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Written testimony for the Subcommittee on Investigations and Oversight
"The Fountain of Youth? The Quest for Aging Therapies"
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Thank you for the opportunity to participate in these important hearings on a new public health initiative known within the community of scientists and health professionals as Geroscience. The story I'm about to tell you is an easy one to communicate because all of us are experiencing aging firsthand.

In the modern era most people in developed nations – and a rising percentage of people in developing nations – have the privilege of living a long life; a privilege denied to most throughout history. Pioneers in public health, medicine, and science from just a few generations ago gave us the gift of a long life; and since then, humanity has worked hard to maintain this privilege and extend it to others less fortunate.

Life expectancy increased from one year every one or two centuries for the previous several thousand years, to three years of life added per decade in the 20th century. The chances of surviving to ages 65, 85, and 100 have never been higher than they are now.

There is reason to declare victory in the pursuit of extended survival, but plenty of work remains to ensure this privilege is made available to everyone.

This longevity revolution came with a price. The modern rise of cardiovascular diseases, cancer, dementia, Alzheimer's disease, and non-fatal impairments are byproducts of success – not failure. We just had to live long enough to see them. While risk factors hasten the emergence and worsening of these diseases, the biological processes of aging march on in the background – uninfluenced by treatments for diseases. Aging has become the most important risk factor for the diseases and disorders that occur today.

The quest for aging therapies discussed in this hearing is at the heart of a new public health paradigm that has been in the works for the last half century, but which has gained traction just within the last few years. Here's the story in brief.

- Changes in our cells and tissues occur with the passage of time – we call it aging, but there is nothing magical about this since we see the same process occurring in our pets and automobiles.

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- It was suggested in the 50s, 60s, and 70s that aging should eventually become the target of medicine and science, but too little was known at the time about how aging happens.
- Medicine and public health did what it could in the interim to devise ways to detect and treat diseases; one at a time; as if independent of each other. This was a logical next step in dealing with the diseases that appear in aging bodies, but this approach came with limitations that can best be thought of as a game of whack-a-mole; knock one disease down and another appears shortly thereafter. The longer we live, the shorter the distance between diseases.
- The science behind the "how" question in aging has advanced rapidly, which now makes it possible to pursue the gold standard in public health, which is to slow down aging itself rather than just treat its consequences.
- Geroscience has come of age. It is the culmination of decades of research. It is not a theoretical construct – it has been demonstrated in the laboratory that rate of aging can be modified in other species; which means rate control is possible in humans; the first clinical trials of aging therapeutics (known as Geroprotectors) are already underway; and the FDA is fully onboard with this approach; that is, to prevent disease by slowing aging.
- The health and economic benefits of Geroscience will be substantial. A cure for cancer would be welcome, but that's just one disease of many that plague older bodies; and a cure for cancer would only add 3 years to life expectancy. A Geroprotector will simultaneously lower the risk of all fatal and disabling diseases of aging simultaneously, which means even a modest effect would yield amplified health benefits.
- The cost savings in health care alone would amount to over $38 trillion for each year of life generated with Geroprotectors.
- The primary goal of Geroscience is the extension of healthspan, not lifespan, so these advances will not generate a "fountain of youth" in the colloquial sense; but it will fundamentally change what it means to grow old. We will remain younger longer; retain our youthful vigor for an extended period of time; and compress everything we don't like about aging into a shorter duration of time at the end of life.
- There will be challenges that accompany the generation of a healthier and more robust older population, but the most precious commodity that many of us cherish most – our health – will be the gift of Geroscience.
- It is difficult to imagine any scenario in the future where the generation of a larger healthy older population would not be pursued – even if challenges appear along the way.
- This is just an introduction to Geroscience – I'll be happy to take any questions you might have and thank you once again for the privilege of participating in this hearing. My written testimony will address all of these issues in far greater detail.

