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## Long-Term Care Over an Uncertain Future: What Can Current Retirees Expect?

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*The leading edge of the baby boom generation is nearing retirement and facing uncertainty about its need for long-term care (LTC). Using a microsimulation model, this analysis projected that people currently turning age 65 will need LTC for three years on average. An important share of needed care will be covered by public programs and some private insurance, but much of the care will be an uninsured private responsibility of individuals and their families—a responsibility that will be distributed unequally. While over a third of those now turning 65 are projected to never receive family care, three out of 10 will rely on family care for more than two years. Similarly, half of people turning 65 will have no private out-of-pocket expenditures for LTC, while more than one in 20 are projected to spend \$100,000 or more of their own money (in present discounted value). Policy debate that focuses only on income security and acute care—and the corresponding Social Security and Medicare programs—misses the third, largely private, risk that retirees face: that of needing LTC.*

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In 2011, the leading edge of the baby boom generation turns 65, beginning a retirement boom that will extend over the next two decades. In the years before these people die, they will need retirement income to pay for living expenses and for expenditures for acute care not covered by Medicare. In addition, some will need long-term care (LTC)—that is, help with activities of daily living (ADLs) (personal care tasks such as bathing, dressing, or eating) that they cannot do for themselves because of a disability.

Currently, public programs and private insurance pay for only part of the cost of LTC. Medi-

care is not designed to cover long-term, supportive services. It does provide, however, some limited coverage of LTC through its skilled nursing facility and home health benefits, which focus on short-term, rehabilitative skilled nursing care and therapies. Although an active, private LTC insurance market exists, only a small proportion of people have private policies (Cornel 2004). Medicaid pays for LTC, but only for those with limited income and assets. This means individuals must have low income and savings, or must exhaust their financial resources, if they are to qualify for Medicaid coverage. Moreover,

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Medicaid covers institutional nursing home care to a much greater extent than it covers home and community-based care.

Whether an individual will need LTC and for how long is uncertain. Consequently, it is important to understand the LTC risks, particularly the uninsured risks, that retiring baby boomers face over the rest of their lives, and to understand how they will meet their need for LTC if current policy and behavior do not change. This understanding is important for policymakers considering changes in LTC financing policy. It is equally important to individuals and families planning for retirement and facing uncertainty about their need for LTC.

The purpose of this paper is to address three related questions:

- What remaining lifetime risk of needing LTC do retiring baby boomers face?
- For how long are they likely to use paid and unpaid LTC?
- Who will finance their LTC?

Our interest here is in risk; thus, in addressing these questions we focus particularly on the variation across individuals—that is, the distributions of lifetime need, use, and cost of LTC.

These questions are about the prospective lifetime LTC need, use, and costs of individuals *over the rest of their lives*. Much of the previous research, in contrast, has examined LTC need, use, and cost for a cross-section of the population *at a point in time* (for example, see Wiener, Illston, and Hanley 1994; Spector and Kemper 1994; Feder, Komisar, and Niefeld 2000). Cross-sectional estimates provide useful information for considering the implications of changes in policy and behavior for government budgets at a specific time. Prospective lifetime estimates, in contrast, take the perspective of the individual looking over the rest of his or her life. They aid in understanding the distribution of the risks of needing LTC for varying durations and of who bears the cost of providing or paying for the care.

## Previous Research

While the published research taking the lifetime perspective is limited, some research has been done on each of the three questions. Most of the research looks at averages; very little is about

the distribution of need, use, or cost, which is the focus of this paper.

Most of the literature on lifetime disability estimates the average number of remaining years of life that will be free of disability (active life expectancy) and the remaining years with disability. Because studies differ in the population examined, in the definition of disability, and in methods, it is difficult to make direct comparisons among their findings.<sup>1</sup> At the low end of the range of estimates for people at age 65, Murtaugh, Spillman, and Warshawsky (2001) project that men will average 1.6 years of ADL disability or cognitive impairment over the rest of their lives, and women 2.6 years. Manton and Land's (2000) estimate of years of moderate or severe impairment or institutional care is lower for men (1.2 years), but higher for women (3.9 years). Among the higher estimates for people at age 65, Manton, Stallard, and Liu (1993) estimate 2.6 years of disability for men, on average, and 4.9 years for women, using a somewhat broader definition of disability. Several studies have estimated average remaining years of disability for people at age 70, and have yielded an even wider range of estimates (Crimmins, Hayward, and Saito 1994, 1996; Laditka and Wolf 1998; Lubitz et al. 2003). Lifetime disability studies have not examined variation among individuals except to the extent of estimating the proportion of individuals who ever experience disability.<sup>2</sup>

Previous research on lifetime service use has not addressed use of home and community-based services or informal care, but has addressed nursing home use (Kemper and Murtaugh 1991). Specifically, studies have estimated the risk at age 65 of using a nursing home some time before death, the expected number of years of use, or the risk of using more than five years of care. As Murtaugh et al. (1997) discuss, the studies used a variety of data and methodologies.<sup>3</sup> Estimates of the risk of any use after turning age 65 are between 35% and 55%. Among those projected to use a nursing home, estimates of average total use after age 65 range from 1.8 to 2.8 years, and the risk of using more than five years ranges from 12% to 21%. Two studies estimate remaining lifetime nursing home use beginning at ages other than 65. While direct comparison is not possible, Lubitz et al.'s (2003) estimate of the number of years that will be spent in a nursing

home after age 70 is at the low end of the range of the estimates that start at age 65. Laditka's (1998) estimates of lifetime risk of nursing home use at age 75 appear to be substantially lower than the risk suggested by the estimates at age 65.

