# Living to 100 and Beyond
## Implications of Longer Life Spans

**Anna M. Rappaport**

**Alan Parikh**

***William M. Mercer, Incorporated***

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# Living to 100 and Beyond – Implications of Longer Life Spans

## Introduction

Around the world, the past century has brought substantial growth in the expected human lifespan. In industrialized countries, many people will live past 80, and more and more will live past 100. Healthy adults in their 70's, 80's, and even 90's are becoming increasingly common. Just as increasing longevity has impacted our lives in countless ways, future increases in longevity will create new challenges around the world. These challenges share a common theme: they center on the problem of allocating individual, family, and societal resources most effectively to support our growing lifespans.

Much of the increase in life spans to date has come from reductions in mortality among children and adults under age 65. Mortality rates at ages below 65 are low today, so that increases in life spans will need to come from mortality reductions at ages over 65. Experts disagree on how much further reduction we can expect, and part of this disagreement is due to the challenges around collecting accurate data and measuring mortality at very high ages – particularly over age 90. Instead of focusing on the problem of measuring and forecasting mortality trends, this paper concerns the implications of increasing longevity at the very high ages. By considering these implications, we will create a context for understanding the significance of this research.

### *Societal Impacts of Increased Longevity – Past and Future*

Lengthening life expectancies in the industrialized nations have brought about substantial changes in those societies. Some of the changes include

- Large increases in the number of elderly and in the proportion of elderly in the population.
- Changes in the type of economic activity, housing, social services, and population make-up of our communities.
- Growth in the health care system and changes in the service mix provided, as the elderly consume more health care per capita and need different services.
- Increasing burdens on family members and on society as a whole to care for the frail among this population.
- The growth of insurance and other financial markets offering products targeted to meet the needs of the elderly
- The growth of the private pension plans, and the growth of these plans as an engine for savings and capital accumulation
- Increasing liabilities on corporate balance sheets for pension and other retirement benefits
- Change in public pension systems and other programs offering support for the elderly as they compete with other programs for public resources
- Strains on long-term care facilities and programs and increasing shortages of both family and paid caregivers
- Need for redefinition of retirement and rethinking about how work and retirement spread throughout the life cycle

Most of these changes have taken place over just the last century, but they have become so institutionalized that we could not imagine a world without them. As we speculate about the likely future course of mortality, this paper attempts to identify the significant implications of further increases in life expectancy. While populations are also aging due to the aging Baby Boom and declining fertility rates, this paper focuses on the implications of increasing longevity, and does not address those other trends. While this paper is primarily focused on the United States, there are parallel changes in many other industrialized countries.

### *US Life Expectancy Statistics*

Some statistics from the US can help frame these implications:

- According to the US Social Security Administration, the life expectancy for a 65 year-old male climbed 23%, from 12.7 years in 1940 to 15.6 years in 1990, and is expected to increase a total of 47% over the century ending in 2040;

| Cohort Life Expectancy at Age 65 in Years | | |
|---|---|---|
| | Male | Female |
| 1940 | 12.7 | 14.7 |
| 1990 | 15.6 | 19.2 |
| 2040 Projected | | |
| – Low | 16.6 | 19.5 |
| – Intermediate | 18.6 | 21.7 |
| – High | 21.2 | 24.3 |
| {source: Social Security Administration, Office of the Actuary} | | |

- Life expectancy at age 85 has grown by 44% over the 50 years from 1940 to 1990. (Source: National Vital Statistic System);
- The expected number of people age 85 and above is expected to more than triple, from 4.3 million in 2000 to 14.3 million in 2040;
- The ratio of people of working age to those age 65 and above, called the "Aged Dependency Ratio," is expected to shrink from 4.7 today to 2.6 by 2040; and

| Ratio of People Age 20 to 64 to People Age: | | |
|---|---|---|
| | 65 and above | 85 and above |
| 2000 | 4.7 | 37.6 |
| 2040 Projected (Intermediate) | 2.6 | 14.1 |
| {source: Social Security Administration, Office of the Actuary} | | |

Over 60% of the total life expectancy above age 85 is expected to be spent under some form of chronic disability. (Source: "Estimates of the Incidence, Prevalence, Duration, Intensity, and Cost of Chronic Disability among the US Elderly," by Eric Stallard, A.S.A., M.A.A.A., presented at the 2001 Annual Meeting of the Population Association of America, March 29-31, 2001, Washington D.C.)