1.0 Executive Summary

1.1 The First Longevity Revolution

In the 20th century humanity initiated one of the most important developments in the history of public health. We transitioned from a world in which a fourth, and sometimes a third of the babies born in a given year died before reaching their first birthday, to a time when over 81 percent of babies born will reach ages 65 and older; 38 percent will reach age 85; and more people will live to 100+ than at any time in history.[1] Life expectancy at birth rose by 30 years in just one century – a stark contrast from the slow rise during the previous several thousand years that was punctuated often by episodic communicable diseases that led to high mortality and drops in life expectancy.

While there have always been some people throughout history that survived to what we now think of as old age, it has been a relatively rare event. The longevity revolution experienced since 1900 means that public health and modern medicine achieved its collective goal of opening the door to adulthood and old age for most.

1.2 Declaring Victory in the Pursuit of Life Extension

There are still disparities in survival that exist among population subgroups who do not have the same access to old age enjoyed by others. Harmful risk factors such as obesity, smoking, drug use, lack of physical exercise and unequal access to health care and quality food, and income inequality, among other factors, means there is still room to improve public health along a broad range of fronts, and these efforts should continue. But the overall goal of saving children from dying in their first few years of life, and a high probability of surviving to older ages for most, has been accomplished.

1.3 The Emergence of Biological Aging as a Primary Risk Factor

Aging bodies exhibit common attributes associated with using these living machines beyond what I consider their biological warranty period.[2] Even if we adopt what might be thought of as ideal lifestyles, and if all disparities could hypothetically be eliminated, our bodies would still age, we would still grow old, and most deaths would occur between the ages of 65-95 from the same causes of death we see today.

When medical professionals and public health experts inform us, correctly of course, that many diseases are preventable through lifestyle modification, what they don't tell us is that death is a zero-sum game. Aging related fatal and non-fatal diseases and disorders are not eliminated

[1] https://mortality.org/

[2] http://www.sjayolshansky.com/sjo/Background_files/AmSci86-1998.pdf

through primary prevention – they are for the most part postponed and compressed into our remaining years of life.

If we are successful in reducing or eliminating one risk (such as smoking), we will no doubt reduce the risk of multiple diseases related to that risk, but biological aging marches on – uninfluenced by any progress made against specific diseases. Chronic age-related fatal and non-fatal diseases and disorders accumulate the older we get. This phenomenon is known as competing risks, and it is the reason why the life expectancy of national populations will not likely exceed about 85-88 years for men and women combined under present conditions.[3]

1.4 Rising Prevalence of Aging Related Conditions is a Product of Success, not Failure

The modern dramatic rise in the prevalence of heart disease, cancer, stroke, Alzheimer's disease, osteoporosis, arthritis, vision and hearing impairments, etc. – are a product of success – not failure. We have to live long enough for these diseases to be expressed. The first longevity revolution in the 20th century accomplished its goal of redistributing death from the young to the old, but our longevity revolution came with a price[4] – a Faustian bargain that exchanged longer lives for the diseases of aging.[5]

This longevity revolution made visible the diseases of aging. This means that the underlying biological processes of aging that give rise to these diseases, has become the most important risk factor for their emergence and severity. While behavioral and inherited risk factors still play a role in the onset and severity of the diseases of aging, they would still occur in us all even if optimal behavioral risk factors were adopted and all disparities eliminated.

Extended survival in the modern era has therefore presented itself as a unique public health dilemma never before experienced by humanity.[6] In the last 50 years modern medicine has achieved great success in detecting and treating the diseases of aging; personalized medicine is advancing rapidly; genomics opens the door to hyper-personalized medical interventions; and reductions in health disparities and improved behavioral risk factors are at least theoretically achievable; but none of these advances in public health currently have or will have any influence on the underlying biological processes of aging that give rise to diseases common in old age. The aging of our bodies is uninfluenced by any of these achievements, and it is this dilemma that is being addressed by the emergence of Geroscience.