Finally, published research on lifetime LTC costs and their distribution is quite limited. Spillman and Lubitz (2000) estimated that lifetime LTC expenditures for nursing home care for people turning 65 in 2000 will total about \$44,000 (in 1996 dollars without discounting). Their retrospective estimates for a cross section of decedents suggest that home care expenditures will be about a third as great. Lubitz et al. (2003) estimated lifetime health and long-term care expenditures, but did not report LTC expenditures separately. None of the previous research has estimated lifetime LTC cost by payer or analyzed the distribution of costs, which is central to understanding the financial risks that retirees face.

## Methods

Because our interest is in LTC risks—and hence in the variation in lifetime LTC need, use, and financing—we require predictions about the remaining life course for a large enough sample of individuals to estimate distributions of these outcomes. Predicting these lifetime outcomes depends upon assumptions about a great many events. For example, to predict how long an individual will spend in a nursing home and whether and how much Medicaid will pay for this care requires predictions of how long the person will live and, in each remaining year of the person's life, predictions of pension and other income, assets, marital status, whether the person will use nursing home services, and nursing home payment rates.

We used an existing dynamic microsimulation model to make projections of remaining lifetime need, service use, and financing of LTC for people turning age 65. Microsimulation has several advantages for making these predictions. It allows us to simulate all the variables that we wish to analyze, as well as the variables that are relevant to the LTC decision making that underlies the outcomes of interest. Since no single data source comes close to including all the variables needed for this analysis, another important benefit of microsimulation is that it enables us to base each parameter estimate on the best available

data, drawing on many sources. By simulating behavior for a large sample of *individuals*, we are able to analyze *distributions*—an advantage over life table methods, which project means and aggregates but not distributions.

The model originally was developed in the mid-1980s by Joshua Wiener, David Kennell, Alice Rivlin, and their colleagues. Since then its capabilities have been expanded and its assumptions updated based on newer data, most recently by Lisa Alexih and her colleagues. Many of the simulations and analyses done previously using this model have been presented in unpublished reports prepared for use in the policy process. However, the model also has been the basis for published studies by Rivlin and Wiener (1988), Wiener, Illston, and Hanley (1994), Knickman and Snell (2002), and Knickman et al. (2003).

### *The Microsimulation Model*

*Overview of the model.* The model is designed to estimate use of LTC and expenditures, as well as variables that affect them, through the year 2050 for people age 65 and older. The model draws upon data from numerous sources to set initial characteristics for the individuals in the model. It then uses probabilities to simulate events and transitions, year by year, to construct individual life histories. The types of variables that the model simulates over each person's life include:

- Family status (marriage, divorce, child bearing);
- Work history (earnings history for Social Security and pension accrual);
- Retirement income and assets (Social Security, pensions, asset income);
- Disability and mortality;
- Use of LTC services (nursing homes, assisted living, home care); and
- Financing of LTC (public programs, private LTC insurance, out of pocket).

The model uses a representative sample of the U.S. population based on individuals of all ages included in both the March 1993 and March 1994 Current Population Survey (CPS). These data provide information on demographic characteristics, employment, and education. While the model focuses on years after age 65, it relies on data for people at younger ages to project the characteristics (such as work history, marital status, in-

come, and assets) of people 65 and older. The model supplements the CPS data with earnings history information from the Panel Study of Income Dynamics, pension plan details from the Employee Benefits Survey from the Bureau of Labor Statistics, and non-pension retirement assets from the Health and Retirement Study.

Empirically estimated transition probability matrices and regression models simulate changes in these variables year by year for each person as he or she ages. Whether a particular person in the sample makes a transition depends on whether a randomly selected number between zero and one is below or above the estimated transition probability, where the transition probability is based on selected characteristics. For example, the probability of dying over the next year for a white 85-year-old woman with no disabilities living in the community is .03. Therefore, each woman in the model with these characteristics and a randomly drawn number of .03 or lower would be simulated to die during the year, while those with a random number higher than .03 would survive. This results in variation in the lifetime patterns across individuals that are consistent with empirically estimated transition probabilities.

Finally, the model ensures that key projections match important external estimates or “benchmarks.” For example, the probability of death is adjusted so that the total number of deaths by age and sex match Social Security projections. Similarly, disability transition probabilities are calibrated slightly from year to year so that the cross-sectional estimates of the number of individuals by functional status are consistent with aggregate trend assumptions. Also, the intercepts for equations to estimate use of LTC services based on historical data are increased or decreased to match more recent estimates of the number of users.

In general, the model projections assume that current policy and behavior continue into the future. For example, Medicaid benefits and income and asset eligibility requirements are assumed to continue unchanged. Similarly, most service use behavior is assumed to remain the same. While the model assumes most behavior continues unchanged, it does incorporate some assumptions about changes in disability and behavior that are based on current trends and are important to the results: age-specific disability rates are as-

sumed to continue to decline; the use of assisted living is assumed to grow relative to nursing home use; the cost of LTC services is assumed to grow faster than the rate of general inflation; and more people are assumed to be offered private LTC insurance through their employers.

Because the model’s assumptions are too numerous to detail fully here, we limit ourselves to summarizing those most important to this analysis. Detailed documentation for the model can be found in Alexih, Foreman, and Kennell (2004).

*Mortality.* In the simulation, a person dies or lives during the year based on a probability of dying, which depends upon the person’s age, sex, race, residence in a nursing home, and level of disability. These probability estimates are based on Social Security trustees’ intermediate assumptions of mortality rates by age and sex (Bell and Miller 2002); mortality rates disaggregated by nursing home use and disability level from the 1994 National Long-Term Care Survey; and Census Bureau projections of population by race. Mortality rates change annually to reflect estimated improvements in mortality based on projections made by the Social Security Office of the Actuary (Bell and Miller 2002).

