



SOCIETY OF ACTUARIES

Managing the Impact of Long-Term Care Needs and  
Expense on Retirement Security Monograph

## **The Impact of Long-Term Care Costs on Retirement Wealth Needs**

By Vickie Bajtelsmit and Anna Rappaport

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## **Introduction**

Retiree financial well-being depends on many factors, some of which are within an individual's control and others that are not. Decisions related to lifetime savings and wealth accumulation, retirement timing, benefit claiming, and income sources can positively (or negatively) influence retirement outcomes. In contrast, systemic and personal shocks due to unexpected inflation, adverse investment performance, longevity risk, health and long-term care (LTC) costs are more difficult to plan for. In general, financial strategies such as increased wealth accumulation and/or the purchase of insurance will be necessary to reduce or hedge these low-frequency, high-severity risks. Without advance planning for these risks, the probability of a financially secure retirement is quite low.

In this paper, we focus specifically on LTC risk, which we define as the household's risk of having insufficient funds to cover the cost of LTC in retirement, including health-related costs, support and services. In addition to describing this risk in more detail and discussing the pros and cons of different financial strategies for managing the risk, we also provide simulated estimates of the effect of LTC risk on wealth needed to support a successful retirement based on our own research and that of others.

Our simulation model forecasts post-retirement cash flow needs stochastically, incorporating a broad range of post-retirement risks. This methodology allows us to evaluate the distributional characteristics of wealth needed at retirement and the probability of success for typical U.S. households based on the many possible life paths that could occur. In previous papers, we have used this model to consider the effects of certain risk mitigation strategies (Bajtelsmit, Foster and Rappaport, 2012) and retirement timing decisions (Bajtelsmit, Foster and Rappaport, 2013b). In this context, LTC risk is a particularly difficult problem for typical households because it is a low-frequency, high-severity risk and future costs are difficult to estimate. Furthermore, insurance products are rapidly evolving, making it more difficult to assess and compare financial strategies for dealing with this risk.

A general conclusion from our previous research reports is that retirement strategies that focus on making small adjustments to spending or retirement age are insufficient to outweigh the tail risks associated with health, LTC and longevity. Households with greater financial resources may be able to pay for LTC costs directly, although this may require sacrificing other goals such as bequests to family or philanthropic objectives. However, low- and middle-income households in the United States are more likely to experience LTC-related financial difficulties because most have not purchased insurance or set aside sufficient funds prior to retirement. The purchase of LTC insurance at later ages is quite expensive and may not be feasible for those with limited

retirement wealth. Without insurance, any period of extended LTC provided in a facility will rapidly deplete household funds.

An important takeaway from simulation models in general, and ours specifically, is that it is dangerous to focus on average outcomes. The amount of wealth needed to be highly certain of having sufficient funds to meet retirement needs is much greater than the amount needed on average. The primary reason for this is that retirees are subject to significant tail risk from shocks, such as an unexpected longevity, extended LTC, or steep declines in asset values during retirement. Although relatively uncommon, when they do occur, these events can rapidly deplete retirement wealth, making it more likely that an individual will run short. This is perhaps most pronounced for LTC risk, where the majority of households have near zero out-of-pocket costs and a small percentage have extremely large costs. Using an average estimate for retirement planning results in significant errors in estimates for both groups.

LTC insurance is available in the market but is not widely owned, currently paying for less than 10 percent of all LTC delivered in the United States (Munnell et al., 2009). However, this share is expected to grow in the future as the market and product alternatives expand and as more current policyholders reach peak claiming ages. LTC insurance varies with regard to the amount of coverage, how benefit eligibility is determined, the maximum period of benefits, and the events that trigger benefits. Variations in these benefits are beyond the scope of this paper, as is an analysis of such benefits.

Approaches to LTC insurance include stand-alone policies and policies that combine LTC risk with other risks. For example, some life insurance policies and annuity contracts have built-in LTC benefits or allow for chronic and/or terminal illness riders to be added for an additional premium amount. Some continuing care retirement communities (CCRCs) include a form of insurance in some of their contracts and a method for pre-funding LTC. A discussion of CCRCs is beyond the scope of this paper, but there is more discussion of this topic in the paper, “Improving Retirement by Integrating Family, Friends, Housing and Support: Lessons Learned from Personal Experience,” also in this monograph.

Because paid care is so expensive, LTC is often provided in the home by friends and families. Advance funding or insurance solutions might provide access to more complete care options, but these solutions are not always feasible, particularly for low-income households. When income and assets are insufficient, households commonly spend down assets and apply for Medicaid in order to pay for care purchased in the marketplace. Our research suggests that middle-income households could benefit the most from LTC insurance, provided that the premium costs do not adversely impact wealth accumulation (Bajtelsmit, Foster and Rappaport, 2012; Bajtelsmit, Foster and Rappaport, 2013b). Higher income/wealth households can afford to pay for LTC services directly. A more in-depth analysis is needed to determine the optimal strategies for particular household types.

In the sections below, we first provide a brief background on LTC risk and discuss the pros and cons of pre-funding versus insuring this risk. We summarize other studies that provide estimates of funding needs for LTC and then describe our own simulation model and results.

## Overview of the Risk

All individuals, their spouses, and family members are exposed to LTC risk. Anyone can experience a problem that requires LTC, but it is much more likely at older ages. Most care is provided at home by family or friends, and even if care is provided outside of the home, the support of family and friends is often needed. Although most care needs are manageable for family caregivers, when an individual needs help with multiple activities of daily living (ADLs), in-home provision of care can become an all-consuming task to those providing the care (AP-NORC, 2014).

Many people are affected by the need for long-term support services. The 2011 U.S. Census Bureau *American Community Survey* estimates that:

- Eight million people experience difficulty with self-care (i.e., completing all “activities of daily living”).
- Thirteen million adults experience difficulty with living independently.
- Fourteen million children and adults have difficulty remembering, concentrating or making decisions.
- Twenty million children and adults experience difficulty with walking or climbing stairs (Kaiser Family Foundation, 2013).