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[3] http://www.eurohex.eu/bibliography/pdf/1297018782/Olshansky_1990_Science.pdf

[4] http://www.sjayolshansky.com/sjo/Background_files/PROJECT%20M_JAY.pdf

[5] https://europepmc.org/article/med/29238709 [click on "open pdf"]

[6] https://www.researchgate.net/profile/S-Olshansky/publication/274167075_The_Longevity_Dividend/links/5ba791e445851574f7e01e1e/The-Longevity-Dividend.pdf

1.5 The Emergence of Geroscience[7]

It was believed until recently that the aging of living things was immutable – an inevitable byproduct of extended survival. It has since been discovered that there can be no aging or death programs built into our genome that leads to programmed obsolescence; the rate of biological aging varies dramatically between individuals (e.g., biological time varies between individuals while clock time is constant); evidence has emerged demonstrating that biological aging in humans and other species is inherently modifiable; and importantly, the first clinical trials testing potential therapeutic aging interventions are already underway.[8,9,10]

Delayed aging through a variety of interventions has already been accomplished in other species by scientists working in Geroscience. Given the common theme of how selection operates across species, there is abundant evidence that aging modification is possible in humans.[11]

These discoveries about aging have now made it possible to formulate and deploy an entirely new approach to public health known as Geroscience. *The premise is straightforward. Instead of preventing or treating each fatal and disabling disease of aging as if it had an independent etiology and progression, Geroscience targets all of them at the same time – with a single intervention.* Indeed, it's possible to have more than one "single intervention" – but each Geroprotector would be expected to have a systemic effect on all aging systems in the body. Given the absence of aging or death programs driven by our genes, this means that multiple Geroscience-developed therapeutics are possible. Scientists involved in advocating for Geroscience are acutely aware of the broad range of potential therapies, and they're aggressively pursuing all of them at the same time.

I have referred to the importance of Geroscience to the modern era of public health as Primary Prevention with A Capital P.[12] Medicine and public health professionals have been advocating for primary prevention for decades – the end result of which is well-established improvements

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[7] https://www.afar.org/imported/fall2013ppar.pdf [the entire issue of Public Policy & Aging Report is devoted to explaining the origins of Geroscience]

[8] https://www.amazon.com/Aging-Longevity-Dividend-Collection-Perspectives/dp/1621820807/ref=sr_1_1?crid=11WJZ2LNR4JL1&keywords=aging+the+longevity+dividend&qid=1663003179&sprefix=aging+the+longevity+dividend%2Caps%2C80&sr=8-1&ufe=app_do%3Aamzn1.fos.006c50ae-5d4c-4777-9bc0-4513d670b6bc

[9] https://www.researchgate.net/profile/Julia-Rowland-2/publication/262386365_Advances_in_Geroscience_Impact_on_Healthspan_and_Chronic_Disease/links/548f1c910cf225bf66a7fb95/Advances-in-Geroscience-Impact-on-Healthspan-and-Chronic-Disease.pdf

[10] https://books.apple.com/us/book/a-measured-breath-of-life/id604410007

[11] https://link.springer.com/book/10.1007/978-3-319-23246-1

[12] https://www.researchgate.net/profile/S-Olshansky/publication/274167075_The_Longevity_Dividend/links/5ba791e445851574f7e01e1e/The-Longevity-Dividend.pdf

in ***healthspan*** (the number and proportion of the years of life spent in good health). As such, foundational support for Geroscience was spawned in the early 20th century as the detection and prevention of disease has always been the gold standard of how public health operates most efficiently.

Geroscience and the therapeutic interventions being pursued should therefore best be thought of as highly efficient methods of accomplishing what modern medicine is already trying to achieve – good health at every age. Geroscience will achieve this end with far greater efficiency because a single intervention will target multiple disease endpoints – simultaneously.

It has been suggested that healthy life experienced by older people might be one of the most precious commodities that exist.[13] I contend that healthspan has always been the primary goal of medicine and public health.