*Disability rates and transitions.* The model measures disability in terms of limitations in activities of daily living (bathing, dressing, eating, using the toilet, and getting into and out of a bed or chair) and instrumental activities of daily living (IADLs—preparing meals, managing money, shopping for necessities, getting around outside the home, light housework, and using the telephone). Limitation in an ADL or IADL is defined as requiring hands-on or standby assistance from another person to perform the activity; the limitation must have lasted or be expected to last for at least three months.

A specific level of disability is added to each individual’s information at age 65 based on the probabilities of being in each of four different disability categories—no disability, limitations in IADLs only, limitation in one ADL, and limitations in two or more ADLs—where the probabilities depend on sex, marital status, and whether the person is receiving benefits under the Social Security disability insurance program. The probabilities are based on estimates of prevalence from the National Long-Term Care Survey. Once this information is added for each person at age 65,

disability status is simulated year by year based on the probability of transition among the four disability states. Individuals can become fully functioning as well as become more disabled, or they can stay at the same level. Separate transition probability matrices are estimated and applied by age and marital status, again based on data from the National Long-Term Care Survey.

Consistent with the majority of evidence about historical trends, the transition matrices are adjusted over time to incorporate a decline in age-specific disability rates (i.e., the percentage of people of a specified age who are disabled).<sup>4</sup> Disability rates are assumed to fall at the same rate as mortality rates (on an age- and sex-specific basis). This assumption implies that the proportion of their remaining life during which people of a specific age can expect to live with a disability remains constant over the projection time period. As a result of this assumption (along with increased life expectancy), age-specific disability rates fall by an average of .6% per year over the modeling period.

People in the model are assigned more detailed levels of disability using person-level data from the Medicare Current Beneficiary Survey (MCBS) for the period 1992–1995. Individuals in the model are matched to individual profiles from the MCBS based on selected characteristics including their disability category (among the four broad categories described previously) and whether they live in a nursing home. This matching adds more detailed information about specific functional limitations—in particular, the number and type of ADL and IADL limitations—than the initial broad categories.

*LTC service use.* The model simulates days spent in a nursing home, days in an assisted living facility, and days at home receiving formal home and community-based services. It first simulates who enters a nursing home using probability models estimated with data from the MCBS. These probability equations, which have a greater probability of nursing home re-entry for those with a previous stay, are benchmarked to match data from the 1997 National Nursing Home Survey. Individuals selected to enter a nursing facility then are assigned a length of stay. Among those who do not have a nursing home stay during a year, the model estimates entry into an alternative residential (assisted living) facility; the model uses the non-Medicare nursing home entry

probabilities because of a lack of data on entry rates specific to assisted living. These probabilities are applied differentially by income and asset levels and benchmarked to results from the 1998 National Assisted Living Survey.

For people who are not residing in a nursing home or assisted living facility, the model estimates who uses home-based LTC services and, among users, the number of months during which the person receives services. The model divides home and community-based services into services paid for by Medicare and other (non-Medicare) services. Each of these categories is modeled in two parts: 1) an equation to estimate who will use services; and 2) an equation to estimate the level of expenditures for each user. In addition, the duration of use is determined by disability status and whether Medicare is the only payment source. Individuals with either Medicaid or private LTC insurance coverage have higher probabilities of using non-Medicare home care services, and use more services, than those without coverage. Specifically, the probability of any use of non-Medicare home care by people covered by private LTC insurance or Medicaid is estimated to be twice as great as that of people without either, and expenditures are estimated to be 2.4 times as great.

*LTC financing.* How LTC is financed reflects a person's coverage of LTC under public programs or private insurance, as well as the individual's use of LTC services. Everyone 65 and older in the model is assumed to have Medicare, which, as indicated, pays for some nursing facility services and home care. For Medicaid eligibility and benefits, the model applies uniform eligibility rules, reflecting average national criteria, rather than modeling the details of each state's Medicaid program. This is because the core population on which the model is based is not representative at the state level.

The model simulates who purchases private LTC insurance. The probability that an individual purchases insurance is based on an equation estimated with data from a California survey of purchasers and nonpurchasers of private LTC insurance.<sup>5</sup> The model excludes from potential purchase people who would fail underwriting screens and anyone age 85 and older. The model assumes that some people will be offered LTC insurance through their employers. The model also projects the features of the LTC insurance con-

tracts that purchasers choose—in particular, the maximum length of benefits and whether purchasers opt for inflation protection. In addition, the model predicts lapses in policies, using estimated lapse rates that are higher in the early years after purchase and decline over the period during which a policy is held.

The model's initial estimates of the number of people with private LTC policies were adjusted to be consistent with two benchmarks: 1) estimates by the Health Insurance Association of America of the total number of policies sold annually (Coronel 2003); and 2) estimates by the Life Insurance Marketing Research Association (2000) of employer-sponsored policies in force. Over time, the number of purchasers increases because of changes in personal characteristics. In addition, the model assumes that an increasing proportion of people will have the opportunity to purchase LTC insurance through their employers, which also has the effect of increasing the number of people purchasing insurance.<sup>6</sup>

Financing differs among different types of care. For nursing home care, coverage under Medicare's skilled nursing facility benefit is assigned disproportionately to short stays. To determine Medicaid's role in nursing home care, the model simulates Medicaid eligibility, including the process of individuals using their income and drawing down their assets to pay for LTC, some to the level of Medicaid eligibility. We model assisted living facility care as being primarily paid for out of pocket, with a small percentage of low-income residents receiving Medicaid (to represent those states that cover this type of care) and another small percentage using private LTC insurance.

The financing of non-Medicare home care depends on the type of insurance (Medicaid or private LTC insurance) a person has, if any. Individuals with Medicaid coverage pay for their home care through a combination of Medicaid, other public programs, and out-of-pocket expenditures, depending on their circumstances. For those with private LTC insurance, the specific features of the policy are modeled to estimate insurance payments. Those without Medicaid or private LTC insurance pay primarily out of pocket, with other public programs paying for a small amount of care.