For people with long illnesses, there may be a gradual decline leading to the need for increasing care over time. This is particularly true for those with diseases such as Parkinson’s and Alzheimer’s. People may need assistance of some type long before they qualify for benefits in an LTC insurance program. It is important to note that in this study, we define LTC risk more narrowly to include only events that require institutional care and we assume that LTC insurance covers only this type of care. Although this is more simplistic than reality, it allows us to focus on the management of the most serious LTC financial risks faced by retirees’ households.

Health status and the need for support also change by age, increasing substantially after age 80. As shown in **Table 1**, the percentage of the population who is disabled increases by age group for the over-age 65 group. By age 85, more than 50 percent of the population has at least a mild or moderate disability (Stallard, 2008). Although the table provides health status for the elderly in the 1984 and 1994 National Long-Term Care Studies, the percentages at each age level are relatively stable.

**Table 1. Unisex Population Distribution (%) by Year, Age and Disability Group<sup>1</sup>**

Attained Age	Disability Group					Total
	I. Non-Disabled	II. Mild/Moderate Disability	III. HIPAA ADL Only	IV. HIPAA CI Only	V. HIPAA ADL + CI	
<b>1984</b>						
All Ages	76.0	12.9	6.3	1.7	3.2	100.0
65-69	89.3	7.0	2.7	0.4	0.7	100.0
70-74	83.3	10.6	4.0	0.9	1.2	100.0
75-79	74.7	14.8	6.1	1.7	2.8	100.0
80-84	60.2	20.9	9.8	3.0	6.0	100.0
85-89	41.6	24.6	16.2	6.1	11.5	100.0
90-94	20.6	25.8	26.9	6.7	20.1	100.0
95-99	---	25.8	41.7	---	24.8	100.0
Age-Standardized	75.3	13.1	6.5	1.7	3.4	100.0
<b>1994</b>						
All Ages	77.9	11.8	5.2	1.4	3.6	100.0
65-69	90.0	6.3	2.7	0.6	0.4	100.0
70-74	86.0	9.4	2.7	0.6	1.3	100.0
75-79	78.3	12.8	5.1	1.4	2.4	100.0
80-84	66.6	18.0	7.4	2.3	5.7	100.0
85-89	48.0	23.0	11.5	3.9	13.7	100.0
90-94	29.2	22.7	21.8	4.4	21.9	100.0
95-99	15.9	20.8	25.5	7.3	30.6	100.0
Age-Standardized	78.5	11.6	5.1	1.4	3.4	100.0

Note 1: Results for age 65+ were age-standardized to the pooled unisex population estimates for all years combined.

Note 2: "---" denotes suppressed cell with fewer than 11 sample persons.

Source: Stallard, Eric, "Estimates of the Incidence, Prevalence, Duration, Intensity, and Cost of Chronic Disability among the U.S. Elderly," paper presented at Living to 100, 2008 and published in SOA Monograph, Table 2. Table notes that author's calculations based on the 1984-1994 NLTCS.

Individuals in categories IV and V on this table would generally be considered to be benefit-eligible under LTC insurance, whereas those in lower categories of disability would need to rely on informal care or pay for it out of pocket.<sup>2</sup>

Stallard (2008) also estimated life expectancies by health status and age: non-disabled, mild or moderate disability, and more severe disability. Although it is generally understood that women

<sup>1</sup> HIPAA ADL means disabled to the extent that the individual could qualify as a claimant on the basis of activities of daily living in a policy that meets the standards for LTC insurance set forth in HIPAA. Group IV meets the standards in HIPAA with regard to Cognitive Impairment and Group V in Both. These are measures of severe disability and indications of eligibility as LTC insurance claimants. HIPAA is U.S. federal legislation which defines the basis on which LTC insurance policies can qualify for favorable tax treatment.

<sup>2</sup> There is some disagreement between experts about whether those in category III (HIPAA ADL only) should be considered benefit-eligible. Stallard's classification and analysis counts them as benefit eligible, but some experts suggest that many people at this level of disability could be more efficiently managed with informal care. Insurance coverage for those in category III will depend on the contract language of the individual insurance policy.

have longer life expectancies, **Table 2** shows that they also have longer periods of disability, and longer periods of serious disability, during that life expectancy.

**Table 2.** Life Expectancy by Age, Disability Group and Gender

Age	Non-Disabled	Mild or Moderate Disability	More Severely Disabled*	Total Life Expectancy
<b>Males</b>				
65	12.34	1.50	1.50	15.33
75	6.77	1.37	1.61	9.76
85	2.89	1.04	1.75	5.68
95	.81	.61	1.91	3.34
<b>Females</b>				
65	13.65	2.97	2.83	19.44
75	6.99	2.55	2.96	12.50
85	2.47	1.74	3.03	7.24
95	.52	.78	2.54	3.84

\*More severely disabled includes those with ADL and cognitive impairments that would make them claim eligible under HIPAA-qualified LTC policies.

Source: Stallard, Eric, "Estimates of the Incidence, Prevalence, Duration, Intensity, and Cost of Chronic Disability among the U.S. Elderly," paper presented at Living to 100, 2008 and published in SOA Monograph, Table 4. Table notes that author's calculations based on the 1984-1994 NLTCs.

The Congressional Budget Office (CBO) estimates that 45 percent of individuals turning 65 in 2010 will need nursing home care at some during their remaining lifetime and 33 percent will need care for three months or longer. These percentages will increase over time as later cohorts experience greater longevity (CBO, 2004). Using a microsimulation approach. Kemper, Komisar and Alexih (2006) estimate that about two-thirds of those turning 65 will require LTC, and while most of that care will be received at home, they can expect to spend an average of 1.1 years in nursing or assisted-care facilities.

