51,203	51,886	51,176	50,934	49,834	50,610	-3%	49.9
MN	447	440	435	458	457	442	-1%	44,890	44,792	43,782	43,917	43,350	40,387	39,612	-10%	81.2
MO	594	631	623	617	613	603	2%	55,444	58,981	59,287	58,581	58,594 5	58,314	59,191	5%	103.6
MS	166	175	180	181	189	193	16%	15,322	16,531	17,501	17,631	18,161	18,566	18,896	21%	65.0
MT	95	102	109	109	107	106	12%	6,434	7,539	7,827	7,842	7,817	7,761	7,761	21%	85.8
NC	300	407	424	426	429	430	43%	27,675	39,472	41,046	41,490	41,770	42,928	43,058	55%	52.4
ND	92	86	88	88	89	88	-4%	6,942	7,109	7,020	6,997	7,025	6,950	6,644	0%	109.5
NE	242	244	248	248	246	241	0%	19,489	19,072	19,277	19,277	19,023	18,369	17,805	-6%	107.2
NH	80	88	94	93	90	89	11%	6,834	7,931	8,172	8,150	8,069	8,054	7,990	18%	64.0
NJ	352	363	355	358	368	366	4%	47,333	49,818	49,871	50,325	57,605	58,340	52,658	23%	68.8
NM	84	87	86	85 *	83	84	0%	6,468	7,142	7,060	7,277 *	7,412 *	7,547	8,828	17%	41.3
NV	32	43	47	46 *	45 *	44	38%	3,123	4,072	4,384	4,501 *	4,618 *	4,735	4,709	52%	22.5
NY	623	663	673	677 *	681 *	685	10%	103,714	114,601	118,885	119,846 *	120,807 *	121,768	123,134	17%	64.1
OH	969	999	959	948 *	937 *	926	-4%	90,529	93,642	90,996	90,675 *	90,354 *	90,033	95,230	-1%	79.2
OK	409	425	450	408	411	418	2%	33,204	35,228	36,857	36,317	36,375	36,574	34,105	10%	105.7
OR	187	174	168	168	161	156	-17%	15,395	14,502	14,190	14,086	13,868	13,508	13,009	-12%	38.9
PA	694	762	822	793	778	776	12%	87,885	95,072	97,571	96,696	96,343 *	96,000	96,956	9%	78.1
RI	106	103	106	106	106	103	-3%	9,976	10,568	10,638	10,654	10,473	10,238	10,262	3%	96.7
SC	152	187	193	194	197	202	33%	14,422	17,666	18,406	18,595	18,821	19,093	18,744	32%	47.0
SD	116	115	115	115	115	113	-3%	8,186	8,242	8,025	7,911	8,231	7,584	7,429	-7%	100.2
TN	302	340	362	359	359	351	16%	35,010	38,060	39,545	39,525	39,134	38,844	38,489	11%	67.7
TX	1,166	1,336	1,331	1,314	1,276	1,221	5%	118,305	128,959	131,172	127,583	127,135	126,366	124,408	7%	59.3
UT	95	109	107	123	120 *	116	22%	7,175	8,366	8,615	8,688	8,603 *	8,517	7,632	19%	37.5
VA	251	284	292	295 *	298 *	299	19%	28,058	30,768	31,438	31,553 *	31,668 *	31,784	31,748	13%	44.2
VT	51	48	48	49	48	46	-10%	3,650	3,846	3,848	3,782	3,719	3,592	3,599	-2%	58.6
WA	302	285	285	295	280	290	-4%	29,059	28,649	27,204	28,432	27,872	27,044	25,530	-7%	45.2
WI	434	424	429	429	424	418	-4%	49,871	48,332	48,135	47,445	46,155	36,212	43,268	-27%	67.0
WV	121	130	145	144 *	143	141	17%	10,196	10,951	11,560	11,581 *	11,602	11,519	11,499	13%	63.9
WY	35	38	40	40	40	39	11%	2,999	3,126	3,134	3,092	3,106	3,061	3,071	2%	61.9
U.S.	16,367	17,220	17,458	17,584	17,486	17,337	6%	1,659,651	1,779,254	1,806,494	1,808,723	1,812,795	1,793,700	1,771,758	8%	63.0
	California NF, ICF-MR figures from Janis O'Meara.															
	Estimates added. An asterisk * designates an estimated number.															