### *Preparing For Increased Longevity*

Even if mortality rates cease their long decline, industrialized and developing nations still need to cope with aging populations due to changes in fertility and immigration in past years. The prospect of continued improvements in mortality compounds the challenges of our changing society, forcing even greater diligence in preparing for them. If lifespans can indeed continue to increase, and if this change is not accompanied by reduced rates of disability among the elderly, then all developing and developed nations need to begin to prepare now for what will be a very different future. The key questions we need to think about include:

- How long will people be healthy, and how might disability emerge? What support will be needed?

- What will be the family structures for the elderly, and how many will be widowed or divorced? How can family members help, and what alternatives are there for those without family support?

- How will work and retirement be combined over the life cycle?

- Who is in poverty and how can we reduce poverty?

- What opportunities are available to business?

- What support will employers offer?

- What support will public programs offer?

- What is the role of the community? Of government?

- Will the competitiveness of different nations be influenced by their demographic profiles?

# I. The Elderly, Now and in the Future

We can begin to understand what longer lifespans might look like by examining the family, economic, and health status of the elderly today.

| | Percent Female | Percent Married | Percent in Poverty |
|---|---|---|---|
| 65 to 84 | 57.1% (1) | 59.6% (2) | 9.8% (3) |
| 85 and older | 70.7% (1) | 25.9% (2) | 13.7% (3) |

(1) Source: US Census Bureau, Statistical Abstract of the US: 1999 (pg.16, Table 16 – “Resident Population, by Sex and Age: 1998)
(2) Source: Current Population Survey, Marital Status and Living Arrangements: March 1998 (Update)
(3) Source: Current Population Survey, Annual Demographic Survey, March 2001 (Table 23. Single Years of Age – Poverty Status of People in 2000.)

The oldest of the elderly are more likely to be female, unmarried, and poor than the rest of the elderly. Furthermore, those age 80 and over are almost twice as likely to have a severe disability as those under 80 years of age. (Source: US Census Bureau, Americans with Disabilities: 1997 – Table 1)
As women living alone constitute the most impoverished group of the elderly, if there are no changes in poverty rates by age and gender, then longer lifespans will mean more of the elderly will live in poverty.

### *Male & Female Mortality Rate Convergence*

While longevity is important, it is not the only factor influencing these trends among the elderly. Recent experience in the US and Canada shows a trend towards convergence of male and female mortality rates. The U.S. Census Bureau projects the female/male ratio of those 85 and above to shrink from 2.33 in 2000 to 1.60 in 2050. If these projections prove true, all of the above characteristics of the very old may reverse – as males are generally better off financially in retirement, as they are more likely to be married, and as they tend to die after shorter periods of chronic disability than females. (Stallard)

### *Financing Retirement*

Longer lifespans after retirement place an extra burden on people to adequately save for retirement during their working years. Actuaries, economists, demographers, and other academics are working to build a framework for understanding the risks of the postretirement period. In the US, several factors contribute to the need for this framework:

- Changes in family composition, reducing the level of support available from family members;
- Long-term reductions in retirement ages, increasing the period when retirement systems and savings are to be relied on for support;

- The decline of employer-provided defined benefit pension plans and lifetime postretirement medical coverage;
- The increasing cost to the elderly of health care not covered by Medicare, especially prescription drugs and most nursing home care; and
- Uncertainty about the future of Social Security, with the prospect for a scaled back system.

All of these factors work to compound the problem of financing retirement over longer lifespans. Ideally, individual responses should include:

- More attention paid to saving for retirement;
- More attention paid to the availability of employer-sponsored retirement plans;
- Postponement of retirement by those who are able to continue work, including work after retirement from a career job and various forms of phased retirement; and
- More sophisticated understanding of risk management, including greater interest in annuities, long-term care and other forms of private insurance, as well as diversification of assets.