### *Application of the Model*

We base the estimates of remaining lifetime LTC need, use, and expenditures presented in the results on the simulated experiences of individuals in the model who turn 65 in the period 2001 through 2010. The study used a 10-year period to provide a large enough sample to estimate distributions. The analysis is based on a total of 30,250 individuals with simulated need, use, and financing of LTC from age 65 until death.

*Definition of LTC need.* LTC need is intended to capture need for personal care and supportive services that arise from problems or disabilities, and is expected to extend over a long period of time. Years of LTC need are periods when a person has a moderate or greater level of disability defined as receiving or needing help with one or more ADLs or four or more IADLs because of health or disability. The IADL criterion is included as a rough proxy for serious cognitive impairment, a condition the model does not explicitly simulate. Because disability is not perfectly measured in the data, years of LTC need are defined to also include periods when a person uses LTC services (as defined subsequently), even if moderate disability is not indicated, under the assumption that people are not likely to use LTC services without at least moderate need. When an individual has more than one period of LTC need between age 65 and death, the periods are summed to obtain our estimates of cumulative years of LTC need.

*Service use.* Years of use of formal (i.e., paid) LTC include years spent in a nursing facility, years in an assisted living facility, and years at home receiving home and community-based services. Because we are interested in *long-term* care, not short-term, post-acute care, we exclude periods of nursing facility and home health use that are "strictly post-acute" care. We sought to exclude isolated skilled nursing facility stays that involve only Medicare payments and isolated periods of Medicare home health use when an individual did not have at least moderate disability. Specifically, a post-acute skilled nursing facility stay is defined as one that: 1) is paid for solely by Medicare, and 2) is not part of a longer nursing home episode that includes previous or subsequent nursing home use paid for privately or by Medicaid. Similarly excluded are periods of home health care paid for exclusively by Medi-

care when the person does not have a moderate long-term disability.<sup>7</sup>

The model does not explicitly simulate informal caregiving. However, we have designated the years at home with ADL disabilities but without formal home care as years of “informal care only” because we know from cross-sectional analyses that few people who need help with ADLs at home receive no assistance whatsoever (Liu, Manton, and Aragon 2000). In reality, of course, a small proportion will live at home without any help. Similarly, we assumed that formal home care is received in combination with informal care even though in reality a small proportion of recipients will rely on formal care alone. For these reasons, the projections of years of informal care are slightly over-estimated.

*Prices and discounting.* We present all estimates of lifetime LTC expenditures in real 2005 dollars. Nominal amounts are converted to real amounts using the Social Security trustees’ report (Board of Trustees 2003) assumption that the long-term general inflation rate will be 3% per year.

The rate of inflation of LTC services is assumed to be greater than this general inflation rate. Because LTC is a labor-intensive industry, the model assumes that LTC inflation will reflect inflation in wages and fringe benefits. Thus, the annual rate of inflation for LTC services is assumed to be 4.3%—3% general inflation plus projected inflation in wages (1.1%) and fringe benefits (.2%), based on the assumptions in the Social Security trustees’ report (Board of Trustees 2003).

Lifetime LTC expenditure estimates in 2005 dollars are discounted back to the year in which the individual turned 65 using a real rate of return of 3%. This present discounted value is the amount of money needed at age 65 to cover the person’s future LTC expenditures.

### *Uncertainty in the Model Projections*

Like any predictions about the future, our micro-simulation model projections can be based only on data about the past, and are therefore subject to uncertainty from several sources. Major structural shifts that would affect assumptions in the model, such as a cure for Alzheimer’s disease, would, of course, change the model projections. However, such shifts are difficult to foresee with

any confidence, and we could only speculate on the potential magnitude of their effects.

Another important source of uncertainty surrounds changes in public policy and people’s behavioral responses to them. For example, during the past decade, state expansions of Medicaid home and community-based services waiver programs and federal legislation changing Medicare’s payment system for home health services affected the use of LTC services in important ways, but would have been difficult to foresee. Future policy changes are similarly difficult to foresee. For the present analysis, however, our purpose is to focus attention on the policy issues *assuming there will be no change in policy*, rather than to analyze the effect of policy that might be enacted.

The final source of uncertainty concerns the model assumptions about behavior and future trends based on past data. We are confident that the model’s assumptions have made good use of the best data currently available, and we are encouraged by the similarity, where comparisons are possible, of our projections to those of others using very different methods (as discussed later). However, future changes in behavior and trends inevitably mean that there will be errors in our projections. For example, a higher rate of growth in LTC prices than assumed would result both in higher LTC expenditures and a different payer mix (because individuals would spend down to Medicaid eligibility levels more quickly). Although changes in our assumptions about trends would affect the estimates of averages, changes in most assumptions would have less effect on the variation on which we focus.

## **Results**

According to the model projections, people currently turning 65 on average will need LTC for several years and incur substantial costs, but the variation around the averages will be great. This variation is of particular interest because it poses risk for those retiring and a challenge for policymakers.

### *Risks of Needing LTC*

Over the rest of their lives, the current cohort of 65-year-olds will need, on average, LTC (facility care, formal home care services, or informal care at home) for a total of three years, according to

**Table 1. Projected LTC need for people turning 65 in 2005**

	Average years lived after age 65	Average years of LTC need	Percent of people with any LTC need	Distribution by years of LTC need (% of people)				
				None	1 year or less	1–2 years	2–5 years	More than 5 years
All	17.8	3.0	69	31	17	12	20	20
Men	15.7	2.2	58	42	19	10	17	11
Women	19.8	3.7	79	21	16	13	22	28

Source: LTC financing model simulations.