Table A2

Licensed Residential Care and Assisted Living Facilities and Beds in the U.S. from 1990-2001

	Residential Care and/or Assisted Living Facilities									Residential Care and/or Assisted Living Beds									
									Total %									Total %	Beds Per 10,000
	1990	1995	1998	1999		2000		2001	Change	1990		1995	1998	1999		2000		2001	Change	Pop.
AK	71	70	90	250		267		323	**355%**	549		413	1,150	1,792		1,865		2,097	**282%**	33.0
AL	162	204	282	296		299		318	**96%**	3,537		4,478	7,014	7,886		8,381		9,195	**160%**	20.6
AR	103	112	132	127		128		133	**29%**	3,238		4,207	4,967	4,744		4,790		4,940	**53%**	18.4
AZ	404	509	1,193	1,213		1,300	*	1,273	**215%**	2,800		8,457	20,148	21,365	*	22,582	*	23,800	**750%**	44.8
CA	8,456	9,621	10,652	10,792		10,864		10,927	**29%**	93,940		152,932	169,184	175,862		182,069		185,753	**98%**	53.8
CO	275	614	456	477	*	498	*	519	* **89%**	5,149		9,034	10,880	10,357	*	9,834	*	9,311	* **81%**	21.1
CT	126	114	114	137	*	310	*	331	* **163%**	3,231		2,981	3,067	3,019	*	4,810	*	4,814	* **49%**	14.1
DC	235	217	216	219	*	221	*	224	**-5%**	2,123		1,743	1,724	1,682	*	1,640	*	1,596	**-25%**	27.9
DE	16	135	117	113		125		133	**731%**	477		360	749	1,178		1,872		2,417	**407%**	30.4
FL	1,905	2,341	2,421	2,655		2,744		2,714	**42%**	59,179		63,877	67,684	75,298	*	80,881		80,992	**37%**	49.4
GA	1,218	1,656	1,877	1,821		1,651		1,654	**36%**	9,531		16,000	18,296	23,530		25,221		25,648	**169%**	30.6
HI	570	516	561	591	*	621	*	651	* **14%**	3,000		2,677	2,867	3,140	*	3,413	*	3,686	* **23%**	30.1
IA	199	181	159	362		368		297	**49%**	7,518		6,810	6,093	9,568		9,699		10,523	**40%**	36.0
ID	89	149	198	233		231		244	**174%**	1,983		2,866	4,648	5,165		5,185		5,708	**188%**	43.2
IL	145	47	47	53		55		57	* **-61%**	8,236		7,680	7,480	8,209		8,483		8,757	* **6%**	7.0
IN	78	23	42	609		609	*	591	**658%**	9,589		1,986	3,088	3,496	*	8,968	*	8,968	**-6%**	14.7
KS	209	129	199	123		140		146	**-30%**	1,884		3,115	6,026	9,504		8,224		8,528	**353%**	31.6
KY	669	590	506	479	*	452	*	425	* **-36%**	8,790		8,569	7,678	7,812	*	7,946	*	8,080	* **-8%**	19.9
LA	30	59	113	144		157	*	160	* **433%**	200		1,121	1,867	2,608	*	3,349	*	4,090	* **1945%**	9.2
MA	184	167	258	319		328		327	**78%**	5,959		5,500	10,189	12,888		13,961		14,366	**141%**	22.5
MD	163	1,385	2,799	2,567	*	2,335	*	2,104	**1191%**	3,671		9,963	21,858	20,962	*	20,066	*	19,168	**422%**	35.7
ME	511	689	686	641		677		706	**38%**	4,084		5,713	6,257	7,753		8,111		8,266	**102%**	64.2
MI	4,506	4,760	4,673	4,673		4,600		4,531	**1%**	32,213		44,908	46,191	46,801		47,680		47,783	**48%**	47.8
MN	1,362	2,688	3,307	3,291		3,433	*	3,567	* **162%**	9,507		11,304	17,400	17,348	*	17,296	*	17,242	* **81%**	34.7
MO	559	671	672	666		653		584	**4%**	15,293		19,713	21,740	22,052		21,471		21,317	**39%**	37.9
MS	89	140	165	194		203		190	**113%**	1,745		2,710	3,441	4,710		5,013		4,826	**177%**	16.9
MT	148	145	254	259		278		291	**97%**	813		1,172	5,320	4,719		5,226		5,502	**577%**	60.8
NC	1,082	1,204	1,302	1,384		1,431		1,318	**22%**	20,472		25,807	34,593	38,381		39,936		38,655	**89%**	47.2
ND	38	132	145	193		193		174	**358%**	1,131		1,511	1,713	2,064		2,041		1,996	**76%**	31.5
NE	51	117	161	386		401		449	**780%**	2,318		4,553	6,746	8,490		9,262		9,883	**326%**	57.7
NH	184	133	141	126		141		146	**-21%**	1,439		2,461	3,030	3,450		3,651		3,922	**173%**	31.1
NJ	369	493	443	2189	*	2523		2,540	**588%**	9,623		17,840	19,210	19,135	*	26,696		27,953	**190%**	32.9
NM	155	164	254	242	*	230	*	231	* **49%**	2,614	*	2,357	4,619	4,766	*	4,913	*	5,060	* **94%**	27.7
NV	175	216	302	328	*	354	*	380	* **117%**	1,642		2,036	3,517	3,870	*	4,223	*	4,576	* **179%**	21.7
NY	1,360	1,332	1,332	1,196		1,172		1,138	**-16%**	33,861		38,115	41,328	32,277		40,098		41,575	**23%**	21.9
OH	665	995	1,325	1,315	*	1,305	*	1,295	* **95%**	7,097		18,554	36,869	37,280	*	37,691	*	38,102	* **437%**	33.5
OK	82	136	176	193	*	210	*	226	* **176%**	2,457		4,646	6,567	7,200	*	7,835	*	8,432	* **243%**	24.4
OR	3,017	4,034	3,939	2,306		2,325		2,708	**-10%**	12,901		18,397	22,422	23,758		26,048		27,690	**115%**	79.7
PA	1,416	1,512	1,775	1,803		1,830		1,786	**26%**	40,978		50,842	68,751	73,075		76,799		79,929	**95%**	65.1
RI	32	46	60	66		66		68	**113%**	628		1,422	2,349	2,706		3,168		3,284	**423%**	31.0
SC	390	461	512	549		552		546	**40%**	6,670		10,550	12,630	14,979		16,171		17,412	**161%**	42.9
SD	113	127	184	193		188		199	**76%**	525		912	2,219	2,427		2,634		2,931	**458%**	38.7
TN	245	277	297	342		356		351	**43%**	3,936		5,814	9,498	12,095		13,704		13,908	**253%**	24.2
TX	208	476	1,042	1,133		1,267		1,811	**771%**	7,606		13,681	29,844	32,751		37,751		40,464	**432%**	19.0
UT	46	101	139	140		143	*	146	**217%**	1,079		1,757	2,386	3,281		3,790	*	4,300	**299%**	18.9
VA	520	571	626	768		803		809	**56%**	29,275		26,812	30,961	37,175		38,212		39,691	**36%**	55.2
VT	175	138	117	118		116		116	**-34%**	2,000		2,348	2,177	2,159		2,342		2,345	**17%**	38.2
WA	1,193	2,188	2,676	2,509		2,561		2,602	**118%**	16,385		22,912	32,080	33,080		36,123		38,346	**134%**	64.0
WI	1,084	1,567	1,922	1,840		2,005		2,199	**103%**	13,960		20,157	23,853	20,933		22,505		24,092	**73%**	44.6
WV	65	97	133	124		135		137	**111%**	2,542	*	2,657	3,135	3,220		3,667		3,961	**56%**	22.0
WY	24	27	35	38		35		35	**46%**	527		674	1,301	1,339		1,334		1,334	**153%**	27.0
U.S.	**35,171**	**44,476**	**51,227**	**52,785**		**53,889**		**54,830**	**56%**	**519,905**		**697,104**	**878,804**	**933,339**		**998,630**		**1,027,214**	**98%**	36.1