Mental acuity is also an important issue for the elderly. As people age, many experience some degree of cognitive impairment, making it more difficult, and sometimes impossible, to make decisions. This happens gradually, and the person who is less able to make decisions may seek to hide the impairment, creating added challenges and delaying treatment and care.

The majority of family caregivers have traditionally provided informal assistance with personal care and household chores, but such caregiving may also include nursing care tasks such as meal preparation for a special diet, wound care and care coordination (Kaiser Family Foundation, 2013). The majority of people who provide care to people with multiple chronic physical and cognitive conditions were:

- Female (58 percent)
- Age 50 or above (66 percent)
- Caring for a parent (38 percent)
- Providing care for three or more years (44 percent)
- Employed outside of the home (47 percent) and making less than \$50,000 annually (48 percent) (Kaiser Family Foundation, 2013).

There are risks to caregivers as well as to those who need care. Surveyed caregivers in AP-NORC (2014) study report that their caregiving responsibilities caused stress in their family (50 percent), took time away from work (35 percent) and family life (40 percent), and were a burden on their personal finances (30 percent).

## How Are Long-Term Care Costs Financed?

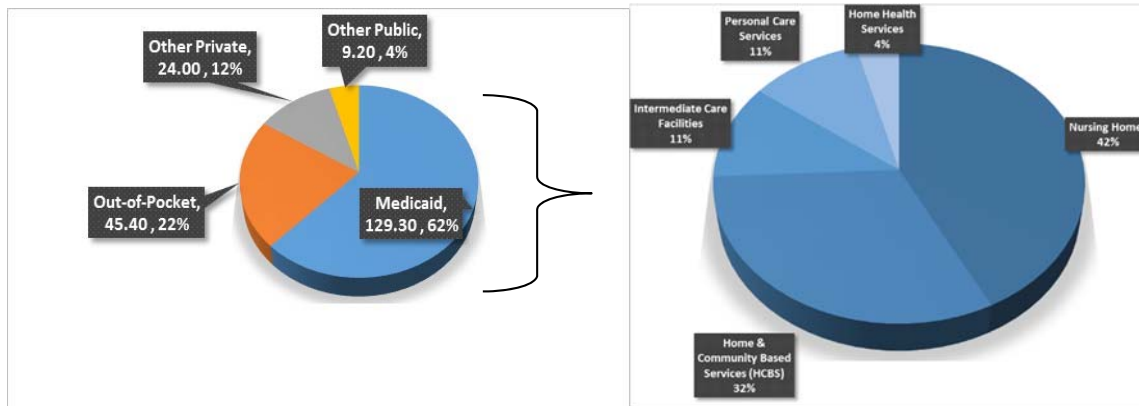
The choices for financing LTC costs include:

- Relying on family and friends to provide care, if and when needed
- Accumulated investment assets
- Insurance, including LTC policies or other private insurance that includes an LTC benefit
- Home equity
- Medicaid benefits after assets meet the spend-down threshold
- Relocating to a CCRC that includes a life-care contract with a provision for effectively pre-paying for LTC.

Evidence suggests that the majority of care is provided on an informal basis by family and friends. Based on analysis of households in the 2008 Health and Retirement Study (HRS), a recent study estimated that a quarter of adult children, primarily baby boomers, provide personal care or financial assistance to an aging parent. A more recent telephone survey of adults age 40 and older suggests that the percentage of adults providing care may be about double that reported in the HRS data (AP-NORC, 2014). Caregivers may reduce hours of paid employment and divert funds from their own savings in order to care for a relative. One study estimates that aggregate lifetime costs to caregivers, including lost wages, pension and Social Security benefits, is nearly \$3 trillion (MetLife, 2011). Although provision of these services can be financially and emotionally costly, this may be partially offset by the reduced expenditure on paid care. However, data on LTC financing generally does not value these indirect costs and therefore is incomplete.

As illustrated in **Figure 1**, nearly two-thirds of *paid* long-term services and support costs in the United States are funded by Medicaid. All states provide assistance for nursing home costs, but they differ in eligibility standards for coverage and in their rules regarding coverage of home and community-based services (HCBS). In the last decade, the financial crisis and the aging of the population have increased demand for Medicaid funding of these costs. A large proportion of Medicaid spending goes to payments for nursing homes and intermediate care facilities (ICFs), but the proportion going to HCBS has increased over the last decade. As shown in the right-hand chart in Figure 1, home and community-based services now represent more than half of all Medicaid payments.

**Figure 1. Sources of Financing Long-Term Services and Support Costs, with Details on Medicaid Expenditure Categories, 2010**



Source: O'Shaughnessy (2013)

## Who Is Impacted by Failure to Plan for LTC?

The need for LTC services and support obviously impacts the individual who needs the care. Failure to plan for how these services will be obtained and financed makes the process more difficult and reduces the choices available to the individual at the time he or she needs care. However, there is also a large impact on family and friends who provide emotional, physical or financial support, and this cost is often poorly understood until faced directly.

When an individual needs LTC, this may involve difficult choices. If home health care is an option, the family may need to assess the pros and cons of hiring outside help versus having a family member provide the care. The potential family caregiver needs to weigh the loss of paid employment, benefits and retirement savings that could result. Furthermore, providing care to a loved one who is experiencing loss of physical and mental health is often very difficult. The AP-NORC (2014) survey found that 30 percent of respondents expected to be responsible for providing care to a family member in the future, but most had not discussed the issue with their family and many did not feel that they were prepared to provide the care that would be required.

LTC costs often have a detrimental financial effect on the spouse, partner, parents or children of the person needing care. Household assets may be spent down to provide care for the first person to need care and the survivor(s) may be left with little or no assets to cover their own needs. Surviving spouses, like singles, have no such access to "free" spousal care, but may have other family members who bear this burden.