Note: LTC need is defined as having one or more ADL limitations, four IADL limitations, or using formal LTC services other than strictly post-acute care under Medicare (see text). Because of rounding, components may not sum to totals.

the model simulations (see Table 1). Dramatic differences, although not surprising, exist between women and men. Women will need LTC for a longer time—for an average of 3.7 years, compared with 2.2 years for men.

These averages mask enormous variation in the need for LTC. While an estimated 31% of people currently turning 65 will not need any LTC before they die, 20% will need care for more than five years. Indeed, those in the top 10% with respect to years of care need will account for 37% of the total years of care needed by the cohort (not shown).

Women have a higher risk of ever needing LTC than men—an estimated 79% of women currently turning 65 will need LTC sometime before they die, compared with 58% of men. Women also face a greater risk of a lengthy period of LTC need—28% will need care for more than five years versus 11% of men.

The definition of LTC need used here, as indicated, is based on a moderate level of disability—one or more ADL limitations, or four IADL

limitations, or LTC service use. If we use a more restrictive definition of LTC need, the model, of course, projects less risk of needing LTC. For example, a projected 61% of the cohort will experience a severe level of disability (defined as a need for help with three or more ADLs or nursing home use) at some time in their lives (not shown). People in the cohort will experience this level of disability for an average of 2.2 years over the rest of their lives, compared with three years using the moderate disability definition. The model estimates of lifetime LTC need appear to be within the range of other published estimates of lifetime disability, although comparison with other studies is difficult because of differing time periods and definitions of disability.

*Meeting LTC Needs*

According to the model simulations, people currently turning 65 will spend about two-thirds of their years of moderate LTC need at home, assuming past policy and behavior continue largely

**Table 2. Remaining lifetime use of LTC by people turning 65 in 2005**

Type of care	Average years of care	Percent of people using type of care	Distribution by years of care (% of people)				
			None	1 year or less	1–2 years	2–5 years	More than 5 years
Any LTC need	3.0	69	31	17	12	20	20
At home							
Informal care only	1.4	59	41	22	13	17	6
Formal care	.5	42	58	27	8	5	1
Any care at home	1.9	65	35	21	14	19	11
In facilities							
Nursing facilities	.8	35	65	17	5	8	5
Assisted living facilities	.3	13	87	6	3	4	1
Any care in facilities	1.1	37	63	15	5	9	8

Source: LTC financing model simulations.

Note: Because of rounding, components may not sum to totals.

unchanged (see Table 2). Of their projected three years of LTC need, they will spend 1.9 years at home on average—1.4 years without receiving formal (paid) care and .5 years receiving formal home care.

The other 1.1 years of LTC need for people turning 65 will be spent in nursing or assisted living facilities, according to the model simulations. An average of .8 years will be spent in nursing facilities, and the other .3 years in assisted living facilities—although predicting the future reliance on assisted living presents a particular challenge given the rapid change in this industry.

More important than the averages, however, are results showing that individuals will have widely differing LTC experiences. The projections indicate substantial variation among individuals in the use of each type of care, reflecting differences among people in both their need for care and the ways in which they (and their families) will address their needs.

People currently turning 65 face a substantial risk of relying on their families for extended periods of caregiving. Sixty-five percent of all people in the cohort will spend some time at home with LTC need. Among the entire cohort, 30% will receive more than two years of care at home, and 11% will receive more than five years of care at home. Twenty-three percent of the cohort will rely solely on informal care for longer than two years, and 6% will do so for more than five years.

Individuals also differ widely in their projected use of facility care. While 63% of people in the cohort will not use any nursing home or assisted living care, 8% will spend more than five years in facilities. The model projects that 35% of the cohort will use nursing home care, with 5% spending more than five years in nursing facilities. Fewer people will use assisted living facilities. The model estimates that 13% of the cohort will use this type of care, 1% for more than five years.

These estimates of lifetime use of nursing homes are similar to those in other studies. The model's projection that 35% of retirees will use a nursing home is at the low end of the 35% to 55% range of other studies. This is consistent with the model's exclusion of strictly post-acute Medicare skilled nursing facility use (use that is not part of a longer nursing home stay), which is included in other studies. Also, the model relies

on more recent data, which show declines in nursing home use, than did other studies. (All of the previous research is based on data from the 1980s except for Spillman and Lubitz [2000], who use 1993 data.) The model estimates that average lifetime use among nursing home users is about 2.3 years (not shown), within the 1.8- to 2.8-year range of previous estimates. Among nursing home users, the risk of using more than five years of care is about 14% (not shown), again within the 12% to 21% range of other estimates.

### *Financing Formal Care*

Projected expenditures for LTC services are substantial. The present discounted value of lifetime LTC expenditures is estimated to average \$47,000 in 2005 dollars (see Table 3). This is the average amount per person that would have to be set aside and invested for people at age 65 to pay for all their LTC expenditures over the rest of their lives. The amount a specific person will need varies widely among individuals. Government programs are projected to pay for 53% of total LTC expenditures of the cohort turning 65. Private LTC insurance is projected to cover only about 2% of the cohort's LTC expenditures. On average, the cohort faces out-of-pocket expenditures of \$21,100. Thus, 45% of the cohort's total LTC expenditures are projected to be an uninsured private expense.

Nursing and assisted living facility care will account for the lion's share of the cohort's LTC expenditures—an average of \$38,900. Over three-quarters of these expenditures will be for nursing facility care, based on the modeling assumptions about growth in assisted living. Public programs, primarily Medicaid, will pay for 46% of all facility care (not shown). The rest will be paid for privately, nearly all out of pocket. However, the mix of public and private funds will differ strikingly for nursing home and assisted living care—public sources will pay 57% of average lifetime nursing facility expenditures, while private sources (out-of-pocket spending and private LTC insurance) will pay 92% of the expenditures for care in assisted living facilities.