IL: Is currently accepting applications for Assisted Living, which is new for IL. 2002 bed estimates are from the Department of Public Health, Center for Health Statistics

MN: Bed counts for facilities are abnormally low '99-'01 because no HWS bed data available. MN added a noew category in 2000.

NY includes: Supportive Senior Housing, NYS Licensed Adult Homes, NYS Lic. Enriched Housing, Enriched Housing or Adult Homes with Limited Licensed Home Health Agency Care, NYS licensed assisted living program, CCRC, and dementia care facilities.

* = Estimates of supply

Appendix B

Table B1

Characteristics of Nurse Aides and Other Workers

	Nurse Aides working in				
	Nursing homes	**Home health care**	**Hospitals**	**Service workers**	**All workers**
Mean age	37.0	41.3	38.7	37.3	44.8
Age ranges (%)					
<25	21.3	11.8	13.4	23.7	13.0
25-34	26.8	20.4	27.2	22.7	19.3
35-44	24.7	29.0	27.9	24.0	22.4
45-54	15.1	21.2	17.4	16.2	17.7
55+	12.2	17.8	14.1	13.3	27.6
Gender (%)					
Male	9.1	10.8	20.4	32.5	48.0
Female	90.9	89.2	79.6	67.5	52.0
Race/Ethnicity (%)					
White, non-Hispanic	56.6	48.5	53.5	60.3	73.8
Black, non-Hispanic	31.8	33.8	33.0	18.1	11.5
Hispanic and other	11.5	17.6	13.5	21.6	14.7
Immigration (%)					
Native born	88.9	79.6	86.9	80.9	87.8
Immigrant	11.1	20.4	13.1	19.1	12.3
Education					
Less than high school	22.6	21.4	10.1	24.8	17.4
High school	50.0	40.7	43.8	42.3	33.1
Some college	27.3	37.9	46.2	32.8	49.5
Marital Status (%)					
Married	39.4	43.5	43.7	43.7	57.2
Never married	36.8	26.9	32.6	37.3	23.8
Widowed, divorced or separated	23.8	29.5	23.7	19.0	19.0
Children (%)					
None	43.7	49.9	54.8	53.9	61.8
Any under 18 years	56.3	51.1	45.2	46.1	38.2
Unmarried with children (%)	32.4	24.6	20.2	20.8	11.0

Source: GAO analysis of combined 1998, 1999, and 2000 Current Population Survey, March Supplements (United States General Accounting Office, 2001)