## When Are Long-Term Care Decisions Made?

For the individual, there are different points where the issue of LTC comes up. Earlier in life, there is the question of whether to buy insurance, save more, or take a chance that "it won't



happen to me.” About 70 percent of individuals expect to rely on family for support as they grow older (AP-NORC, 2014). There may also be a decision point at the time care is needed for oneself or a close family member. Many people are unaware of the high cost of paid care until care is needed.

The insurance literature suggests that people are more likely to buy insurance after experiencing a loss or observing a loss experienced by another person, particularly for low-probability risks. Although there is only anecdotal evidence of this effect for LTC insurance demand, several studies have found evidence in support of this behavioral effect in catastrophe markets. For example, Fier and Carson (2009) show increased demand for life insurance following natural catastrophes. Brown and Finkelstein (2009) note that low demand could result from misperception of the LTC expenditure risk, but their review of the literature does not find conclusive evidence that individuals underestimate their own risk of needing care. An alternative explanation is that individuals and families do recognize the risk but expect to rely on family caregivers for the majority of their care and therefore do not see the value in paying for LTC insurance. If the risk of needing paid care and the future costs of that care are underestimated, individuals may make suboptimal LTC planning decisions during their lifetime, e.g., saving too little, choosing not to buy insurance based on perceived cost-benefit.

Housing decisions are often interconnected with decisions related to LTC. The family may need to decide whether to sell the family home to help finance continuing care costs. For married couples, this decision usually will be delayed until the last spouse enters care or dies. When someone needs assistance with ADLs, consideration may be given to housing options that will adapt to changing needs over time. There are a variety of housing options for seniors that include some level of support for a price. They have various financing systems and costs, many of which are discussed in another article in this monograph. In general, the high cost of these facilities implies that only the wealthiest households can consider this as a viable LTC planning option.

For people with limited income and assets, Medicaid may eventually be an option. The structure of the Medicaid system and available services tend to drive decisions and delivery of care in these circumstances. As state budgets are under pressure, Medicaid programs are likely to get cut so relying on this program to meet LTC needs is a riskier strategy than it may have been in the past. There is a lot of uncertainty about what the program will cover in the longer-term future. Competition for available Medicaid facilities will also probably grow as more baby boomers seek such services.

## **Options for Securing Care**

Care can be provided at home, in an assisted living facility, or in a nursing home. Care at home can be supported by home health workers and respite care, and is significantly less expensive than residential facilities if care is not required round the clock. The Genworth 2014 Cost of Care Survey determined that the median cost of a home health worker is \$20 per hour, whereas the median cost of nursing home is \$212 per day. Some housing choices integrate support and housing. For more in-depth discussion of these options, see Rappaport (2014).

Choices about type of care are influenced by whether LTC insurance is in place and the amount of coverage it provides. For example, without insurance, families may delay entry into assisted living or a nursing home as long as possible in order to reduce the cost. However, LTC insurance decisions need to be made before the individual's health declines and it can be very expensive. An annual premium example showed a range from \$2,080 to \$4,824 for a couple both age 55, based on a daily benefit of \$150 and a three-year benefit period plus a 3 percent compounded growth option. For a similar policy for a couple age 60, the range was \$2,794 per year to \$5,637 per year (American Association for Long Term Care Insurance, 2014). Recent changes in policy designs have resulted in lower premiums but correspondingly lower coverage. A common feature of both group and individual plans is to set annual and lifetime caps on benefits so that these plans rarely cover more than six years of care and can cover as little as one year of care. Furthermore, insurers usually apply relatively strict underwriting requirements to minimize the risk of adverse selection.

**Table 3** considers several broad categories of private financing options for LTC, including insurance, savings, buying into a CCRC, and using home equity to pay for care needs. For each of these financing options, we briefly outline the prevalence, timing, advantages and disadvantages.

**Table 3. Comparison of Private Financing Options for Long-Term Care**

	<b>Insurance</b>	<b>Savings</b>	<b>CCRC<sup>a</sup> with a life care contract</b>	<b>Housing Equity</b>
<b>Prevalence</b>	Less than 10 percent of care is paid for by private long term care insurance.	About 15 percent of long term care is paid for out of pocket. On average, older households have insufficient funds to cover the cost.	Low; limited to higher wealth households.	Low prevalence of reverse mortgages to pay for LTC
<b>When to do it</b>	While still healthy enough to qualify for lower rates.	Throughout life	Payment at time of entry and ongoing payments thereafter	When funds are needed
<b>Constraints</b>	Limited access after health deteriorates. LTC insurance may not cover all costs.	Requires long period of saving to accumulate sufficient savings.	Limited access after health deteriorates.	Insufficient home equity to finance care; illiquidity may make selling difficult
<b>Match of solution to care needs</b>	Depends on contract terms, e.g. qualification for benefits, type of care covered, waiting periods, maximums.	Does not provide or finance care directly; difficult to estimate needs; savings may be insufficient; flexibility to use funds as needed	Depends on contract terms and care available at CCRC chosen	Does not provide or finance care directly; no guarantee that home equity will be sufficient to meet needs.
<b>Risks</b>	Insurance premiums may increase over time; expenses may exceed policy maximums if care required for extended periods.	Investment risk; potential for shortfall; difficulty of managing assets; savings may be depleted prior to needing care	Monthly costs are likely to increase; CCRC could change management or go bankrupt; don't know if all needs will be covered.	Housing equity may be inadequate to meet needs, housing market risk, interest rate environment impact on reverse mortgage payouts
<b>Which household type should use this method of financing?</b>	Middle and upper middle income because they can afford premiums	Higher income and net worth households; need to start early and be willing to take investment risk.	Higher net worth only because of the cost of buy in and regular payments.	Any households that own their home; lower risk for singles.
<b>If no LTC costs incurred, what cost has been incurred?</b>	Insurance premiums from date of purchase to death	Nothing. All savings can be accessed for other purposes.	CCRC buy-in price, higher monthly living cost to cover premium for long term care	Nothing. Housing equity is still available to use for other purposes.
<b>Issues for surviving spouse</b>	Reduces risk of asset depletion; insurance can be cheaper if bought for both spouses.	Healthy spouse may incur personal and financial costs to delay accessing paid care; survivor may have insufficient assets to meet own needs	Security of being in the CCRC and of receiving care if needed; monthly charges higher than alternative housing; high cost for relocation if it becomes necessary	Healthy spouse may incur personal and financial costs to delay accessing paid care; survivor may have insufficient assets to meet own needs
<b>Tax issues</b>	Some long term care insurance has tax advantages	Most retirement saving is tax-deferred; wealth will be taxed on withdrawal	Part of the buy-in price and monthly cost are deductible as insurance	Gain on the sale of the house usually tax free