Even though, on average, the cohort will spend nearly twice as much time receiving formal or informal care at home as in nursing or assisted living facilities, home care expenditures account

**Table 3. Average present discounted value of lifetime LTC expenditures projected for people turning 65 in 2005**

Payer	Total expenditures		Type of care					
			Formal home care		Nursing facilities		Assisted living facilities	
	\$	%	\$	%	\$	%	\$	%
Total	47,000	100	8,200	100	30,200	100	8,700	100
Public								
Medicare	5,700	12	2,900	35	2,800	9	0	0
Medicaid	17,600	37	2,400	29	14,500	48	700	8
Other public <sup>a</sup>	1,500	3	1,500	18	0	0	0	0
Total public	24,700	53	6,700	82	17,300	57	700	8
Private								
Out of pocket	21,100	45	1,300	16	12,100	40	7,800	90
Private LTC insurance	1,200	2	200	2	900	3	100	1
Total private	22,300	47	1,400	18	12,900	43	7,900	92

Source: LTC financing model simulations.

Note: Medicare expenditures exclude those for strictly post-acute care (see text). Because of rounding, components may not sum to totals and percentages computed from rounded amounts may not equal percentages shown.

<sup>a</sup> Other public expenditures consist of expenditures of the Department of Veterans Affairs, the Older Americans Act, and state and local governments for home care programs funded solely by them.

for only about a sixth of total projected LTC expenditures. This is primarily because, as seen, family members alone provide care for most of the time spent at home. Medicare (which in this paper excludes expenditures for strictly post-acute SNF and home health care), Medicaid, and other public programs will pay for most of the paid home care.

Again the averages hide great variation among

individuals (see Table 4). Fully 42% of this cohort of people turning 65 will have no LTC expenditures because either they will never need LTC or they will rely exclusively on informal care. Another 19% will incur less than \$10,000 in LTC costs. At the other end of the distribution, 16% of the cohort will incur expenditures with a present value of \$100,000 or more.

Private expenditures also will vary widely

**Table 4. Distribution of present discounted value of lifetime LTC expenditures for people turning 65 in 2005**

Payer	Average expenditures (\$)	Percent of people with expenditures	Distribution by LTC expenditures (% of people)					
			Zero	Less than \$10,000	\$10,000–\$25,000	\$25,000–\$100,000	\$100,000–\$250,000	\$250,000 or more
Total	47,000	58	42	19	8	14	11	5
Public								
Medicare	5,700	44	56	27	10	7	— <sup>a</sup>	— <sup>a</sup>
Medicaid	17,600	30	70	10	4	9	5	2
Other public <sup>b</sup>	1,500	29	71	25	3	2	— <sup>a</sup>	— <sup>a</sup>
Total public	24,700	53	47	25	8	12	6	2
Private								
Out of pocket	21,100	50	50	25	7	12	5	1
Private LTC insurance	1,200	3	97	1	1	1	— <sup>a</sup>	— <sup>a</sup>
Total private	22,300	50	50	25	7	11	6	2

Source: LTC financing model simulations.

Note: Medicare expenditures exclude those for strictly post-acute care (see text). Because of rounding, components may not sum to totals.

<sup>a</sup> Less than .5%.

<sup>b</sup> Other public expenditures consist of expenditures of the Department of Veterans Affairs, the Older Americans Act, and state and local governments for home care programs funded solely by them.

**Table 5. Present discounted value of out-of-pocket LTC expenditures, by whether the person ever receives LTC services paid for by Medicaid**

Subgroup	Percent of people	Out-of-pocket expenditures		Distribution by out-of-pocket expenditures (% of subgroup)				
		Average (\$)	% of subgroup with any	Zero	Less than \$10,000	\$10,000–\$25,000	\$25,000–\$100,000	\$100,000 or more
All people	100	21,100	50	50	25	7	12	6
Use formal LTC								
Some Medicaid LTC	30	35,000	95	5	47	14	23	10
No Medicaid LTC	27	38,600	80	20	40	11	17	13
Use informal care only	12	0	—	—	—	—	—	—
No LTC need	31	0	—	—	—	—	—	—

Source: LTC financing model simulations.

Note: Because of rounding, components may not sum to totals.

among individuals. Because only 3% of people in the cohort are projected to use services paid for by private LTC insurance, out-of-pocket spending dominates the private expenditure distribution. Fifty percent of the retiring cohort will have no out-of-pocket expenditures for LTC, but 6% will incur out-of-pocket expenditures with a present value of \$100,000 or more.

Public expenditures are similarly skewed. Just less than half the people in the cohort will incur no public costs according to the simulations, while 8% will incur a present value of \$100,000 or more in public costs. As indicated, Medicaid dominates government payments for LTC. Among the entire cohort, 30% will rely on Medicaid to pay for at least some of their LTC. For some, the Medicaid program will incur substantial costs—about 7% of people currently retiring will incur \$100,000 or more in Medicaid LTC expenditures.

Out-of-pocket expenditures will be incurred by those who rely on Medicaid as well as by those who do not. Among the 30% of people who will receive some LTC coverage under Medicaid during the rest of their lives, 95% will spend some money out of pocket for LTC (see Table 5). These expenditures include both assets that they “spend down” before becoming eligible for Medicaid and income, which Medicaid requires beneficiaries to contribute toward their care (except for a small personal-needs allowance). The amount spent out of pocket by those who rely on Medicaid for LTC will range widely. While 52% will have out-of-pocket expenses of less than \$10,000 (including those with none), about 10% will spend \$100,000 or more out of pocket in some combination of income and assets. Indeed, the av-

erage out-of-pocket expenditures for people who receive some Medicaid LTC will be an estimated \$35,000.