Table B2

Income, Earnings, and Poverty Status of Nurse Aides and Other Workers

	Nursing homes	Home health care	Nurse Aides working in hospitals	Service workers	All workers
Family income (%)					
Under $10,000	12.4	16.1	6.8	13.0	9.3
$10,000-19,999	23.8	21.6	16.7	19.7	13.3
$20,000-29,999	18.2	19.6	16.9	15.9	12.9
$30,000-39,000	14.6	13.2	14.9	12.7	11.7
$40,000-49,999	11.3	9.5	11.6	10.1	10.0
$50,000 +	19.7	20.0	33.2	28.5	42.8
Family income					
Mean	33,982	33,653	43,832	40,712	56,020
Median	26,970	25,908	36,080	30,769	42,400
Individual earnings					
Mean	14,723	13,501	17,834	13,412	22,313
Median	13,287	12,265	16,608	10,795	13,500
Individual earnings (full-time, full-year workers)					
Mean	19,416	19,216	21,432	19,515	39,672
Median	17,000	17,002	20,000	16,608	30,663
Poverty status (%)					
Below poverty	17.8	18.8	8.1	16.1	10.5
100 –149	13.2	15.9	10.4	12.8	8.4
150 –199	15.0	11.4	11.9	12.6	8.9
Above 200	54.1	53.9	69.6	58.4	72.3
Health insurance (%)					
Uninsured	25.2	32.1	14.2	31.2	16.4
Employer coverage	57.5	47.3	77.9	51.7	61.6
Medicaid	9.9	11.1	2.1	6.9	3.9
Pension coverage					
% covered	25.2	21.2	51.3	21.3	44.4
Food stamps					
% receiving	13.5	14.8	5.3	9.3	5.5

Source: GAO analysis of combined 1998, 1999, and 2000 Current Population Survey, March Supplements. (United States General Accounting Office, 2001)

Appendix C

Brookings/Lewin Model

I. Documentation

The analysis of the Brookings/Lewin Long-Term Care Financing Model is based on the following documents:

a. *Brookings/ICF Long-Term Care Financing Model: Model Assumptions,* February 1992 (Kennell et al., 1992);

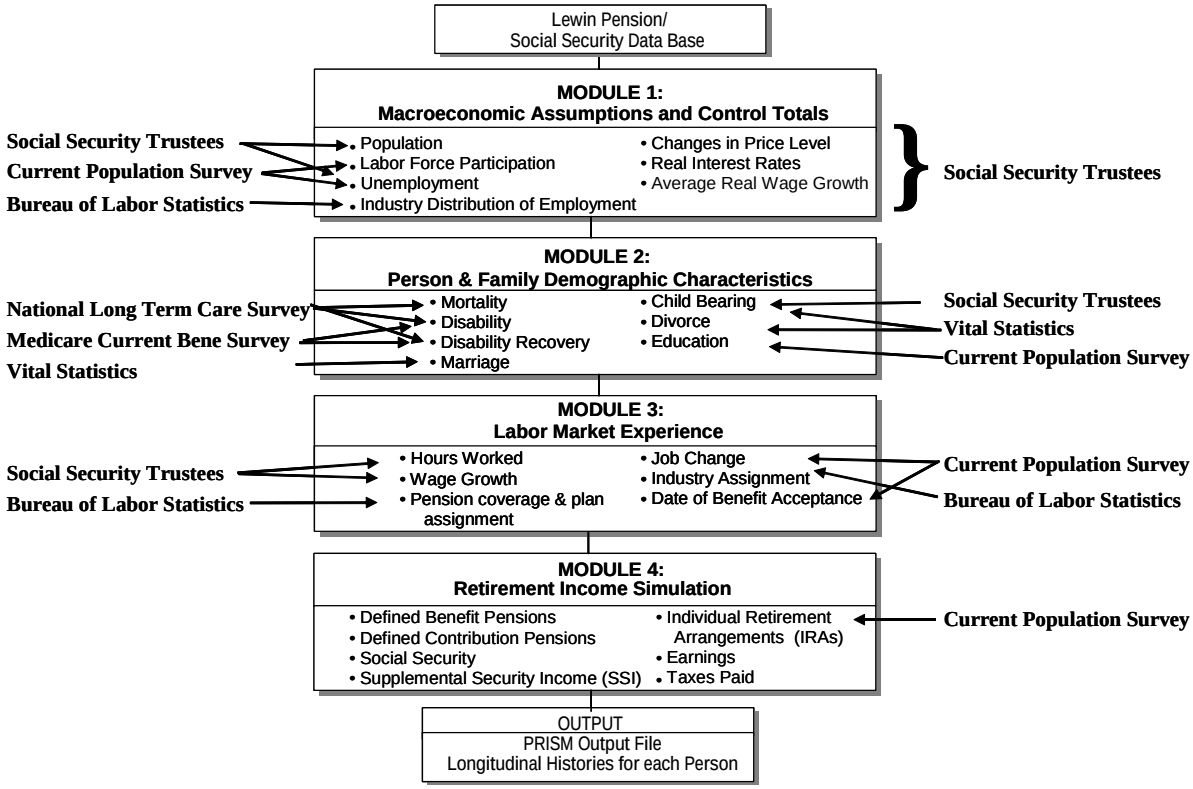
b. *Description of the Long-Term Care Financing Model,* prepared by The Lewin Group, Inc, September 2002 (Alecxih, 2002).