<sup>a</sup> Continuing care retirement community

Source: Author's analysis

## Estimating the Future Cost of Long-Term Care

The expected lifetime cost of LTC is difficult to estimate. Level and quality of care, state of domicile, timing, and duration of needs are different for each individual. Annual cost increases have exceeded inflation in the prices of other goods and services for many years. The Genworth 2014 Cost of Care Survey estimates the median annual cost of nursing home care (private room) at \$87,600 nationally, but with substantial state-by-state variation. The median cost of assisted living is estimated at \$42,000 (Genworth, 2014).

Households who are attempting to plan for LTC needs have very limited information on which to base financing and insurance decisions. Future LTC costs are determined by a very skewed distribution, with most people needing care for a relatively short period of time and a few needing it for an extended period. Therefore, retirement planning estimates that rely on average costs are inadequate and unreliable. Recent changes in insurance policy design, including more stringent definitions of disability and limits on lifetime covered costs, leave households at risk of inadequate coverage even when they have purchased LTC insurance.

One approach to solving this complex problem is to simulate financial costs for individuals and/or households and estimate the savings needed to be confident of having sufficient funds to meet these needs. This is a method that has been widely applied to retirement investment analysis, but less commonly to other retirement risks. Examples of LTC estimates derived from simulation models are VanderHei (2012) and Bajtelsmit, Foster and Rappaport (2012). In both cases, the researchers use Monte Carlo simulation methodology to estimate retirement funding needs and risks, although their approaches and objectives are somewhat different. Other examples of simulations that incorporate LTC risk include the National Retirement Risk Index developed by the Center for Retirement Research at Boston College (Munnell et al., 2009). Simulations provide a distribution of results for a population of like people; they do not provide a good individual picture of what happens to the individuals who suffer adverse events.

Simulation model results can be very sensitive to the assumptions on which they are based. However, it is interesting to note that both models discussed in detail in the following section conclude that stochastic health and LTC costs are a significant component of retirement wealth needs. Thus, failure to incorporate these costs in retirement planning will increase the likelihood of retirement shortfalls. In the sections below, we describe the two simulation models and their LTC forecasts in more detail.

## **EBRI Retirement Security Projection Model**

The EBRI Retirement Security Projection Model<sup>3</sup> (RSPM) simulates the percentage of the population that is at risk of having insufficient retirement income. The original objective of the RSPM was to estimate the number of people in particular states that could end up dependent on state support. By incorporating the detailed retirement plan data, this simulation model is able to estimate company-level and aggregate outcomes. The model has also been used to develop Retirement Readiness Ratings<sup>TM</sup> based on group characteristics (e.g., age cohorts, retirement plan eligibility, income quartiles) and to investigate the effects of various risk factors and changes in the economic environment.

VanderHei (2012) demonstrates that stochastic health risks are one of the most significant factors in simulated retirement shortfalls. He notes that, while extreme health and LTC costs are not incurred in every year and some households have very little such costs, these events can have catastrophic impact when they do occur. Table 4 shows the simulated impact of experiencing unusual health care costs in retirement on the Retirement Readiness Rating<sup>TM</sup> by income quartile as reported in VanderHei (2012). These results are similar to those reported in Munnell et al. (2009) which showed that stochastic health care expenses increased retirement risk across each age cohort by 20 to 30 percentage points.

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<sup>3</sup> See VanderHei and Copeland (2010) for a more complete description of the model and simulation assumptions. VanderHei (2014) provides a chronology of the development of the RSPM.

**Table 4. Percentage of Simulated Life Paths with Sufficient Funds to Pay All Expenses in Retirement, by Income Quartile**

	Income Quartile			
	Lowest	Second	Third	Highest
No Stochastic Health Costs	38.9%	89.2%	96.9%	99.4%
Stochastic Health Costs >0	10.6%	42.3%	42.3%	83.6%

Source: VanderHei (2012), Figure 16

In the EBRI model, households in the three highest income quartiles have a fairly high probability of not running out of money, provided that they are the lucky ones who do not experience a health shock. High-wealth households have the financial resources to pay for costs as they occur, so the effect is quite small on their retirement outcomes. The effect is greatest for those in the lowest income quartile which, not surprisingly, have very little chance of a successful retirement outcome if they experience a health shock. Regardless of whether they suffer a health shock, this quartile is very dependent on public programs. VanderHei also finds that the magnitude of the health shock makes a large difference, even for the highest income quartiles.<sup>4</sup>

### The SOA Retirement Adequacy Study

In their Society of Actuaries Retirement Adequacy Study (SOA-RA), Bajtelsmit et al. (2012) take a somewhat different approach than VanderHei (2012). Similar to the EBRI model, the SOA-RA simulation model incorporates the most common risks and uncertainties faced by retirees, including longevity, inflation, investment, health and LTC risks. However, instead of focusing on modeling the aggregate costs for all income and wealth levels, the simulation focuses on a small number of representative pre-retiree households. For each of these households, the parameters for income, wealth, expenses, and retirement plan participation are selected based on national data. The design of the model allows estimation of retirement wealth needs, probability of shortfall, and the effect of various risk mitigation strategies on retirement outcomes.

