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Perspectives from Anna Comments on 2020 Living to 100 Symposium

By Anna Rappaport

The Society of Actuaries has sponsored seven Living to 100 symposia. I have participated in all of these in a variety of roles. I always look forward to hearing interesting, thought-provoking and controversial new ideas. The 2020 symposium was no exception. This article details some of the ideas that were particularly compelling to me. They represent a sample of many interesting ideas presented and reflect the mix of attendees from North America, Europe, Australia, and Asia. Some were academics and some were in different industries affected by our longer life. While many are actuaries, other disciplines were also represented.

The general sessions offered a very good variety of content. One of the highlights of Living to 100 is the keynote speakers who bring in new and interesting ideas. This year's keynoters included discussions of the biology of aging, non-financial aspects of retirement, and implications for the insurance industry.

At the opening keynote session of the 2020 Living to 100 Symposium, Dr. Steve Horvath focused on the epigenetic clock and research using DNA (captured from blood or by other means) and genomic biomarkers as a base on which to conduct longevity research. This research has been quite fruitful and is used to predict future developments and areas of future research needs, to measure the efficacy of a variety of possible anti-aging strategies and to think about the reasons why different animal species who seem similar may have vastly different life spans.

The ideas presented in the opening keynote can be paired with the closing panel which featured outside speakers focusing on upcoming biological issues.

The second keynote, by Dr. Jacquelyn James, focused on how we retire and think about retirement. That session is discussed



below. The third keynoter, Ronnie Klein, focused on issues for the insurance industry.

A monograph to be published with the content from the 2020 Living to 100 Symposium will include research papers on a variety of topics related to living to older ages and its implications that form the foundation for many of the sessions at Living to 100. It will also include discussions of the papers presented at the event. In addition, the papers from the prior Living to 100 symposia have been analyzed in a consolidated literature review, "Living to 100 Insights on the Challenges and Opportunities of Longevity Literature Review 2002–2017." I found this statement in the executive summary, "Our understanding of older age mortality is also limited, in part because the data at older ages are sparse and of varying quality. There are open questions related to the rate of improvement and the ultimate age at which it is appropriate to assume a mortality table should end." The 2020 symposium showed some further evidence in support of this statement.

MORTALITY TRENDS AND SITUATION

The overall rate of mortality improvement in the U.S. and Canada has slowed down in the last few years in comparison with that in earlier periods. At some earlier Living to 100 symposia, there was considerable debate about how much improvement in life expectancy is possible and whether there exists a maximum achievable lifespan. I heard much less disagreement this time: No advocacy for an increase in the maximum age at death and very little advocacy for further dramatic increases in life expectancy. Since the initial Living to 100, there has been no change in the maximum documented age at death. It remains at 122 years.

In 2020 and the last few Living to 100 symposia, there were excellent panels of social insurance actuaries from the U.S., Canada and the U.K. There seemed to be some convergence in the rates of mortality improvement used by these social insurance actuaries in North America and the United Kingdom. No one seems to be arguing for very large longevity increases. The last decade has seen lower mortality improvement in the U.S., Canada and the U.K.

Although the consensus maximum age at death has not changed over the period of the seven symposia—spanning 18 years since the first one in 2002—the average age of the 30 oldest deaths has increased although the maximum age of death (omega) has remained steady at age 122. There remains one documented case of death at this age. However, the average age of the 30 oldest people to die has increased by about ten years since World War II. I did not hear any updated rationale for future increases in omega.

U.S. society has already realized more than 30 years of improvement in life expectancy since 1900. The major sources of past improvement have been identified and causes of death have shifted accordingly. Early in the period there was major improvement in childhood mortality and then the introduction of antibiotics led to substantial reductions in death from infectious diseases. Since then, lung cancer, heart disease and stroke have shown long-term improvements while other cancers have shown increases. Alzheimer's and dementia are increasing, reflecting the overall aging of populations. Obesity is also having a negative effect, as are opioids. (I did not hear any talk of gun violence this year.) I also heard that there is no potential to entirely eliminate Alzheimer's or cancer, although improvements are likely in their detection and treatment, which would lead to longer, higher-quality lives for those afflicted with these conditions

It was pointed out that rates of mortality at the youngest ages are very low, and there has already been a major reduction in cardiovascular mortality at middle and older ages. However, if there is a biological breakthrough leading to an effective anti-aging therapy or cures for different types of cancer, then further significant increases in average life expectancy are still likely. In addition, the increasing average age of the population

and the shifting age mix are heavily influenced by differences in the number of annual births.

