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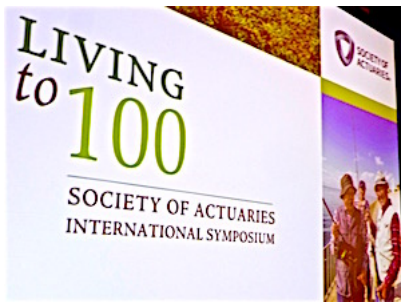
## Extreme Longevity? He Lives It

By Kerry Pechter     *Fri, Jan 17, 2020*

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*Nearing age 100, social scientist Jacob S. Siegel is still vigorously lecturing and writing. He spoke about the 'demography of retirement' at the triennial 'Living to 100 Symposium' in Orlando, Florida, this week.*

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Relaxing on a patio in the mild Florida air after lecturing at the Society of Actuaries' "Living to 100 Symposium," 98-year-old demographer Jacob S. Siegel was living proof that human beings can be mobile and productive well into their tenth decades.

Just two years ago, Siegel, who goes by Jay, published a 719-page [textbook](#), "Demographic and Socioeconomic Basis of Ethnolinguistics," which synthesizes topics that have intrigued him since he entered the University of Pennsylvania 80 years ago.

"Clinically, I'm in good shape," said Siegel (below), wearing a sky-blue sweater over a white shirt, khakis and soft leather shoes. "For the first 10 yards, I can walk as fast as anybody. But at this age, I'm a mass of symptoms."



Siegel

Siegel gave a slide presentation on the “Demography of Retirement in the U.S” to a roomful of actuaries and others on the first morning of the symposium—the seventh in a series that since 2002 has showcased contributions to global aging research. The SOA hosts it every three years in Orlando.

As superbugs are to epidemiologists and warming seas are to climatologists, so is global aging to actuaries and demographers. All of these professions employ statistics and calculus to extrapolate from current trends so that governments, insurers and individuals can anticipate and prepare for the risks of the future.

**Our DNA ‘clocks’ tick at different speeds**

On Monday, a prominent researcher in a relatively new field of epigenetics—the study of chemical modifications of genes—presented his work on aging and [DNA methylation](#) rates. These are the rates at which methyl compounds (-CH<sub>3</sub>) attach to or detach from the 28 million cytosine sites in human DNA. Cytosine, guanine, adenine and thymine are the four

main bases of DNA.

The rate of this mysterious but essential process is now used to measure biological age, as opposed to chronological age. For instance, DNA methylation has shown with precision that the body's tissues age at different rates. The cerebellum, the neuron-rich region where the brain meets the spinal cord, ages most slowly.



Horvath

“DNA is not just the carrier of genetic information,” said researcher Steve Horvath, a Harvard-trained professor of biostatistics at UCLA. “It’s one gigantic aging clock that measures aging in all of the cells that contain DNA. It’s the ‘Grim Reaper’s’ hourglass.”

Tip-of-the-chromosome compounds called [telomeres](#) were once considered the body’s most accurate timepiece. But DNA methylation looks more promising, Horvath told *RIJ*. It can be used to make insurance underwriting and pricing more accurate or to measure the efficacy of anti-aging drugs. It has already been used to identify behaviors—like exercise or vitamin E intake—that retard aging.

### **Impossible savings goals**

How much money would American workers need to save in a retirement plan (defined benefit or a defined contribution) over a lifetime of work to save enough to replace 40% of their final pay each year for a 35-year retirement—from age 65 to age 100?

Jonathan B. Forman, who teaches tax and pension law at the University of Oklahoma law school, addressed those questions in a presentation at the symposium. His grim calculations showed that it would take nearly ideal conditions—steady employment, savings, raises, and

capital gains over a 40-year career and low annuity prices—to reach adequate savings.



Forman

To simplify his calculations, Forman started with round-number assumptions. He posited that, based on final salary replacement requirement of 70%, people finishing their careers with \$100,000 incomes would need \$40,000 a year from savings, plus Social Security benefits, to meet their annual spending needs in retirement.

To buy an annuity producing \$40,000 a year, they would need at least \$400,000 in savings by age 65, he assumed—erring generously on the low side to start with. To accumulate \$400,000, they would have to save at least 7.27% of their income each year for 40 years, earn 5% a year, experience an annual inflation rate of 2.5%, enjoy 3.5% annual salary growth, and vest immediately in their savings plans or pensions.

But Forman demonstrated that the average person would have a difficult time hitting even those low numbers. Americans routinely experience career interruptions, including layoffs in their 50s that deprive them of critical savings years. Many people retire at 62 and dip into their savings immediately.

At the same time, \$400,000 isn't likely to produce an inflation-adjusted \$40,000 a year. Today, according to [immediateannuities.com](http://immediateannuities.com), a *fixed* \$3,300 per month joint life annuity costs about \$750,000. As possible solutions to the savings dilemma, Forman listed a fully funded Social Security program, Social Security add-on accounts, and mandatory defined contribution plans with auto-enrollment and auto-portability.

#### **Life insurers fall short**

On the last day of the symposium, a reinsurance expert and inventor of the [Vita mortality bond](#), Ronald Klein, gave a wide-ranging talk entitled, “The Insurance Industry’s Response

to the Worldwide Aging Crisis.” He told the actuaries, “The response has not been very good.”

Klein enumerated the life insurance industry’s mistakes, including:

- Few people understand what the word annuity means.
- Life insurers are pitching annuities as investments when they’re insurance.
- Life insurers are chasing digital distribution when consumers need personal handholding
- A lower percentage of the public (23%) has a favorable view of the insurance industry. That’s worse than their view of banks or drug makers.



Klein

“Annuity issuers should be calling people when they reach age 59½ to ask if they’ve thought about turning tax-deferred savings into income,” he said. “But they don’t. I’m 59½, and nobody’s calling me.”

As for software that tries to scare young people into saving more by showing them how they’ll look in old age, he said, “This is a great idea. I love it. But it works for only one person at a time. It’s not going to move the needle on annuity sales.”

#### **Self-reliance**

Before the symposium ended, Jay Siegel talked a bit more about his almost century-long life. Asked if living for a century had been a specific goal of his, he dismissed that thought with a sharp wave of his hand. “Not at all,” he said. “When I was 25 I thought I might live to 35.”

Siegel’s father fled pre-revolution Russian pogroms in what is now Latvia and recorded those events, along with poems, in a diary that Siegel still has. Arriving in Boston and

migrating to Philadelphia, his father opened a grocery there. His mother kept what Siegel called a “filo-centric” household; she fussed lovingly over her children’s health and happiness.

Reaching age 98 wasn’t easy: Good fortune and grief struck Siegel in roughly equal measure. Among his early successes: while at Philadelphia’s selective Central High School, he won a full scholarship to Penn by acing a city-wide test.

Siegel has worked at the U.S. Census Bureau, written textbooks, and taught at, among other schools, Cornell, Georgetown, and the University of California at Irvine, as well as abroad. He co-authored “the bible” for his discipline (“The Methods and Materials of Demography”) in 1971. At age 90, he published “[\*\*The Demography and Epidemiology of Human Health and Aging\*\*](#).” He is currently revising his 2001 book, “Applied Demography.”

As a demographer, he observed that “individual lives are often like miniatures of vast social movements.” His personal motto has been, “Don’t dwell on what you can’t do. Instead, think about what you *can* do.” He recommends self-reliance; whenever the need arose, “I became my own lawyer, psychiatrist, and stockbroker. Never let other people do for you what you can do for yourself.”

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