II. Data Source

The Brookings/Lewin Model is comprised of two components. Those include Pension and Retirement Income Simulation Model (PRISM) and Long-Term Care Financing Model (LTCFM). The following diagrams present a list of data sources and their utilization in the Brookings/Lewin Model. For example, the National Long-Term Care Survey was used to obtain mortality and disability rates projections; Medicare Current Beneficiary Survey – nursing home use, disability rates projections, non-institutional services utilization.

Figure C1

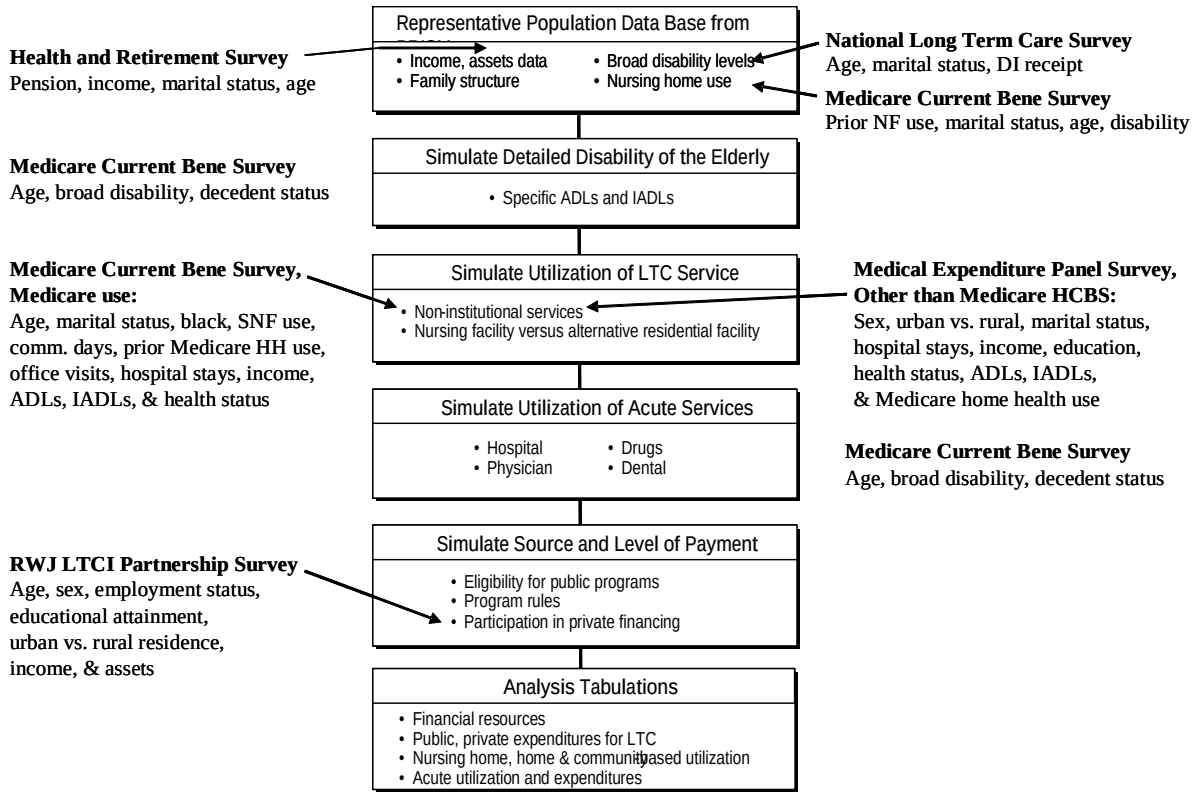
Major Components of Pension and Retirement Income Simulation Model (PRISM) and Data Sources



Source: Alecxih, 2002; Kennell et al., 1992

Figure C2

Major Components of the Long-Term Care Financing Model (LTCFM) and Data Sources



Source: Alecxih, 2002; Kennell et al., 1992

III. Variables and Key Assumptions of the Lewin Model

Disability rates

The population used in the Brookings/Lewin Model is limited to individuals age 65 and over; therefore, the simulation projections do not cover the entire disabled population of the country. Individuals under 65 years of age represent half of the disabled population.

In the Brookings/Lewin Model, disabled individuals are defined as those who are unable to conduct at least one instrumental activity of daily living (IADL), such as the ability to use a telephone, shopping, laundry, housekeeping, or unable to conduct at least

any one of five core activities of daily living (ADL), eating, toileting, getting out of bed, dressing, and bathing. This definition is based upon the National Long-Term Care Survey (NLTCS) definition of disability. In the model, once an individual turns 65 he or she is assigned to one of four disability levels.

1) One or more IADL
2) One ADL
3) Two or more ADLs
4) No disability

The disability status of each individual is measured at the start of each model simulation year. Intra-year changes are made for nursing home and home care admission and discharge data. All other changes are assumed to start at the beginning of the next simulation year. Estimates of transitions between disability levels are based upon NLTCS data.