There has been an upsurge in interest in most of these issues in the popular press in the US. This interest, however, is largely triggered by the coming retirement of the Baby Boom generation of post World War II births, and their common interest in planning for their own retirements. Indeed, this Baby Boom generation in the US and the industrialized nations, combined with lower birthrates in those nations, will lead to sharp increases in the average age of those populations in the coming decades. This will be true even if mortality improvements cease altogether. The potential for longer lifespans merely adds another dimension to the planning process now faced by millions of people, as well as employers, financial institutions, and governments. .

Unless they are very wealthy, most individuals planning for retirement face a complicated problem: how can scarce financial resources, including pensions, personal savings, government-provided benefits, and other forms of wealth be allocated in order to maximize financial security in retirement? Expected lifespan and functional status at retirement are key variables in this determination. The public is not well informed about either of these.

Expectations about functional and health status are key in planning life activities and in driving financial resources. Declines in functional status require support from family members and the community, and generally lead to higher costs. This is particularly true where home health care, assisted living or nursing home care is needed, as such care is considerably more costly than independent living. As we consider our lengthening lifespans, we also need to pay close attention to just what those extra years will look like. If the postponement of death will coincide with the postponement of disability, the period of infirmity and greatest dependence on outside assistance will be relatively unchanged. This will vary by individual and country. This question must be considered globally, as different situations may lead to a diversity of outcomes, and this diversity has serious implications for those preparing for retirement worldwide.

## II. Impact on Spouses and Family Members

Traditionally, spouses and other family members have provided the primary network of caregiving support to the very elderly. According to the Urban Institute ("Long-term Care: Consumers, Providers, and Financing – A Chart Book," Tilly, Jane: Goldenson, Susan: Kasten, Jessica, March 2001), unpaid caregivers provide the majority of community-based long-term care assistance in the United States:

| Types of Caregivers: Adults age 65 and older receiving long-term care assistance in the community in 1994 | |
|---|---|
| Unpaid caregivers | 57% |
| Paid caregivers | 36% |
| Unpaid and paid caregivers | 7% |
| Total | 100% |

Furthermore, family members provide over 90% of this unpaid care:

| Types of Caregivers: Relationship of unpaid caregivers to adults age 65 and older in 1994 | |
|---|---|
| Adult children | 41% |
| Spouses | 24% |
| Other relatives | 26% |
| Non-relatives | 9% |
| Total | 100% |

In the future, lengthening lifespans will put strains on these types of arrangements, for the following reasons:

- In some countries, notably Japan, more of the elderly will be unmarried, lacking a spouse to provide that primary support;
- In many developed nations, the elderly will have fewer children to rely upon in their old age, and many of those children will be facing their own challenges in planning for retirement at the same time as they try to find adequate care for their parents. The availability of support from children will vary greatly by country;
- Expected declines in the available labor pool of those providing nursing home and other forms of formal long-term care will likely cause the cost of that care to increase, effectively closing this door as an option to many families.

The Institute for Health and Aging has suggested that the "caregiving ratio" can be a useful tool to measure the trends in the availability of unpaid caregiving. This ratio is the number of individuals in the population between the ages of 50 and 64 (that is, those who are closest to the average age of caregivers) divided by the number of individuals 85 and above. In the US, as in most developing nations, this ratio will shrink over the coming decades:

| Caregiving Ratio in the United States | | |
|---|---|---|
| | 2000 | 2040 |
| Caregiving Ratio | 9.6 | 4.3 |

As there will be fewer unpaid caregivers, those who provide this care will be stretched further, and more of the disabled elderly will need to rely on paid caregivers, or none at all.

## III. Impact on Business – Opportunities

Businesses in the US that target the elderly have already experienced substantial growth in the size of the markets that they serve, triggered by the growth in numbers, the lengthening of lifespans, and the increasing wealth of the elderly over the last century. In many ways, continued reductions in mortality rates will merely add momentum to this already powerful trend. In other ways, the very nature of the emerging business opportunities will likely change as the age profile of the elderly shifts upward.

