



Forum

Senate Special Committee on Aging

**“Aging in America: Future Challenges,
Promise and Potential”**

Statement of

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Senator Kohl, Senator Grassley and members of the Special Committee on Aging, thank you for the invitation to participate in today's forum honoring the 50th anniversary of the Senate Special Committee on Aging. Since its establishment in 1974, the National Institute on Aging (NIA) has worked closely with the Committee to increase understanding of the aging process and improve the lives of older Americans. Together, we have marked many changes in the aging landscape of both the nation and the world.

Where are we today and how far have we come in the last five decades?

Newly-released data from the 2010 U.S. Census show that there are now over 40 million Americans ages 65 and older – an increase of over 5 million since 2000 and over 23 million since the founding of the Senate Special Committee on Aging. Looking ahead, these numbers will continue to increase even more dramatically as the post-World War II Baby Boom moves into retirement. This trend reflects similar changes occurring around the world; in fact, for the first time in world history, the number of people age 65 and older will surpass the global population of children under age five. The number of “oldest old” – those 85 and older – is growing dramatically. According to a report released last month from the U.S. Census Bureau, commissioned by the National Institute on Aging, in 2010, there were 1.9 million people aged 90 and older; by 2050, the ranks of people 90 and older may reach 9 million.¹ Findings from the report suggest that, given the rapid growth of this segment of the population, the designation of oldest-old should be changed from 85 to 90 years. In the latter part of the last century, there were signs that we were not only living longer, but healthier. In the U.S., amid the aging of the population, disability rates for men and women ages 65 and older have actually declined significantly over the past several decades.²

These gains in longevity and health are threatened, however, by increasingly sedentary lifestyles and rising obesity, which could slow or even reverse the progress we have made. Today, NIH-supported researchers are working to identify interventions to continue the disability decline. For example, NIH-funded clinical trials have demonstrated that treating hypertension in older adults can significantly reduce the risk for stroke, heart attack, and congestive heart failure. And, in the groundbreaking Diabetes Prevention Program clinical trial, investigators found that dietary modification and exercise were actually more effective than a blood sugar lowering medication,

¹He, W. and M.N. Muenchrath. U.S. Census Bureau, American Community Survey Reports, ACS-17, 90+ in the United States: 2006–2008, U.S. Government Printing Office, Washington, DC, 2011.

² Manton, KG. et al. Change in chronic disability from 1982 to 2004/2005 as measured by long-term changes in function and health in the U.S. elderly population. *PNAS* 103(48): 18374-18379, 2006.

Metformin, in preventing type 2 diabetes in older – but not younger – individuals.³ Outcome studies are currently being conducted to determine if these lifestyle interventions will reduce the risk for diabetic neuropathy, retinopathy and other complications resulting from type 2 diabetes. If these relatively straightforward interventions are widely adopted and further benefits identified, the effect on the health of the older population could be profound.

Where do we project we will be in the next two decades?

During the 20th century, life expectancy at birth in the United States improved from 47 years in 1900 to 77 years in 2000 – 30 years in one century.⁴ Unfortunately, as noted previously, suboptimal lifestyle choices could threaten lifespan and the decline in disability rates we have seen among older people. Already, current research shows that American women don't live as long as women in other high-income nations. Since 1980, the pace of gains in life expectancy of older U.S. women has slowed markedly compared to other industrialized countries, suggested to be largely due to tobacco use.⁵

Other NIH research findings have supported evidence-based interventions that reduce caregiver stress and delay institutionalization of individuals with dementia and Alzheimer's disease, prevent falls, and identify high risk older drivers and provide them with techniques to reduce automobile accidents.⁶ These effective interventions are already being implemented by Department of Veterans Affairs, Administration on Aging, state motor vehicle departments and insurance companies and will help in going forward to improve the health and well-being of older Americans.

A crucial concern is the predicted increase in the number of older people with Alzheimer's disease, the risk for which rises exponentially with advancing age. Currently, it is estimated in various studies that some 2.4 to 5.1 million Americans have dementia, primarily Alzheimer's disease.⁷ The National Institute on Aging and the Centers for Disease Control and Prevention co-lead a new Healthy People 2020 topic area on Dementias, Including Alzheimer's Disease. The goal is to develop and track measures on national efforts to reduce the morbidity and costs associated with, and maintain or enhance the quality of life for, persons with dementia, including Alzheimer's disease.