The assignment of disability for persons age 65 and over is based on rates by age and marital status calculated using data from the 1994 National Long-Term Care Survey (NLTCS). Table C3 displays the disability rate assumptions from the Brookings/Lewin Model. The numerator of the disability prevalence rate in each age/disability level/marital status cell is equal to the number of disabled persons in that cell for the NLTCS. The denominator of the disability prevalence rate in each cell is equal to the total (disabled and non-disabled) number of persons in that cell from the NLTCS. Prevalence rates are expressed as percentage. Generally, higher disability rates are expected among unmarried individuals. For example, in the age category 85-89, the disability rate with one ADL for unmarried is 8.10%, for married persons it is 4.40%.

However, as age and the number of disabilities increase, disability rates are similar between married and unmarried persons.

Table C3

Disability Rate Assumptions from the Brookings/Lewin Model

	Not Married	Married
Age 65-69		
No disability		
IADLS only	1.85%	1.70%
1 ADL	1.68%	0.77%
2+ ADLS	3.11%	2.31%
Age 70-74		
No disability		
IADLS only	2.60%	2.50%
1 ADL	2.21%	1.53%
2+ ADLS	2.75%	3.40%
Age 75-79		
No disability		
IADLS only	3.89%	4.21%
1 ADL	3.14%	2.22%
2+ ADLS	3.97%	5.71%
Age 80-84		
No disability		
IADLS only	6.60%	5.98%
1 ADL	4.79%	3.88%
2+ ADLS	7.47%	9.61%
Age 85-89		
No disability		
IADLS only	9.27%	8.02%
1 ADL	8.10%	4.40%
2+ ADLS	13.07%	13.07%
Age 90+		
No disability		
IADLS only	13.04%	12.37%
1 ADL	12.56%	12.56%
2+ ADLS	29.66%	25.02%

Source: The Lewin Group tabulations of the 1994 National Long-Term Care Survey.

Once individuals are assigned a disabled status in the Brookings/Lewin Model, they are matched to a Medicare Current Beneficiary Survey (MCBS) record(s) based on their initial disability assignment and their assigned year of death. This matching method provides more detailed information about expected functional impairments (e.g., bathing, dressing, etc).

The Brookings/Lewin disability rates are assumed to decline at the same rate as mortality on an age and sex basis. This means that as individuals live longer, the period in which an individual can expect to live *without* a disability will increase. However, the average period with a disability will remain constant. Thus, the Brookings/Lewin Model suggests that in the U.S. the disability will be shifted toward older age groups.

Limitations of Disability Assumptions

It is important to note that, to-date, there is no conclusive evidence that disability rates are declining and will continue to decline in the future. Recent research findings illustrate increases in disability rates among young people. This growth in disability may end up translating into higher disability rates for tomorrow's elderly (Lakdawalla et al., 2001).

Individuals with impairment levels that are typical for institutional settings are now more likely to be found in community settings (Fox-Grage et al., 2002), however, this does not mean that they have lower rates of impairment (O'Shaughnessy, 2001). Some researchers argue that the 'compression of morbidity is not near at hand' and that decline in mortality and increased longevity have resulted in more people who are frail and suffer from chronic conditions; thus an increase in disability is observed (Cabrero, 2000; Verbrugge, 1984).

Research findings in some industrial counties support the claim that it is premature to conclude that disability rates are decreasing. Data collected between 1989 and 1994 on people aged over 65 years in England and Wales showed a greatly increased prevalence of disability in the very old population, particularly women (Australian Institute of Health and Welfare, 2000).

In Australia, the number of individuals reporting long-term health conditions increased from:

- 6.2 million (45% of the total population) in the 1977–78 National Health Survey to
- 11.2 million (66% of the total population) in the 1989–90 survey,
- and 13.5 million (75% of the total population) in the 1995 survey.

Although there are some differences in the way conditions were identified and classified in the three surveys, reported long-term morbidity in Australia has increased over the past two decades (Australian Institute of Health and Welfare, 2000). These are only a few examples illustrating how controversial the question of disability rates is.

Thus, it seems premature to assume a decline in disability rates for the future. Disability is one of the most critical variables in any model that aims at projecting future utilization of the long-term care system. Assumptions regarding disability rates should be carefully considered.

Long-Term Care Utilization Assumptions

The Brookings/Lewin Model uses data from the NLTCS and National Nursing Home Survey (NNHS) to simulate admission to and length of stay in nursing homes. For assisted living and homecare, the model simulates the use/length of stay and long-term care services using probabilities derived from NLTCS and Medicare program data.

Nursing Facility and Assisted Living Facility Utilization

In the Brookings/Lewin Model, the probability of entering a nursing facility is based on the MCBS data. These probabilities are benchmarked to match data from the 1997 National Nursing Home Survey (NNHS) and the National Assisted Living Survey.

The model simulates nursing home utilization based on differentials such as age, sex, marital status, prior nursing home admission, and disability level (if previously assigned). The probabilities used in the model assume that the rates of nursing home admission will remain constant over time on an age/sex/marital status basis for disabled and non-disabled persons. "Constant rates imply that the nursing home bed supply will increase to accommodate admissions from an increasingly large elderly population" (Kennell et al., 1992).