### *Annuity Insurance*

Insurance companies may play a key role in helping the elderly manage the risks associated with old age, risks which longer lifespans will only magnify. The most direct way of managing the financial risks associated with longevity is through annuitization – purchase from an insurer of a guaranteed income stream that continues as long as the beneficiary is alive. Insurers in turn need to manage their own risks in issuing these annuity policies, and are therefore keenly interested in understanding the future course of longevity, as well as the potential uncertainties that they must insure themselves against through hedging, asset allocation strategies, and reinsurance. However, the future use of annuities is unclear as relatively few members of the public recognize the need to insure against living too long.

### *Long-Term Care Insurance*

Long-term care insurance policies are gaining prominence as a retirement planning tool, especially among those who are wealthier and can afford them. Such policies typically insure the beneficiary for nursing home, home health care, adult day care, respite care, and alternative care services. The need for these services is expected to explode in the coming decades, as the population of those over 65 with activity limitations is projected to more than double by 2030. (Source: Rice, D. 1996 "Beneficiary Profile: Yesterday, Today, and Tomorrow" Health Care Financing Review, 18(2):23-46). There is a great opportunity for the development and sale of insurance for financing these services, but it is not clear how much penetration this financing mechanism will have.

The impact of increasing longevity on the cost of providing long-term care insurance is difficult to predict. If the extra years bring additional years of infirmity, then this insurance will become more expensive. If the extra years merely result in a postponement of the period of covered infirmity, then the longer discount period may actually bring costs down. The large degree of uncertainty about this issue contributes to the current cost of this insurance, as insurers are forced to build appropriate margins into their pricing to account for the risk.

### *Financial Planning*

Increasing longevity is one of the many factors contributing to the expected growth of the financial planning industry over the coming decades. Awareness of the increasing risks of longevity will likely drive more of the elderly and near-elderly to seek advice from a variety of financial planners. Technology has made new types of financial planning services available.

### *Direct Caregiving Opportunities*

A wide array of businesses will provide direct caregiving services to the elderly:

- Health care institutions, including hospitals, which are widely expected to experience increasing demand as the elderly population grows;
- Organizations that provide home-based medical care and other types of assistance, allowing the individual to remain in their own residence; and
- A variety of assisted living facilities, ranging from adult day care to residential care to nursing homes.

Here again, increasing longevity merely compounds other demographic trends in magnifying the prospects for growth of these industries. Patterns of care are evolving as are the needs of the population and methods of financing. We can't predict the specific future without understanding the future health status of the very old as well as the financing of care. Even under the assumption of declining rates of disability, however, the Congressional Budget Office projects that inflation-adjusted expenditures for long term care will grow by almost 70% over the next twenty years. {Source: Congressional Budget Office. 1999. "DBO Memorandum: Projections of Expenditures for Long-Term Care Services for the Elderly" Washington, D.C.}

Of greater concern, the health care industry could find itself ill-prepared to handle significant increases in the number of the very elderly. Hospitals across the United States are already experiencing difficulty recruiting adequate numbers of trained nurses and health care professionals, while at the same time the average age of active nurses continues to rise. {Source: Buerhaus, Peter I., Staiger, Douglas O., Auerbach, David I. "Implications of an Aging Registered Nurse Workforce". Journal of the American Medical Association, 283:2948-2954} Clearly, the medical professions have much to do before their memberships are adequate in numbers and training to handle the expected needs of the elderly population.

## *Housing*

Many of the elderly choose to live in retirement communities or housing. Often some care plus other services are combined with housing. There has been a great deal of growth in retirement housing, particularly in states that are popular retirement destinations. For the affluent, there are many choices in retirement housing. For the poor, there are fewer choices, and many end up living with families when that option is available. This will be an area of significant growth in the future.

## IV. Impact on Businesses in General

While specific industries will find new and growing opportunities with the elderly, virtually every industry will face new problems as well. Many organizations will feel the impact of population aging in their employee benefit plans even if they do not see it in the demand for their services.

In the US, as in many industrialized countries, corporations have made long-term commitments to many of their employees and retirees to provide lifetime pension benefits and medical benefits upon retirement. Medical benefits are often subject to annual review and modification. In some countries, these benefits are controlled by government mandates. In other countries, these benefits have been offered voluntarily, but are subject to various legal and societal restrictions on how they may be modified or taken away. Accounting rules have forced US companies to place liabilities on their balance sheet to reflect the projected long-term costs for these benefits. New international accounting rules create similar requirements for companies worldwide. In response to finding their long-term promises generating higher operating costs and reducing shareholder equity, many companies have scaled back or terminated these commitments.

