

## Session 5B Discussant Comments

Robert Pokorski

Presented at the Living to 100 Symposium

Orlando, Fla.

January 8–10, 2014

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**Concurrent Session 5B: Longevity and Cognitive Impairment  
Living to 100 Symposium V Orlando, Fla.**

Discussant

Robert Pokorski, MD

Individual Life Insurance

The Prudential Insurance Company of America, Newark, NJ

**“Cognitive, Psychological and Social Drivers of Longevity.”**

**Authors Gordon Woo, RMS LifeRisks Inc., and Anne Bruce, Posit Science Inc.**

The paper by Woo and Bruce addresses human resilience, meaning the ability to adapt to adversity, especially at older ages when most people are affected by a host of medical problems. They provide an excellent summary of the literature in the context of three drivers of longevity—cognitive functioning, positive psychology and social functioning—which together yield a composite resiliency score.

The authors have tackled one of the most vexing problems in gerontology: How does one quantify nonphysical characteristics that affect longevity, particularly at older ages? Young people are relatively similar: strong, healthy, with low rates of disability. Much changes at older age. “Heterogeneity in Healthy Aging” was the focus of a November 2013 article by Lowsky et al.<sup>1</sup> As expected, disability increased with advancing age. But most surprising was the percentage of healthy people at the oldest ages. For the cohort age 85 and older, 56 percent reported no limitations in work or housework. How did so many people reach old age in such good health? The answer can be found in innumerable influences over a lifetime, including genetics, socioeconomic circumstances and lifestyle choices. Differences in cognitive, psychological and social functioning undoubtedly contributed as well.

As noted in the paper by Woo and Bruce, one’s stage in life is categorized by traditional age brackets; these include young old (ages 65 to 74), old old (ages 75 to 84) and oldest old (ages 85 and older). I say “traditional” because distinctions between middle age and different phases of older age are being blurred, in large part because more people are reaping the benefits of a lifetime of good medical care, diet and healthy lifestyles. For example, I live in the mountains of North Carolina. Two members of my hiking group are ages 82 and 86, and both do as well or better than younger members who are new to hiking and in poorer physical shape. Through a combination of favorable genetics, socioeconomic conditions, healthy lifestyle and luck, they’ve reached advance age in enviable physical and mental condition. Their upbeat attitude helped them get there and will help them continue to do well compared to others of the same age. But how much better, for how long and how can it be measured?

Gerontologists have long known that self-reported health status is an excellent predictor of future health and longevity; if someone tells their physician they’re in good or bad health, they usually are. In the clinical world, a composite resiliency score could help medical professionals target patients at higher risk for disability and early death in order to devote more resources to improving their health and quality of life.

In an insurance context, I envision three challenges for a composite resiliency score. First, answers to questions that reflect one’s psychological and social resilience would potentially

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<sup>1</sup> David J. Lowsky, S. Jay Olshansky, Jay Bhattacharya, and Dana P. Goldman, “Heterogeneity in Healthy Aging,” *Journals of Gerontology: Series A Biological Science and Medical Science* (November 17, 2013), doi:10.1093/gerona/glt162.

be influenced by the knowledge that pricing might change depending on the answers given. Second, insurance applications are designed to be as short as possible to facilitate the sales process. Adding questions that lengthen the application might face resistance. Third, as the authors observed, a composite resiliency score would need to be further refined with experience data.

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## **“Is ‘Secondary’ Prevention of Alzheimer’s Disease Possible? A Discussion of Studies in the Alzheimer’s Disease Field.”**

**Authors Heather Snyder, Dean Hartley, Keith Fargo and Maria Carrillo, Medical and Scientific Relations, Alzheimer’s Association, Chicago**

The second paper, by Snyder et al., provides a concise overview of four trials of secondary prevention, defined as “stopping or slowing the progression of a disease process for people expressing early stages,” of Alzheimer’s disease. These trials reflect the confluence of a number of events. First, it is now clear the pathologic process underlying Alzheimer’s disease starts at least two or three decades prior to the earliest symptoms. Second, new biomarkers and brain-imaging tests enable detection of early pathology. Third, medications have been identified that might interrupt the disease process.

The importance of this research cannot be overstated. More than 5 million Americans are living with Alzheimer’s disease today, and, worldwide, dementia affects nearly 36 million people, most of whom suffer from Alzheimer’s disease. Significant increases in these numbers are expected in the future, mainly because of global improvements in life expectancy.

I’d like to make three points regarding Alzheimer’s disease and the broader issue of medical research in the United States.