This combined body of knowledge has led researchers in the field of aging and a broad range of health professionals from physicians to health economists, to propose a new paradigm in public health designed specifically to address the modern dilemma of a rising prevalence of aging related diseases. I have explained the entire concept of Geroscience using just 300 words.[14]

1.6 What Might Happen to Public Health in the Absence of Geroscience?

It has been suggested that in the absence of Geroscience and an effective therapeutic, it's possible that the current model of treating diseases one-at-a-time as if independent of each other, could lead to rapid increases in chronic disease prevalence in the coming decades.[15] Disease management in an aging world without Geroscience, then becomes an ever more rapid game of whack-a-mole where each disease knocked down independently, leads to multiple other aging related diseases popping up shortly thereafter.

Aging and life extension without Geroscience could lead to a dramatically rising prevalence of aging related conditions.[16] We should then expect escalating health care costs associated with detecting and treating multiple aging related diseases that appear closer together in the last decades of life.

1.7 What is The Goal of Geroscience

To extend healthspan by compressing the frailty and disability that comes with aging, into a shorter duration of time near the end of life. What would a successful Geroscience therapeutic do for us? The life and death of Queen Elizabeth II is an exemplar of what Geroscience is pursuing – a healthy active life with a short period of frailty at life's end. Conceptually, think of

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[13] https://academic.oup.com/gerontologist/article/56/Suppl_2/S167/2605367

[14] https://www.dropbox.com/s/en3zn6b8y0ghohb/300%20WORDS.mov?dl=0

[15] https://journals.sagepub.com/doi/abs/10.1177/089826439100300205

[16] https://www.frontiersin.org/articles/10.3389/fmed.2017.00215/full [click on "download article"]

it taking 80 years of clock time to become biologically 60-year-old; or 90 years of clock time to become biologically age 70. Extending healthspan is the primary goal, and the cost savings associated with a successful Geroprotector that yields just a one-year increase in life expectancy would be $38 trillion.[17,18] **Geroprotectors are not the "fountain of youth"; but they will fundamentally change what it means to grow old.**

[17] https://www.escueladepensamiento.org/wp-content/uploads/2021/08/s43587-021-00080-0.pdf

[18] https://www.proquest.com/openview/88e55a15d518b155e010620da1e0b3cb/1?pq-origsite=gscholar&cbl=4365298

2.0 Common Questions and Challenges to Geroscience

2.1 Will Geroscience be the Fountain of Youth?

No. If the concept of a fountain of youth is taken in its literal sense as that presented in the popular literature where we become younger versions of ourselves by using some intervention, this is not going to happen in my view. There are many instances of exaggeration and embellishment among some in the scientific and medical community regarding the use of this phrase – some of which is driven by those seeking to profit from these therapies or research dollars from investors – but most researchers in the field stay away from mentioning "fountain of youth" in the same sentence as Geroscience.

Reversing some of the signs and symptoms of aging and lowering the risk of death and frailty is already possible with the use of diet, exercise, and risk factor modification – but there are limits to how much these kinds of interventions can influence lifespan and healthspan.

If "fountain of youth" is interpreted to mean that we can alter the age trajectory of mortality and disability through scientific means that have been properly tested for safety and efficacy, then under these conditions the phrase may be appropriate.

Those of us involved in Geroscience are acutely aware of a long history of hucksterism that has followed medicine and public health for thousands of years,[19] so most shy away from using this phrase. I personally avoid using this phrase, just as I avoid the phrases "age reversal" and "immortality".

I view Geroscience as the next logical paradigm in public health that will simultaneously avoid the dangers of life extension brought forth by treating one disease at a time and enhance the probability that healthspan will be extended and morbidity and disability compressed.