As an illustration, we at William M. Mercer, Incorporated developed a sample corporation with a typical pension and postretirement medical arrangement, to see the impact of greater longevity on this company's postretirement benefit obligations. The liabilities and annual costs were first measured with a commonly used mortality table. Then these mortality rates were adjusted downward to yield a one-year increase in life expectancy, and the liabilities and annual costs were remeasured. The results were as follows:

| | Original Mortality | Revised Mortality | Percent Change |
|---|---|---|---|
| 1. Age 65 life expectancy | 18 years | 19 years | +5.5% |
| 2.(a) Pension benefit liability (PBO) | $ 195 m | $ 201 m | +3.0% |
| 2.(b) Annual pension cost | 5.7 m | 6.5 m | +11.6% |
| 3.(a) Postretirement medical benefit liability (APBO) | 115 m | 121 m | +5.2% |
| 3.(b) Annual postretirement medical benefit cost | 12.9 m | 13.6 m | +5.4% |

As the table illustrates, greater longevity tends to have a greater impact on postretirement health care liabilities. This is because the cash flows generated by these plans tend to grow with medical inflation, magnifying the costs of the last years of life. Pension obligations, on the other hand, are typically not indexed to inflation, and therefore are not as sensitive to longevity. However, pension obligations are typically prefunded, while postretirement medical obligations are typically unfunded. As a result, relatively small changes in pension obligations can have a leveraged impact on a pension plans' surplus or deficit position, resulting in large swings in annual costs.

In general, greater longevity magnifies the size of these post-retirement obligations, and creates further incentives for companies to scale them back to the extent possible.

### *Likely Employer Actions*

The unfortunate outcome of these likely employer actions will be to further increase the risks that the elderly face in retirement. As successive cohorts of the elderly live longer, they will be less and less likely to have guaranteed pension income or postretirement medical insurance. This further increases the burden on individuals to start planning earlier and earlier in their working careers for retirement, and correspondingly increases the burden on their employers to help them understand postretirement risks, and to give them the necessary tools to help them prepare. In addressing this obligation, employers have access to a number of tools:

- Many offer their employees tax-advantaged savings plans, and more employers have become aggressive about enrolling their employees in these plans and in communicating their advantages
- There has been growing discussion of defined contribution approaches to retiree medical benefits, which help limit the financial risk to the employer of providing these benefits.
- Other forms of insurance, including long-term care insurance, and more aggressive communication of annuity options for all types of pension distributions, are being considered by employers.

Employees, in turn, should respond by saving more aggressively for retirement and by working for more years, as well as by employing various strategies to phase into retirement over a period of years.

## V. Impact on Society as a Whole

Governmentally sponsored old-age security programs, such as Social Security in the US, are financed by a variety of mechanisms, including individual accounts, pay-as-you-go from general revenues, pay-as-you-go from special taxes on wages, or various combinations. To the extent that these plans are financed on a pay-as-you-go basis, they are subject to financial and political risks, which may place their beneficiaries in financial peril. Furthermore, these plans, through their benefit provisions, can influence societal expectations about which retirement age is appropriate. Increasing longevity places a greater financial burden on all such plans if the additional years are not pre-funded. For pay-as-you-go plans, the cost of greater longevity is passed on to younger generations that are still working and paying taxes.

One of the most important options for dealing with population aging is increasing the age for eligibility of benefits under Social Security, medical and other social programs. This idea is very unpopular, and it is politically difficult to make such changes. The matter is further complicated in the US now that those over age 65 can collect full benefits and at the same time continue working without any limit on earnings. The public is continuing to work to a somewhat later age, but wants to work and collect benefits at the same time. Retirement age, or age of benefit eligibility, will be a major consideration in the updating of programs in future years.

The form of social benefit programs varies by country. Many countries, particularly in Latin America, have adopted individual account arrangements as a significant component of their governmentally sponsored old-age security programs. Some, like Great Britain, have allowed individuals to opt out of some of the program, and others, like Australia, have mandated employer provided benefits instead of directly providing government benefits. Others, including the US, are debating the merits of moving towards a "privatized" approach like those adopted in Latin America.