Unlike in some earlier Living to 100 symposia, I did not hear from those who believe in big, imminent annual increases in mortality improvement or life expectancy. It was pointed out that there are two divergent views of life expectancies—one based on biological forces focusing on about age 85 as average and the other based on mathematical extrapolation resulting in continued growth based on past rates of improvement. The second view was mostly discarded, along with the idea of life expectancies moving significantly closer to age 100. Several people talked about why life expectancies of 100 in the future seemed completely unrealistic. It seemed that most of the discussants expected very moderate increases, possibly accompanied with longer periods of healthy life expectancy. A life expectancy of 85 could come about with major breakthroughs in prevention and the development of new drug interventions.

Challenges with data accuracy at very high ages still persist. There was an interesting discussion at the symposium concerning some of the challenges and implications of identifying and dealing with ambiguous or inaccurate data.

RELATED ISSUES

Genetics matters, but by how much remains unclear. Studies of centenarians help confirm this. Paradoxically, centenarians have lower incidence of age-related diseases. The environment and medical developments take a greater role at extremely advanced ages. Environmental issues today have mostly adverse effects.

Multi-morbidities (co-occurring chronic diseases) are really important but they are hard to measure and study. These conditions seem to be a fact of life. I do not know much about them. We were reminded about the challenges for people taking many different medications. Sam Gutterman presented a paper on this topic and I hope that there is further research as interest in the area rises.

There is a lot of interest in being able to extend the period when people remain healthy. Studies on anti-aging strategies continue. The strategies and drugs under study now are the same as those that have been discussed in the last two or three Living to 100s. There remains the likelihood of new drugs or other interventions to increase healthy lifespan. The TAME (Targeting Aging with Metformin) trials, which involve a widely used treatment for type 2 diabetes and which were discussed at the prior Living to 100, are proceeding well. Questions remain about whether interventions will work and if so, which will work best. Whether a treatment will be found that can substantially slow or reverse aging remains controversial. The epigenetic clock can be used to study the efficacy of reversal of aging treatments. It was reported that the use of human growth hormone



had advocates and detractors. It remains a very controversial method of extending healthy aging.

BIG SOCIETAL ISSUES

I am personally very interested in linking what we do as actuaries to bigger societal issues and trying to link what I heard at Living to 100 to such issues. The 2020 symposium provided me with a lot to think about.

While longer life spans on average are a fact of life, certain population segments have very different results. Those with lower incomes, education and economic status tend to have shorter life spans. Inequality came up repeatedly, which raises major policy questions and challenges. Some of these challenges involve social justice and equity. For example, if people at all income levels pay Social Security taxes at the same rate and if the benefits begin at the same age and the benefit formula is not adjusted or truncated for income level, those with higher incomes will receive more benefits. Various types of adjustment are possible. For example, in the United States, Social Security benefits are tied to average, capped career income levels. Monthly benefits are a higher percentage of income level for those with lower incomes, but on average this group receives benefits for a shorter time due to their shorter life expectancies. It is unclear whether lower income groups get the same, better or worse return on Social Security contributions as do higher income groups.

An example of the current challenges and the link to inequality is thinking about retirement ages. Retirement periods have grown a great deal in the last 85 years since the introduction of

the U.S.'s Social Security old-age pension system as longer life spans mean longer periods of retirement unless retirement ages are increased. I and many others have called for adjustments to the age at which full benefits are available. But inequality creates major challenges in trying to adjust retirement ages. One of the essays presented at the 2020 symposium focused on the challenges created by inequality when thinking about long-term care financing reform.

Retirement ages were a focus of the 2020 symposium. One paper ("When Danes Have only 15 Years to Live: Implications of Linking Retirement Age with Life Expectancy" by Jesus-Adrian Alvarez) discussed linking retirement ages to life expectancy, and what is happening in four countries (Denmark, Netherlands, Estonia, and Finland). Denmark has made changes so that by 2022, retirement ages will be life expectancy minus 15 years. However, all issues related to retirement ages easily get very political. This type of linkage can be detrimental to those in lower socio-economic groups. One of the keynote speakers, Dr. Jacquelyn James, talked about retirement moving beyond money. She focused on the desirability of and interest of many people in remaining productive longer. Retirement and work issues need to be addressed. There are different views of the life cycle today. Dr. James indicated that a fresh map of life would have four stages:

1. Growing up
2. Work
3. Scaled back work, but still productive
4. Retirement with limitations

It is important for the U.S. (and other countries) to focus on better opportunities for older workers.