As compared to the EBRI model, there are several significant differences in the design and assumptions used in the SOA-RA model. This is the likely explanation for the less rosy outcomes predicted for the simulated households. In addition to differences in assumptions about the stochastic risks themselves, the models differ with respect to assumptions about qualification for and participation in employer-sponsored retirement plans and the timing of decisions. The SOA-RA simulation begins immediately before the retirement decision, whereas the EBRI model considers a wide range of households at different current ages. In the SOA-RA model, the base case household is parameterized using national statistics for representative U.S. married-couple pre-retiree households. Because we assume households are nearing retirement at the point of the simulation, there is little they can do to change their wealth accumulation, other than to retire later.

<sup>4</sup> See VanderHei (2012), Figure 18.

The basic SOA-RA model construct is a detailed cash flow forecast for a married couple from age 62 to the date of the death of both spouses. Post-retirement risks that impact the household's cash flows are introduced through the use of Monte Carlo simulation. **Table 5** summarizes the simulation assumptions for two representative households with income and wealth at approximately the 50<sup>th</sup> and 75<sup>th</sup> percentiles of pre-retiree households in 2012. The base case assumes that a married couple, both age 62 at the outset of the simulation, have income and wealth corresponding to either the median pre-retiree household (\$60,000 income and \$100,000 non-housing wealth) or the 75<sup>th</sup> percentile household (\$105,000 income and \$250,000 non-housing wealth). They desire to maintain their standard of living in retirement to make it through retirement without running out of investment wealth and without having to sell their home (except in the circumstance where the second spouse enters permanent LTC and the home is no longer needed).

Stochastic elements are incorporated in the cash flow forecast by imposing risky distributions on various elements for each year of a hypothetical retirement. The advantage of this methodology is that, instead of assuming that everyone gets the average outcome, we can see the impact of risks that, while uncommon, can have a devastating impact on household finances. We then run the retirement cash flows 50,000 hypothetical life paths for each couple. Based on the outcomes of these many iterations, we can measure the percentage of life paths in which the household is able to meet all expenses in retirement, as well as estimate the amount of pre-retirement wealth that would have been sufficient to meet those needs at various levels of confidence.

**Table 5. Summary of Simulation Assumptions**

<b>Characteristics</b>	<b>Median Household</b>	<b>75<sup>th</sup> Percentile Household</b>
Total Pre-Tax Income	\$60,000	\$105,000
Husband (age 62)	H: \$42,000	H: \$74,000
Wife (age 62)	W: \$18,000	W: \$31,000
Base Case Housing	Home-Owner	Home-Owner
Home Equity	\$180,000	\$315,000
Mortgage	No Mortgage	No Mortgage
Non-Housing Wealth	\$100,000	\$250,000
Social Security Status	H:Fully Insured W: Qualifies on H's Earnings Both retire at full retirement age (66)	
Defined Benefit	Base Case: None	
LTC Insurance	Base Case: None	
Desired Standard of Living in Retirement	Retirement period same as pre-retirement	
<b>Stochastic Risks</b>	<b>Model Parameters</b>	
Household Cash Flows	First year after-tax retirement expenditures age-based from Consumer Expenditure Survey. Retirement cash flows paid first from income sources and then, if income is insufficient, from taxable withdrawals from retirement savings. Future years' income and expenditures increase with inflation and risks incorporated in the simulation. When one spouse goes into LTC, the discretionary expenses for the remaining spouse (covering everything except housing and health care) are reduced by 25 percent.	
General Inflation	General inflation is simulated for each year and applies to all expenses except health care and LTC costs. <sup>5</sup>	
Health Costs and Inflation	Health expenditures are stochastically determined for each year of retirement, with the minimum set at approximately the cost of Medicare Part B premiums. In each year, the mean, standard deviation, minimum and maximum increase based on simulated medical inflation. <sup>6</sup>	
LTC Costs and Inflation	The cost of a full year of care in the base year is \$80,000, approximately the national average data for full care (Genworth, 2014), and increases over the retirement period with simulated medical inflation. LTC costs for each year are determined in a two-step process. The probability of needing care in a given year is assumed to depend on age and gender. The length of time a person requires LTC is assumed to be either three months or life. <sup>7</sup> ( <a href="http://www.longtermcare.gov">www.longtermcare.gov</a> )	
Housing	Homeowners with no mortgage; home market value is three times income and increases annually with inflation. When neither spouse is living in the home, e.g., one person is deceased and the other is in LTC, the house is assumed to be sold, for 90 percent of market value, one year after the last person vacates the home.	
Mortality	Mortality risk in each year for each spouse is stochastically generated based on the Social Security Administration's (SSA's) actuarial life table, given the individual's current age and gender.	
Investments	Investment wealth is tax-deferred savings of all forms including IRAs and employer defined-contribution (DC) plans. It is accessible to the household and can be drawn down in retirement as taxable income. In any years in which the household has more income than it needs to meet its expenses, the extra is assumed to be invested. Investment wealth is allocated between stocks (split equally between large cap and small cap) and long-term corporate bonds with annual rebalancing such that the percent in equities is always 100 minus current age (e.g., at age 66 the equity portion is 100 – 66 = 34 percent). Returns on each asset class in each year of the simulation are stochastically modeled based on the historical distribution of investment returns. <sup>8</sup>	

## The Effect of Long-Term Care Risk

The risk of needing extended facility-based LTC in old age is a low-frequency, high-severity risk that increases in probability as the individual ages. Regardless of income/wealth category, the chance of actually entering care for more than three months is quite low and our simulations therefore have many possible life paths in which this risk does not play a role. Although the financial impact is significant for those life paths in which either spouse needs extended care, these events usually occur later in life, having a smaller impact on the present value of those costs at the date of retirement.