Under pure individual account arrangements, the cost of greater longevity is, in theory, borne by the account owner, who struggles to stretch a fixed amount of funds to pay for longer duration of retirement. Many privatization advocates recommend that individuals be required to purchase a lifetime annuity at retirement in order to remove the longevity risk. At this point, the longevity issue becomes a crucial one. Should increasing longevity be anticipated in annuity purchase rates? If so, how much? Should annuity purchase rates vary by sex or race, as current population statistics would indicate? Who bears the risk if longevity improves more than expected? And if the expected improvement does not materialize, how will any adjustments be made? These questions are among many that privatization advocates in the US must tackle if they are to sell their proposed reforms.

## VI. Mismatches and Disconnects

As we look at the programs and benefits used to help support the elderly and their needs, we see a number of areas where there are mismatches and disconnects. These are areas where the total system leaves many people with less than ideal solutions. Increasing longevity makes these disconnects worse. Some of the key disconnects are as follows:

- At least in the US, the public has not focused on outliving assets as a major issue, and many people are likely to find assets running out. This problem is likely to be most severe for widows.

- Public policy is mixed in its support for gradual retirement.

- For the poor, public financing of long-term care varies substantially by country. Relatively few people have private insurance for long-term care.

- Medical coverage for many of the elderly is often inadequate. In some of the countries with comprehensive health coverage, the costs of these systems have become a major issue and the systems are retrenching.

- The survivor benefits offered on the death of a spouse are often inadequate. This is a particular problem for two earner families under the US Social Security system.

- Private pensions are generally not indexed for inflation, and many people have inadequate inflation protection. Annuity products usually do not include inflation protection, and are not ideally matched to the pattern of need.

- As people reach retirement age, connection to family is important. In the early years of retirement, many are helping parents, and later on, many depend on help from the children. However, the global trend towards smaller families means that fewer children will be available to help.

- Individuals who get large lump sums from pension plans are confronted with managing large amounts of invested assets, more than they have ever managed before.

All of these disconnects spring from the problem of matching resources earned during a working career to needs which spread over a growing lifespan. To the extent that individuals cannot manage this problem themselves, the problem falls to families, businesses, and governments to fill in the gaps.

## VII. Conclusion

Increasing longevity affects a fundamental balance in society, between those who work to provide goods and services and those who have retired but continue to consume those goods and services. Its implications reach to the individual, the family, the private and public sectors. It affects the future of all governmental programs to help the elderly, and the poor in general. For these reasons, many voices worldwide have spoken out in favor of raising retirement ages, to maintain this balance as our populations age.

Are we prepared for this change? The answer is mixed:

- There has been a long-term large improvement of the economic status of the elderly, in much of the developed world, and private and public systems to provide help are well-developed. But there are still too many people in poverty and the aging of the Baby Boom in the US is likely to be accompanied by a decline in financial strength of these systems.

- Governmentally sponsored old-age insurance programs are carrying a substantial and growing burden. In the US, over half of the elderly population depends heavily on Social Security, so that any benefit reductions will be politically difficult.

- Individuals are expected to care for themselves, but many do not save enough or provide well for the risks they are facing. It will work out well for many, but for others, old age is a time of difficulty and decline.

- Individuals are changing the way they work and retire, so that many people are leaving the labor force in steps. For them, current income is a supplement to retirement savings.

This picture is based on the world in 2002, but as life spans continue to increase, more questions will emerge. It is possible that the future shape of mortality may create risks for which we are not yet prepared. Under some scenarios, an increase in expected lifespans has little effect on the uncertainty we face regarding age at death. Under other scenarios, longer lifespans also correspond to a wider dispersion, or standard deviation, around the expected lifespan. If the "risk" of greater longevity is truly rising, then this places even more burden on the individual to prepare for this risk and to focus on outliving assets as a specific issue. When this is added to the burden of preparing for more years of retirement, and with relatively fewer dollars from social, employer, and governmental support to help ease this burden, the citizens of all nations face a formidable challenge.