Another area of focus in thinking about retirement is alternative designs for retirement benefits. Collective DC is an interesting design. Rob Brown raised this in his discussion in the Pensions and Longevity Risk session.

There is talk about both retiring later and working longer, and there are many options about how to work. In the session *Retirement Security: It's Not Just About Money*, Dr. Jacquelyn James talked about some of the challenges involved and the need for people to be able to define and play productive roles later in life. There are also many issues related to ageism, as it can be difficult for workers to find suitable work at older ages. See the 2019 Annual Meeting & Exhibit session *Reboot, Rewire or Retire* for insights into some of these issues.

The Horvath presentation reminded us about the importance of genetics. He is using genetic information in his research to understand changes in longevity. A paper was presented by N. V. Subramanyan on the use of genetic information in retirement planning. Individuals can also use genetic testing in managing their own health. This leads us to a focus on the uses, value and individual equity of genetic testing. There are a number of possibilities for the individual. There are also possibilities for insurance companies. One of the challenges is that if an individual has had genetic testing and the information is not known by a life or health insurer, there is a potential for anti-selection in the purchase of insurance.

Longer life raises issues about care late in life and about how to die. An issue raised a couple of times was medically assisted death, for which opportunity is limited in Canada, while there is more availability in some European countries. This is an issue that will need more discussion in the future and is very controversial in the U.S. Related is the issue of making choices about dying. In the session on *Beyond Age 85: Understanding Retirement Needs, Risks and Experiences*, a case study was presented to illustrate some of the late-in-life challenges. That case study made reference to several choices made about dying, including wanting to die at home, in a hospice setting with palliative care and minimum burden on the family, and discontinuing care to someone who had expressed the wish for that to be done. That case study provided illustrations about some of the challenges for and burdens on the family, resulting in choices made about care and death. Sally Hass, who presented the case study, discussed the issue of leaving a legacy of love.

As people live longer, they may or may not stay healthy longer. This is a huge issue, and there are a variety of interventions being studied that may help with a longer healthy life. Quite a bit of progress has been made, but there is more to discover going forward.

QUALITY OF LIFE RELATED ISSUES

While mortality research has been the biggest focus of the Living to 100 series, there have also been sessions at many of the symposia on implications and applications of the research. For example, in 2017, there was a focus on Age Friendly Communities. As in prior years, in 2020 there was increased attention given to the quality of life, versus merely the length of life. One session focused on the positive effects of alternative models of continuing care retirement communities, including improvements in life span. Working longer, staying healthy longer, and medically assisted death also link to quality of life. In 2020, the session that focused on Continuing Care Retirement Communities also addressed other housing and quality of care issues. The paper “Does Living in a Retirement Village Extend Life Expectancy? The Case of Whiteley Village in the U.K.” makes the case that the combination of housing, care, food and the environment affect high age mortality for women. This is a lower income community with subsidized housing. A second paper “Health and Social Care Analysis Regarding the State of Canadian Women Living in the Alone Stage of Retirement” focused on a variety of issues including communities that combine housing and care, technology and social prescribing (referral of patients to existing support in the community.) It offered examples from a number of different settings and pointed out that current market solutions are generally too expensive for much of the population.

Doug Andrews pointed out that integrated services can help people age more successfully. But often services, including health care delivery, are not well integrated. Social prescribing is a way to integrate by helping the individual to link services—but this model may be impractical and out of reach in the short term. Effective use of technology, including robots, nanotechnology, etc. offers some promise.

CONCLUDING COMMENTS

Actuaries are involved in many different roles in different areas of practice. Other professionals are involved in working with the same issues we do, often adding different perspectives. Longer life and changing demographics touch the work that many of us do. The Living to 100 symposia offer an excellent opportunity to focus on many aspects of the big picture. The symposia offer a chance for us to broaden our viewpoint. I believe that broadening our perspectives helps us do a better job. We may not see how it changes us from day to day, but overall it enables us to think about the issues we are working on with a more complete focus. I highly recommend the Living to 100 symposia and the monographs and summary papers that document them. ■



Anna M. Rappaport, FSA, serves as chairperson of the Committee on Post-Retirement Needs and Risks and the Steering Committee for the Aging and Retirement Strategic Research Program. She can be reached at anna.rappaport@gmail.com.