Our previous reports detail the effects of the combination of risks faced by individuals in retirement. The base case results reported in **Table 6** show that the median household would have needed almost \$700,000 in savings at the time of retirement to be 95 percent sure of being able to pay for all their retirement expenses. This is about seven times what the median household actually has, according to national consumer data. The 75<sup>th</sup> percentile household has more savings but has approximately the same percentage shortfall because our base case assumes that each household desires to maintain its pre-retirement standard of living.

In our previous reports, we did not consider any scenarios in which there was no LTC risk and therefore did not provide an estimate of what the retirement wealth needs would have been in the absence of this risk. However, the difference between the 95<sup>th</sup> percentile wealth needs and the 50<sup>th</sup> percentile wealth needs illustrates the large costs imposed by tail risks in the model. The

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<sup>5</sup> General inflation is assumed to be normally distributed with mean, standard deviation, and correlation with the previous year based on historical inflation (CPI-U) from January 1947 through October 2011 (mean: 3.71 percent; standard deviation: 1.22 percent; correlation with the previous year's general inflation: 0.60).

<sup>6</sup> In the first year, health care costs are simulated with a mean of \$2,000; standard deviation of \$2,000; a minimum of \$1,560, which is approximately the cost of Medicare Part B premiums; and a maximum of \$100,000 (an extremely rare event). Medical inflation is assumed to be normally distributed with a mean, standard deviation, correlation with general inflation, and correlation with the previous year's medical inflation, based on Medical Care cost component of the CPI, from January 1947 through October 2011 (mean: 5.43 percent; standard deviation: 1.06 percent; correlation with the previous year's medical inflation: 0.78; correlation with the current year's general inflation: 0.73; correlation with last year's general inflation: 0.77). No special provision has been made to recognize higher health care costs for individuals who do not yet receive Medicare and who do not have employer-sponsored health benefits.

<sup>7</sup> While this is obviously overly simplified, data on distribution and duration of LTC suggest that about two-thirds of people over age 65 will experience a short-duration stay in their lifetime and one-third will need long-term care, with women averaging twice as many years of care as men (U.S. Department of Health and Human Services, 2013). Although there is some evidence of higher mortality for people in LTC, we have not included this assumption. ([www.longtermcare.gov](http://www.longtermcare.gov))

<sup>8</sup> Investment returns are assumed to be drawn from a lognormal distribution with mean and standard deviation consistent with historical returns. For the period January 1947 through December 2010, the large cap/small cap portfolio returned an average of 14.2 percent with a standard deviation of 15.2 percent, and bonds averaged 6.5 percent with a standard deviation of 9.3 percent. Historical correlation was statistically insignificant during this period, so was not incorporated in the simulation. Some experts believe that future asset market returns may be lower than historical averages, in which case, the estimated wealth needed to support retirement needs should be viewed as a lower bound.



median household needs only \$169,628 *on average* to meet all their expenses, but \$686,264 to be 95 percent confident. The difference is a combination of the effects of investment risk, inflation risk, health risk, longevity risk and LTC risk.

**Table 6. The Effect of LTC Insurance on Retirement Adequacy**

	Simulated Household Types					
	50th Percentile by Income/Wealth			75th Percentile by Income/Wealth		
<b>Pre-retirement household income</b>	\$60,000	\$60,000	\$60,000	\$105,000	\$105,000	\$105,000
<b>Non-housing wealth at retirement</b>	\$100,000	\$100,000	\$100,000	\$250,000	\$250,000	\$250,000
<b>LTC insurance purchase (age at purchase)</b>	Base case: No LTC insurance	Buy LTC insurance for both spouses	Buy LTC insurance for wife only	Base case: No LTC insurance	Buy LTC insurance for both spouses	Buy LTC insurance for wife only
<b>Wealth at retirement that would have been sufficient to meet household needs:</b>						
<b>50th percentile</b>	\$169,628	\$227,193	\$195,009	\$544,521	\$599,420	\$581,169
<b>95th percentile</b>	\$686,264	\$333,218	\$338,108	\$1,011,390	\$851,259	\$871,180

Source: Table adapted from Bajtelsmit et al. (2013a), Figure 14

In our simulations, two-thirds of all life paths have no LTC expenses at all, and this risk is only a significant financial burden in the most expensive 10 percent of life paths. In 5 percent of the life paths, the present value of lifetime household LTC costs is \$600,000 or more.

In Bajtelsmit et al. (2012), we also investigate whether the purchase of LTC insurance improves retirement success. In **Table 6**, we compare the original base case results to two alternative scenarios in which the couple purchases LTC insurance at the date of retirement on both spouses or on the wife only. For both income groups, the purchase of insurance reduces the amount of money needed to be 95 percent sure of making it through retirement without running out of money by \$200,000 to \$300,000. The additional cost of premiums paid throughout the retirement period results in greater wealth needs at the 50<sup>th</sup> percentile for both household types. In Bajtelsmit et al. (2013a) we find that a combination of risk mitigation strategies that includes expenditure reduction in retirement, downsizing housing, and purchasing insurance produces the best outcomes for our simulated households.

It is important to note that our simulations are sensitive to the assumptions underlying LTC risk in our model and the characteristics of the LTC insurance policy. We have assumed that LTC insurance is available to the household at the retirement date, which would not be the case if either or both spouses had significant health issues. The insurance is assumed to cover their full LTC needs for life, whereas most products available today have more limited coverage. In future research, we hope to explore these issues more carefully and consider different insurance options and the timing of insurance purchase.