The Brookings/Lewin Model also utilizes nursing home admission rates from the 1992-1995 Medicare Current Beneficiary Survey (MCBS). The probability of admission takes into account the development of assisted living facilities (ALFs) since the MCBS definition of an institution includes both nursing facilities and ALFs. The model assigns individuals to a nursing home or an ALF based on the level of impairment. The probability of assignment to ALF is based on data from the Survey of Assisted Living Facilities (SALF).

Limitations of Nursing Home Utilization Assumptions

It is not clear in the Brookings/Lewin Model whether the assumption regarding constant admission rates to nursing homes has been changed to reflect current trends in nursing home utilization (Harrington, Carrillo, & Wellin, 2001). Current trends in preferences for long-term care settings among the elderly show that nursing homes are regarded as the last resort, and more and more elderly disabled prefer alternative care settings (Kane & Kane, 2001). Furthermore, state and federal policies on nursing homes caps (Medicare capitated rates for services provided) have limited the expansion of nursing home beds (Harrington, Newcomer, & Fox, 1999).

On the other hand, researchers at the RAND Corporation recently published their findings illustrating that the falling rate of institutionalization among the elderly may reverse itself, and "we will see substantial increases in the incidence of institutionalization among the elderly. This result is generated by our prediction of rising disability among the younger cohorts that are beginning to approach old age" (Lakdawalla et al., 2001). We should not expect that admission rates in nursing homes will stay constant regardless of whether they increase due to an increase in the number of disabled or decrease due to consumer preference and the availability of alternative settings.

Home and Community Based Care Utilization

The utilization of home and community based services (HCBS) is based on MCBS records for Medicare and probabilities derived from the Medical Expenditure Panel Survey (MEPS) for Medicaid, other public, and out-of-pocket spending.

The model simulates the use of home care services each year for three groups of the elderly:

1) Individuals chronically disabled at the start of the year.
2) Individuals who became chronically disabled during the year.
3) Individuals who are not chronically disabled but use home care services as part as recovery from an acute illness.

Limitations of Home and Community Based Care Utilization Assumptions

The Brookings/Lewin Model does not include data on community based care that is delivered through informal systems even though such information is available in several national surveys. Current trends in consumer preferences show that informal care

may rise to be an even more significant component of the health care system in the future (Jones, 2002).

Personal Social Services Research Unit Model (PSSRU)

Personal Social Services Research Unit Model in contrast to the Brookings/Lewin Model gives specific attention to *dependency* and *informal care.*

In fact informal care, and modeling the provision of informal care are considered a crucial factor in long-term care projections under the PSSRU Model as the elderly disabled are known to rely on informal caregivers much more than on formal care providers (Wittenberg et al., 1998). The PSSRU researchers found that 80% of the dependent elderly relied exclusively on informal help. The model analysis of informal care showed that the sources of support for domestic tasks were very different from sources of support for personal care tasks, and that sources of support varied significantly by dependency level. Thus, the supply of informal care varied by dependency level. The more dependent the individual the less sources of informal care he/she has. The model utilizes the probability of receiving informal care as the basis for projecting the amount of informal care in the future. The study found that the probability of receiving informal care was associated with household type and dependency but not with age, gender, or housing tenure (whether the dependent owed the house or rented). Therefore, receipt of informal care with domestic tasks was included in the model as a function of dependency category and household type. According to the estimated probabilities, 75.7% of disabled with two or more ADLs living alone received some kind of help; 94.4% of the same disability category received help if they were a couple living with others. Both the household composition and tenure seemed to influence the receipt of care.

There is no consensus about the impact of the current social-economic trends on the future supply of informal care. Some anticipate a decline in the availability of informal care due to the changing age structure of the population, declining fertility rates, rising employment rates among women, changing household composition, changing care preferences of elderly, and other factors.

The PSSRU Model performed a sensitivity analysis with variations in the supply pool of informal caregivers. For example, a decrease in the informal pool supply along with a doubling of the number of dependent elderly receiving formal care showed the number of dependent elderly in need of formal care increasing by 73%, (56% in the base case). These findings confirm that consideration of the impact of the informal care supply is essential to properly build into a model on the future needs of the long-term care system.

Appendix D

State Initiatives in Long-Term Care

- *STAR+PLUS* is a Texas Medicaid pilot project designed to integrate delivery of acute and long-term care services through a managed care system. The project serves approximately 54,000 SSI and SSI-related aged and disabled Medicaid recipients in one county. The benefit package includes long-term care services provided by the HMOs with adult day health care services and personal assistance. Additional services provided to clients are adaptive aids, adult foster home services, assisted living, emergency response services, medical supplies, minor home modifications, nursing services, respite care and occupational, physical and speech-language therapies.
- *New York State's Medicaid Long-Term Care Capitation Program* (Liu, 2001; Raetzman & Joseph, 1999) for dually eligible patients uses a coordinated care model, in which only long-term care payments are capitated. This program is required to coordinate with Medicare acute care rather than fully integrating all patient care financing. This is a voluntary program for chronically ill or disabled individuals over age 21 who are otherwise considered "nursing home appropriate." The goals of the Medicaid Long-Term Care Capitation Program are to provide greater service flexibility; increase patient satisfaction; improve health status and delay functional decline; test capitation as a way to constrain growth in costs; and develop provider expertise with partial capitation as a first step toward full integration of Medicare and Medicaid.