2.2 If We Delay Aging, Aren't We Just Pushing the Same Health Challenges to Later Ages?

The focus of Geroscience is healthspan extension, not lifespan extension. I've referred to the time period later in life when frailty and disability rise exponentially as the "Red Zone."[20] The first longevity revolution enabled large segments of every birth cohort in the last few generations to live into older ages, but the price paid for this success is a rising prevalence of diseases expressed in this period of the lifespan.

The current medical model is designed to push even more people into the Red Zone one disease at a time. By contrast, the focus of Geroscience is to compress the Red Zone, not extend life. As

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[19] https://books.google.com/books?hl=en&lr=&id=LM00AwAAQBAJ&oi=fnd&pg=PP1&ots=NPN2d_tbaa&sig=Ib6fid2BVLyjnfbpJ4KwqA1hCjk#v=onepage&q&f=false

[20] https://jamanetwork.com/journals/jama/article-abstract/2703114

such, Geroprotectors are expected to generate fewer years of frailty and disability for each successive generation.

Health challenges associated with survival into later ages would therefore be delayed **and** compressed rather than just postponed. Geroscience is being developed for the combined effect of healthspan extension and disease compression.

2.3 Would Extended Healthspan Reduce Future Healthcare Spending?

Rather than using my own words here, I'm going to include the abstract to an article recently published that explains how much health care costs would be reduced through the use of a Geroprotector.[21]

> "Developments in life expectancy and the growing emphasis on biological and 'healthy' aging raise a number of important questions for health scientists and economists alike. Is it preferable to make lives healthier by compressing morbidity, or longer by extending life? What are the gains from targeting aging itself compared to efforts to eradicate specific diseases? Here we analyze existing data to evaluate the economic value of increases in life expectancy, improvements in health and treatments that target aging. We show that a compression of morbidity that improves health is more valuable than further increases in life expectancy, and that targeting aging offers potentially larger economic gains than eradicating individual diseases. We show that a slowdown in aging that increases life expectancy by 1 year is worth US$38 trillion, and by 10 years, US$367 trillion. Ultimately, the more progress that is made in improving how we age, the greater the value of further improvements."

2.4 Would Extended Healthspan Create Challenges for Age Entitlement Programs?

The number of healthy older people would rise in this century with the dissemination of Geroprotectors, creating challenges for age entitlement programs such as Social Security and Medicare, although per capita medical costs would decline.[22] Exhibit 4 in this reference indicates the magnitude of the financial challenge, but the authors argue that adjusting the eligibility ages for these programs would address the challenge. A quote from that article appears below where this issue is addressed head on:

> "Given the large social return, the question then becomes how we could accommodate these changes fiscally. Several policy measures might achieve fiscal balance—we demonstrate one involving eligibility changes—but a full evaluation of the options is beyond the scope of this research. However, we note here one benefit of delayed aging that might enlarge the set of possibilities: With people staying healthy until a much later age, it might be more feasible to justify raising the eligibility age for public programs for seniors. Arguments against doing so often note that life

[21] https://www.escueladepensamiento.org/wp-content/uploads/2021/08/s43587-021-00080-0.pdf

[22] https://commed.vcu.edu/Chronic_Disease/aging/2014/delayingaging.pdf

expectancy increases in lower socioeconomic groups have lagged far behind those in better-off groups. A future in which delayed aging increased the health of all socioeconomic groups would make these increases in eligibility ages more palatable."

2.5 Is Geroscience a Form of Enhanced Primary Prevention – An Approach to Aging Related Diseases that is Already Accepted and Advocated Across the Globe?

Yes. If health promotion and disease prevention is the mantra of medicine and public health, then Geroprotectors represent an enhanced or amplified version of desirable interventions that help us deal with aging bodies and minds.

However, instead of treating health conditions as they arise (again, the concept of competing risks linked to modern medicine), Geroprotectors are designed to postpone the need for all health interventions at once. If is it desirable to avoid taking statins or medications to treat diabetes or repair worn out knees and hips or avoid cancer treatments or cardiovascular interventions, then Geroprotectors offer the most comprehensive method of achieving these goals.