## Summary and Conclusions

This paper makes two major contributions. First, we provide an overview of the risks and costs of LTC, including a discussion of who bears the risk, and the advantages and disadvantages of various funding mechanisms for long-term support and services. Second, we summarize recent simulation evidence regarding the size of the risk and the impact on household financial well-being.

Key findings from the background research on LTC include:

- A major long-term event can devastate retirement security for most households. For households below the median who need an extended stay in a nursing home, Medicaid is likely the only viable means of financing.
- Major private methods of financing LTC include insurance, savings, CCRCs with a life care contract, and use of housing equity. They can be used in combination. Some methods of financing use funds to cover LTC risk specifically whereas others allow the funds to be used for whatever risk occurs.
- Although none of the methods for financing LTC will match future needs and cover all costs with certainty, some offer a better chance than others. However, the enhanced chance of meeting LTC needs involves trade-offs.

Most LTC is provided on an informal basis by friends and families. Such caregiving is often the most economical solution and can reduce or put off the financial drain of paid care. However, family caregiving imposes costs on the caregivers, including higher stress, reduced earnings and retirement savings.

- Medicaid is currently the largest payer for institutional LTC in the United States. Although an important safety net for those who need it, the current system may not be financially sustainable.
- LTC insurance currently pays for less than 10 percent of the LTC delivered in the United States. This is expected to increase in the future as more policyholders reach peak claiming ages.
- The people who live the longest are the most likely to have major LTC needs.
- At the higher ages, the majority of the population has some limitations. In 1994, one-third of people at ages 80 to 84 had some disability, and the majority of those over age 85 had some disability. However, a much smaller number will need to have a long stay in a nursing home, or intensive care in another setting.
- Expected periods of severe disability are much higher for women than men. Also, women are less likely to have access to a family caregiver.

Key findings from the simulation research include the following:

- The EBRI and SOA-RA models are very different from most models that simulate individuals in retirement in that they both incorporate LTC and health risk together with economic and longevity risks in a stochastic simulation. In our opinion, any retirement forecasts that exclude these risks or focus on average estimates of costs will vastly underestimate retirement wealth needs.
- A general conclusion from the simulations in our previous SOA-RA research reports is that retirement strategies that focus on making small adjustments to spending or retirement age are insufficient to outweigh the tail risks associated with health, LTC and longevity. The amount of wealth needed to be 90 to 95 percent certain of having enough money to cover all costs in retirement is much greater than the amount to be 50 percent certain. Shocks, such as an extended period of nursing home care, are the major driver of this difference and can have a big impact on success in retirement.
- Advance planning for LTC risk is critical for low- to middle-income households. For other than the wealthiest households, the cost at the retirement date of any LTC financing strategy will likely be prohibitive and may deplete household emergency funds. For those with greater wealth and income, paying for LTC costs as they are incurred may be a workable option.

LTC insurance is particularly useful for those in the middle-income brackets. It enables them to buy care in the marketplace when eligible for benefits, and may enable more options for care. However, for many households, premium costs may be prohibitive and may adversely impact other retirement planning objectives. A more in-depth analysis is needed to determine when insurance is most helpful and which plan features best meet the needs.

- Insurance helps those who experience the insured-against event, but most people will not end up using the benefits. Therefore, the trade-off is the additional insurance premium expense versus the greater certainty of being able to pay for extended LTC. This research suggests that the purchase of insurance substantially reduces the funds needed to be 95 percent confident of meeting all retirement needs. However, the research did not explore variations in insurance provisions, the evolving market, or look at the impact of differences in financing methods.
- A large proportion of pre-retiree households have insufficient funds to afford more comprehensive market solutions to LTC risk, either through advance savings, purchase of LTC insurance, or paying for care at the time needed. If such families experience a major LTC event that cannot be handled by family caregivers, they will likely need to spend down assets (to the extent required) and apply for Medicaid in order to pay for care purchased in the marketplace.

### **Next Steps and Areas for Further Research**

There are a variety of strategies that can be used to plan for and/or finance LTC risk. This research provides an overview of the importance of this risk and simulates the financial impact for typical retiree households assuming a pre-funding objective. Although the results suggest that LTC insurance can have a beneficial impact on retirement security, these conclusions are necessarily limited by the assumptions made about the nature of the LTC risk and the insurance benefits and premiums.

Further research into LTC risk and financing options would be desirable. Such research might include a more refined model with regard to LTC events, variations with regard to insurance solutions, comparisons of various financing methods, Medicaid and family support strategies, and more scenarios with regard to individuals tested. One of the interesting questions to be considered is under what circumstances insurance is clearly superior to use of savings and housing equity. Another question is how the CCRC fits into the picture, although this is a solution used by very few people.

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## **Researchers**

Anna Rappaport, FSA, MAAA, Anna Rappaport Consulting

Anna Rappaport is an internationally recognized expert on the impact of change on retirement systems and workforce issues. After retiring from Mercer Human Resource Consulting in 2005, she formed Anna Rappaport Consulting and continues to speak and write on issues she is passionate about. Anna has a long record of service to the Society of Actuaries, including serving as chairperson of the Committee on Post-Retirement Needs and Risks and as president of the Society of Actuaries in 1997-1998 and serving on the board for a total of 14 years over a career spanning more than four decades.

Vickie Bajtelsmit, J.D., Ph.D.

Vickie Bajtelsmit is professor of Finance at Colorado State University, where she has been on the faculty since 1991. She holds a law degree from Rutgers University and a Ph.D. (Insurance and Risk Management) from the Wharton School at the University of Pennsylvania. She is the author of many academic papers and book chapters in the areas of insurance and retirement. Her most recent textbook, *Visualizing Personal Finance* (John Wiley & Sons), is expected to be released in mid-2015.. Vickie's professional activities include prior service as president of the Academy of Financial Services and the American Risk and Insurance Association, and active participation on several Society of Actuaries committees.