By comparison, the 27% of the cohort who use formal LTC services but never receive Medicaid coverage for LTC will incur out-of-pocket expenditures of \$38,600 on average. Sixty percent of this group will spend less than \$10,000, while 13% will spend at least \$100,000. (Note that this group does not include the 12% of the cohort who will live at home receiving only informal care for the entire time when they need LTC and hence have no LTC expenditures.)

## Discussion

Using a microsimulation model to project individual-level LTC experience, we estimated that people now turning age 65 will need LTC for an average of three years before they die. Under current policy, much of the needed care will be an uninsured private responsibility of families, in the form of in-kind caregiving, and of retirees themselves, in the form of out-of-pocket payments for care. According to the simulations, families will provide informal care at home either exclusively or in combination with paid home care for about two-thirds of the cohort’s total years of LTC need. The other one-third will be provided in nursing homes or assisted living facilities. Public programs and private insurance will pay for 55% of paid care received either at home or in facilities. The remaining 45% of LTC expenditures will be paid for out of pocket.

Needing LTC is not a certainty, however; LTC need will be distributed very unequally. While about three out of 10 people turning 65 are

projected never to need LTC, two out of 10 will need care for five or more years. Consistent with this variation in need, both family care and out-of-pocket expenditures also will be distributed unequally. While over a third of those now turning 65 are projected never to receive family care, three out of 10 people will rely on family care for more than two years. Similarly, half of people currently retiring will have no private out-of-pocket expenditures, while 6% will require more than \$100,000 of their own money at age 65 to be able to pay for their subsequent LTC expenses.

It is this wide variation in the projected need for LTC that poses a challenge for both individuals and policymakers. The challenge can be thought of usefully as an insurance problem. Indeed, given its wide variation and uncertainty, LTC need appears to be the archetypal insurable risk that could be spread by insurance, public or private. A private insurance market exists to do so, and government programs provide public insurance for some LTC. The simulations clearly show, however, that existing private and public insurance leaves substantial gaps in coverage of LTC risks—both risks of incurring out-of-pocket costs and risks to families of providing in-kind care.

Expanding both private and public insurance are options for better spreading the financial risk of incurring out-of-pocket expenses for LTC. However, the ability to spread the uninsured financial risk and the in-kind care risk by changing public policy is substantially constrained.

The role that private LTC insurance can play in spreading risk is relatively small for a number of reasons. First, not everyone can purchase insurance because insurers underwrite to protect against adverse selection (Murtaugh, Kemper, and Spillman 1995). Second, demand for private LTC insurance is limited. Premiums are high relative to the financial resources of many retirees. Many people consider the product expensive, in part because administrative costs such as marketing and underwriting expenses account for a substantial share of premiums (Lewis, Wilkin, and Merlis 2003; Brown and Finkelstein 2004a).<sup>8</sup> People are also uncertain about whether the insurance benefits will cover enough care, and the right type of care, if they need it. In addition, Medicaid's safety-net coverage of LTC for people who exhaust their resources may provide a disincentive for some people to purchase private long-term care insurance.<sup>9</sup> Finally, some ar-

gue that if private LTC insurance is to play an increased role in spreading risk, products need to be more heavily regulated to improve consumer protection. While regulatory changes and subsidies could increase the role of private insurance somewhat, underwriting and limited demand constrain its ability to spread remaining uninsured out-of-pocket expenses.

Public insurance could be enacted to spread the uninsured risk of incurring substantial out-of-pocket expenditures, and many proposals have been suggested to do so (Rivlin and Wiener 1988; Scanlon 1992; Wiener et al. 2001). The principal obstacle to doing so is political. For example, the Social Security Act could be amended to add a LTC benefit to Medicare, but this would require a dramatic change in public policy thinking concerning the role of Medicare, which, as indicated, is intended to insure acute care, not LTC. Public responsibility for insuring acute care of the elderly is accepted, but the extent of public responsibility for insuring LTC continues to be debated.

Incremental expansion of Medicaid coverage by raising financial eligibility limits or making home and community-based services or personal care mandatory benefits also could be enacted to improve access to LTC services. However, this would not insure against the risk of incurring out-of-pocket expenditures as would private or public insurance. Medicaid is designed to be a safety net for those who run out of money to protect against unmet need for LTC, not to limit out-of-pocket expenditures.<sup>10</sup> Indeed, it is not insurance in the usual sense of the term: Medicaid insures the combined risk of needing LTC *and* being unable to pay for it. For those with moderate financial resources, it is contingent insurance for LTC—contingent on first spending nearly all their financial resources, often on LTC. It does not protect income and assets for other things such as living expenses or bequests, and it only partially protects financial resources for spouses.<sup>11</sup> On the contrary, it ensures that private financial resources are exhausted before benefits are provided. We saw that 10% of those who eventually qualify for Medicaid will have more than \$100,000 in out-of-pocket expenditures. While Medicaid plays an essential role as a LTC safety net for those with limited financial resources, it is limited as insurance against out-of-pocket spending.

The ability to spread the risk to families of providing informal care also is constrained. Spreading this risk encounters a practical problem that is unique to family care, namely that it is provided in kind. Informal care risk cannot be spread through insurance easily because it is not a financial risk, which is the type of risk that insurance is well-suited to spread. Individuals can pool their *financial assets* to insure the financial risks of LTC. Having family able and willing to provide care is a valuable in-kind resource, but families cannot easily pool these *in-kind assets* to insure against the risk of needing care for a long period of time. The inherent nonmonetary nature of informal care leaves policymakers with only limited options—options that can mitigate the impact of informal care risk but do not substantially redistribute it.

One option is providing insurance with home care benefits, which can relieve family members of some of the informal caregiving burden by supplementing or substituting for their care. State home and community-based service programs and home care coverage in private LTC insurance policies provide such insurance. Respite care programs, such as the Administration on Aging's National Family Caregiver Support Program and the Alzheimer's Disease Demonstration Grants Program, are directed specifically at relieving informal caregivers by tying limited home care benefits specifically to the provision of informal care.