First, prevention of Alzheimer’s disease would markedly reduce the many years of morbidity associated with this condition, but the impact on life expectancy would probably be limited. This is because Alzheimer’s is a relatively uncommon cause of death at older ages—it accounts for about 1-in-23 (4.4 percent) deaths at ages 65 or older<sup>2</sup>—and people who no longer died of Alzheimer’s disease would die instead from competing causes of death.<sup>3</sup> For example, a May 2013 *National Vital Statistics Report* estimated that eliminating Alzheimer’s disease as a cause of death would add only 51 days to life expectancy at birth.<sup>4</sup>

Second, there is potentially good news. Six separate studies—from the United States, Rotterdam, Sweden, the United Kingdom<sup>5</sup> and Denmark, the latter of which was authored by Christensen et

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<sup>2</sup> Centers for Disease Control and Prevention, *The State of Aging and Health in America 2013*, Atlanta, GA: Centers for Disease Control and Prevention, U.S. Department of Health and Human Services, 2013.

<sup>3</sup> Dana P. Goldman, David Cutler, John W. Rowe, Pierre-Carl Michaud, Jeffrey Sullivan, Desi Peneva, and S. Jay Olshansky, “Substantial Health and Economic Returns From Delayed Aging May Warrant a New Focus for Medical Research,” *Health Affairs* 32, no. 10 (2013): 1698–1705.

<sup>4</sup> Elizabeth Arias, Melonie Heron, and Betzaida Tejada-Vera, “United States Life Tables Eliminating Certain Causes of Death, 1999–2001,” *National Vital Statistics Reports* 61, no 9 (May 31, 2013): table B.

<sup>5</sup> Eric B. Larson, Kristine Yaffe, and Kenneth M. Langa, “New Insights into the Dementia Epidemic,” *New England Journal of Medicine* (December 12, 2013) doi:10.1056/NEJMp1311405.

al.<sup>6</sup>—reported declining age-specific prevalence or incidence rates for Alzheimer’s disease in people born later in the first half of the 20<sup>th</sup> century. Clearly, these findings need to be confirmed, but as Larson, Yaffe, and Langa noted, “the evidence supports the theory that better education and greater economic well-being enhance life expectancy and reduce the risk of late-life dementias in people who survive to old age.”<sup>7</sup>

Third, there may be a role for the actuarial profession in helping inform public policy about the costs and benefits of medical research. I’m referring in particular to the relative value of disease-specific research versus research that focuses primarily on aging. A paper by Goldman et al.<sup>8</sup> concluded that continuing the status quo, where heart disease and cancer are addressed as separate research topics, would result in diminishing improvements in both health and longevity over the next 50 years because of competing causes of sickness and death in aging populations. In contrast, preventive measures that slowed the aging process would have a significantly greater impact on disability and longevity. I offer two caveats in the context of this *Health Affairs* article: many people consider current interventions that might slow aging in humans to be mainly theoretical, except for activities that promote healthy lifestyles, and there are significant differences of opinion regarding the relative value of disease-specific versus aging-specific research.

The Society of Actuaries and other actuarial societies worldwide are not medical experts, but they may be the only organizations in the private and public sectors that have the technical ability to model these highly complex, multi-decade research projects. The input they could provide to public health authorities is urgently needed: reasoned advice regarding the implications of different research and funding priorities on morbidity, mortality, life expectancy and entitlement costs that will be borne by future generations.

To better frame this issue, it’s helpful to ask: What is the No. 1 goal of medical research? I suggest it’s not to cure or prevent cancer, heart disease or dementia; these are tactical steps that support a broader strategy. Rather, the No. 1 goal is to increase healthy life expectancy. We can accomplish this goal by finding new and better ways to treat and prevent common medical problems, attacking them one by one, disease by disease. And we can try to delay aging. This is not an either/or decision; rather, it’s a matter of balancing research priorities to increase the likelihood of success. There are funding implications for whatever choices are made. Research dollars devoted to studying the aging process currently represent only a small percentage of the budget of the National Institutes of Health.<sup>9</sup> If greater emphasis were to be placed on aging research, either the pool of research dollars must be expanded or funding for other projects would need to be adjusted accordingly.

Thank you.

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<sup>6</sup> Kaare Christensen, Mikael Thinggaard, Anna Oksuzyan, Troels Steenstrup, Karen Anderson-Ranberg, Bernard Jeune, Matt McGue, and James W. Vaupel, “Physical and Cognitive Functioning of People Older Than 90 Years: A Comparison of Two Danish Cohorts Born 10 Years Apart,” *The Lancet* 382, no. 9903 (2013): 1507–13.

<sup>7</sup> Larson, Yaffe, and Langa, “New Insights into the Dementia Epidemic.”

<sup>8</sup> Goldman et al., “Substantial Health and Economic Returns.”

<sup>9</sup> National Institutes of Health, “The NIH Almanac: Appropriations,” <http://www.nih.gov/about/almanac/appropriations/index.htm> (accessed December 18, 2013).