- South Carolina's legislatively mandated Senior Access Program provides a single point of entry system for seniors in need of long-term care services (Scheppach, 2001). This program has been implemented in 9 of 46 counties. Local Councils on Aging serve as the Senior Access agency receiving intake information on people seeking in-home services. Financial eligibility for Medicaid waiver services is determined via an automated referral system, and an in-home functional assessment is scheduled. Clients who do not meet Medicaid waiver eligibility criteria are enrolled in other appropriate federal and state-funded programs, such as personal assistance and help with household chores.
- Indiana's single point of entry program covers all 92 counties in the state. Assessments are made for all in-home and nursing home services. Long-term care services are based on individual need and are available to people of all ages. Individuals pay for the cost of in-home services in accordance with a sliding fee scale. The program was developed in 1992. The infrastructure for this comprehensive approach is updated periodically to account for changes in law.
- *Iowa's Senior Living Trust Fund* provides financial assistance to nursing facilities converting to assisted living. Participating facilities must serve at least 50% Medicaid clients and give up a certified nursing home bed for each assisted living bed. Development grants are also available for developing alternative community services, such as adult day care, respite, home health, transportation, and PACE (Prouty, 2000).
- *The Coming Home Program of the NCB Development Corporation*, in partnership with the Robert Wood Johnson Foundation, provided three-year grants of

$300,000 to nine states (Alaska, Arkansas, Iowa, Florida, Maine, Massachusetts, Wisconsin, Washington, Vermont) that made regulatory and reimbursement changes to foster affordable assisted living for low-income seniors mostly in rural areas. The Coming Home Program is designed to bring the benefits of assisted living to low-income, frail seniors living in rural areas (NCB Development Corporation, 2003).

- *Michigan's Affordable Assisted Housing Project* demonstrates the benefits of coordination between the Home and Community Based Waiver program and the Section 8 Rental Assistance program. Initial program participants were waiver clients, average age 77 years, on the state's waiting list for Section 8 rental assistance vouchers. The average value of combined public subsides was $1,540 per month, including $320 in housing vouchers and $1,220 in waiver services.
- *Wisconsin's Family Care* (Alecxih, Linkins, Zeruld, & Neil, 2001) state system redesign fosters people's independence and quality of life, while recognizing the need for interdependence and support. The program's goals are to provide access to flexible services, promote independence and consumer choice, and eliminate fragmentation in services and funding. Family Care builds on the states county-based system of services. It provides centralized information and referral services, offers support coordination regardless of income (sliding fee scale base), and expands home and community based services. The Family Care program includes care management, home care, alternative residential arrangements, nursing facilities, mental health and substance abuse services, supplies, equipment, and transportation services. County Resource Centers (RCs) are

available to consumers, providers, and family members. A Care Management Organization arranges and manages long-term care services and receives capitated per member per month payments.

Appendix E

Table E1

Examples of Care Benefits/Care Allowance Programs in Europe

Benefits Recipients	Country	Program
Dependent individuals	Austria	Austria instituted a federal program in 1993, providing for an Attendance Allowance, program that is not means-tested. It is a monthly payment, set according to the level of dependency. The recipient has complete control over the use of the allowance. The allowance can be used for purchases, home improvements, and other needs (Jenson & Jaconzone, 2000).

Benefits Recipients	Country	Program
Dependent individuals	France	France instituted a countrywide means-tested benefit program, *Presentation Spécifique Dépendance* (PSD) in 1997, to anyone older than 60 and living legally in the country. A criterion for the benefit is that the family and heirs' resources are included into the calculations of the benefit (Jenson & Jaconzone, 2000).

Benefits Recipients	Country	Program
Care workers	Finland	To support the trend that allows for *aging in place,* Finland created a system of home-helpers and other professionals delivering a range of services for dependent elderly in their homes. The Informal Carer's Allowance is paid directly to the caregiver. In addition to monetary compensation, caregivers receive pension benefits and respite care benefits (Jenson & Jaconzone, 2000).

Benefits Recipients	Country	Program
Care workers	Austria	Austria has one of the oldest traditions of paying family members (domiciliary nursing care). Two allowances that exist for caregivers are the Carer Allowance and the Carer Payment. Allowance is the successor to the Domiciliary Nursing Care Benefit, paid to family members of a dependent person who otherwise would be eligible for admission to a nursing home. This benefit is free of income and assets tests and is not taxable.The other allowance is Carer Payment which is means-tested, non-contributory income support payable to the individual responsible for the daily care of a highly dependent person. The later program was renamed in 1996 to Carer Pension. It is designed to provide income to people who have full-time caregiving responsibilities, and therefore are not able to maintain paid employment. Such caregivers cannot be engaged in paid or voluntary work for more than 20 hours a week (Jenson & Jaconzone, 2000).

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