Another option is paying family members for the care they provide. For example, "cash and

counseling" is a form of public insurance that provides a consumer-directed care benefit which includes the option of compensating nonspousal family caregivers for their in-kind contribution and thereby spreads the risk of uncompensated care (Foster et al. 2003). Some private insurance policies also permit payment to family members (other than spouses).

Still another approach is a cash disability benefit that is paid when a person meets defined disability criteria, such as the Social Security disability benefit or cash benefit private LTC insurance policies. Both insure the *need* for care as indicated by inability to perform ADLs; benefits are not tied to either use of paid services or provision of family care, but they provide maximum flexibility in addressing LTC needs and relieving caregiver burden.

In conclusion, while views will differ about appropriate public policy, all should recognize that retirees face a *triad* of potential needs: for income beyond Social Security, for acute health care not covered by Medicare, and for LTC (Smeeding 1986; Holden and Smeeding 1990; Knickman et al. 2003). Policy debate that focuses only on income security and acute care—and the corresponding Social Security and Medicare programs—misses the third risk that retirees face: that of needing LTC. That risk is substantial; under current Medicare and Medicaid policy much of it is the uninsured private responsibility of individuals and families. And the uninsured risk is not easy to spread.

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## Notes

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- 1 Three main methods have been applied. One applies life tables methods, which estimate people's movement among different functional states to produce population estimates of average expected years in different states (Crimmins, Hayward, and Saito 1994, 1996; Land, Guralnick, and Blazer 1994). Other studies use transition probabilities and microsimulation; they generally apply probabilities of transitions among functional states to simulate life histories for individuals in a specified population (Manton, Stallard, and Liu 1993; Laditka and Wolf 1998; Manton and Land 2000; Lubitz et al. 2003). A third approach bases projections on a retrospective survey of the next-of-kin of a sample of decedents that contains information about the decedents' history of disability (Murtaugh, Spillman, and Warshawsky 2001).
- 2 For example, Murtaugh, Spillman, and Warshawsky (2001) estimate that of people who are not disabled at age 65, 31% would never become seriously disabled. Laditka and Wolf (1998) estimate that among people age 70 in the community, 54% of men and 42% of women would never experience a severe disability.
- 3 Methodologies used were: 1) life tables (Liu and Manton 1991; Liang and Tu 1986; and Crimmins, Saito, and Ingegneri 1989); 2) transition probabil-

- ities and microsimulations (Liu, Manton, and Liu 1990; Dick, Garber, and MaCurdy 1992; Arling, Hagan, and Buhaug 1992; Laditka 1998; and Lubitz et al. 2003); 3) hazard models of nursing home admission cohorts (Gruenberg et al. 1989; Bice and Pattee 1990); and 4) retrospective surveys of next-of-kin of decedents (Kemper and Murtaugh 1991; Kemper, Spillman, and Murtaugh 1991; Murtaugh et al. 1997; Spillman and Lubitz 2002).
- 4 There is considerable uncertainty about future trends in disability—both about whether the decline will continue and if so at what rate, and about whether all levels of disability will change at the same rate (as the model assumes). The decline in disability rates in the model is somewhat lower than estimates of recent declines, reflecting an assumption that the decline will slow slightly. According to a recent survey of literature on disability trends among older people, estimates of the decline in disability rates range from .92% to 1.55% per year, based on analysis of data from the 1980s and 1990s (Freedman, Martin, and Schoeni 2002).
  - 5 These 1995–1996 data were collected for the Robert Wood Johnson Foundation LTC Insurance Partnership project; the probability equation is based on data for purchasers of non-Partnership LTC insurance and people who did not purchase LTC insurance.
  - 6 An increasing percentage of employees being offered long-term care insurance by their employers is consistent with the recent trends reported by the Association of Health Insurance Plans (Coronel 2004).
  - 7 Including strictly post-acute care (as we have defined it) would increase the estimated average years of lifetime nursing home use by about 6%, and of lifetime home care service use by about 30%.
  - 8 Brown and Finkelstein (2004a) estimate that the typical LTC insurance policy purchased by 65-year-olds and held over the rest of the person's life has a load of .18—that is, it will pay expected

benefits of 82 cents in present discounted value for every dollar in present discounted value of premiums.

- 9 The extent to which Medicaid is a significant factor in the low purchase rate of private LTC insurance is unknown. While theoretical arguments suggest that Medicaid reduces the incentive to purchase private LTC insurance (Pauly 1990), empirical evidence is scarce. Using a simulation model, Brown and Finkelstein (2004b) estimate that even if private LTC insurance were available at actuarially fair prices (rather than the higher prices that actually occur in the market for several reasons), Medicaid's coverage of nursing home care would substantially "crowd out" demand for private LTC insurance among the elderly. However, in the only study of which we are aware that analyzes actual behavior, Sloan and Norton (1997) used national survey data from the 1993 Asset and Health Dynamics of the Oldest Old and found that while more generous Medicaid benefits did have a small negative effect on private LTC insurance purchase among people age 70 and older, the effect was too small to explain their low rate of insurance purchase. Further, for people age 51 to 61, they found no evidence that Medicaid "crowds out" demand for private LTC insurance (using 1992–1994 data from the Health and Retirement Study).
- 10 In addition, critics argue that Medicaid's benefit package is undesirable because its coverage is biased, even today, toward institutional care; it provides inadequate reimbursement, which constrains quality of care, and for some people it has stigma attached to it. As a consequence, it protects against unmet need only imperfectly.
- 11 Some people may transfer assets (for example, to children or certain types of trusts) to qualify for Medicaid while "protecting" those assets from being spent on LTC; however, the extent to which this practice occurs is unknown, and existing research indicates that it is not widespread (see O'Brien 2005).

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