Over the past decades, we have discovered some of the genetic clues to Alzheimer's disease. A model public-private partnership, the Alzheimer's Disease Neuroimaging Initiative, has led us

³ Diabetes Prevention Program Research Group. Reduction in the incidence of type 2 diabetes with lifestyle intervention or metformin. *N Engl J Med* 346:393-403, 2002.

⁴ Fried, LP. Epidemiology of aging. *Epidemiologic Reviews*, 22(1), 95–106, 2000 cited in Crimmins, E et al, editors; Panel on Understanding Divergent Trends in Longevity in High-Income Countries; National Research Council, 2011.

⁵ Oeppen, J & Vaupel, JW Broken limits to life expectancy. *Science* 296(5570): 1029-1031, 2002.

⁶ Nichols, LO et al, Translation of a dementia caregiver support program in a health care system- REACH VA. *Archives of Internal Medicine*, 171(4); 353-359, 2011; Burgio, LD et al. Translating the REACH caregiver intervention for use by Area Agency on Aging personnel: the REACH Out program. *The Gerontologist*, 49(1); 103-116, 2009.

⁷ Plassman, BL. et al., *Neuroepidemiology* 29:125–132, 2007; Hebert, LE et al., Alzheimer Disease in the US Population Prevalence Estimates Using the 2000 Census. *Arch Neurol* 60:1119-1122, 2003.

into a new era of bioimaging technology. This new imaging technology allows us for the first time to “see” Alzheimer’s disease plaques or protein accumulations in the living brain. It also provides a way, in a research setting, to track disease progression and monitor the effect of interventions. As interventions to prevent and treat age-related diseases and conditions are developed, effective dissemination of these interventions will be of critical importance.

What two or three things, if changed, would put us into a better path and what would the future hold?

Evidence-based treatments or interventions to prevent or slow the progression of Alzheimer’s disease would dramatically impact the lives of individuals, families, and the U.S. health care system. The care of an individual with AD is financially and emotionally draining. Prevention or successful treatment of this disease would restore family relationships, prevent financial loss, extend work productivity, and enhance general well-being among older individuals.

We are particularly excited about our ability to explore aging processes with increasing clarity and precision at the most basic levels, which will lead us to important insights about aging and the basic biological processes of aging which contribute to multiple functional changes and diseases. For example, an international team of scientists led by NIA intramural researchers found that human aging is associated with a small number of focused changes in gene expression, mainly in individual genes associated with immune cell function.⁸ Many of the changes appeared to be involved with processing messenger ribonucleic acid (RNA) – the molecule that carries information from the nucleus of the cell into the cytoplasm, where it is instrumental in developing proteins. These findings suggest that disruption to messenger RNA processing may be a key underpinning of human aging processes. Recent studies in animal models have indicated that telomere dysfunction⁹ and accumulation of senescent, aging and dying cells underlie multiple diseases and conditions of aging.¹⁰ Innovative technologies in imaging and genetics are allowing exploration in ways we never imagined before. These advances will help us to open the door to new interventions capable of preventing or slowing the onset of multiple disorders rather than a single disease.

Working together, we have achieved many successes in increasing longevity during the Committee’s first 50 years. There is, however, much work that remains. As we move forward, we look forward to continuing to work with you to make those additional years gained through research advances as healthy and independent as possible for older Americans.

⁸ Harries LW et al. Human aging is characterized by focused changes in gene expression and deregulation of alternative splicing. *Aging Cell*, 10: 868-878, 2011.

⁹ Jaskelioff, M et al. Telomerase reactivation reverses tissue degeneration in aged telomerase-deficient mice, *Nature*, Vol. 469(6): 102-107, 2011

¹⁰ Baker, DJ et al. Clearance of p16^{Ink4a}-positive senescent cells delays aging-associated disorders. *Nature*, Vol. 479, 7372: 232-236, 2011.