2.6 Is it Selfish for Long-Lived Countries to Seek Aging Interventions when Other Countries Still Suffer from Communicable Diseases?

No. Just because different countries are on different health and longevity trajectories, does not mean those already able to survive to later ages, should wait until all other countries catch up before seeking out more efficient ways to combat disease. Besides, ongoing efforts to combat communicable diseases in developing nations are designed specifically to enable larger segments of these populations to live long enough to experience aging. Keep in mind that older individuals with aging related health conditions exist in all nations, regardless of whether they have a lower life expectancy than average. All nations – developed and developing alike – will benefit from the development of Geroprotectors. There is also reason to believe that disadvantaged subgroups of the population that suffer from chronic age-related diseases may benefit more from Geroprotectors given their higher risks to begin with.

2.7 When Should we Expect Physicians to Prescribe a Safe Geroprotector?

No one can know the answer to this question. What we do know is that Phase I clinical trials are already underway to test one or more Geroprotectors in humans – so this is no longer a hypothetical exercise. If the level of funding for Geroscience ramps up as expected, we can anticipate accelerated results from these clinical trials. I'm optimistic enough to suggest that most people alive today will be using one or more Geroprotectors in their lifetime, and they will be presented to the public as treatments for specific diseases – with the suggestion that their influence could extend to multiple disease endpoints. Metformin is a good example. While Metformin is used to treat diabetes, it appears to have desirable side effect of lowering the risk of a range of fatal conditions, but the clinical trials have yet to start to test this hypothesis.

2.8 Will the FDA approve an intervention that targets aging?

Members of the scientific community met with the FDA in 2016 to discuss how clinical trials would need to be organized to test for and ensure safety and efficacy for the public when using Geroprotectors.[23,24] While the FDA normally operates by linking one treatment to one disease, they recognized the value in targeting multiple disease endpoints by modifying the biological aging processes and fully support this new paradigm of primary prevention. The FDA has been supportive of Geroscience by advising scientists on how to structure clinical trials to test for the safety and efficacy of Geroprotectors. The primary FDA goal of ensuring safety and efficacy would apply equally to the testing and use of Geroprotectors.

2.9 Will Geroprotectors be Safe?

Geroprotectors will need to go through clinical trials just like any other purported therapeutic intervention designed to treat health conditions. These interventions should not make their way into physician-advised treatment/prevention protocols until they're fully cleared by the FDA to be safe and efficacious.

Having said this, scientists in our field need to remain vigilant since it is a common practice for unscrupulous entrepreneurs to try and manufacture and sell aging interventions before the clinical trials are completed.

2.10 Can Geroscience Replace Diet, Exercise, and Risk Factor Control?

No. Taking a Geroprotector is not a license to adopt an unhealthy lifestyle. The same behavioral risk factors that shorten life and increase the risk of disease would be operational when using a Geroprotector.

Geroprotectors would likely enhance and extend to older ages the effectiveness of diet and exercise and risk factor control in extending healthspan and compressing morbidity and disability.

2.11 Would Geroscience Create Environmental Challenges?

I've heard comments like this over the years, but never understood the logic. If Geroprotectors yield more years of healthy life, I cannot think of a single condition in which the global environment would be challenged by such a desirable event. Perhaps population size would be marginally larger in the coming decades as death rates decline and frailty and disability are delayed and compressed, but the momentum for population growth is already built into the age structure of our species.[25] The additional person-years-of-life generated by Geroprotectors

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[23] https://www.dropbox.com/s/41enksum78r3l55/Clip%201.mov?dl=0

[24] https://www.dropbox.com/s/55htnsisaso4x1l/Clip2.mov?dl=0

[25] https://d1wqtxts1xzle7.cloudfront.net/49129129/The_aging_of_the_Human_Species20160926-30708-mb5jzd-libre.pdf?1474897147=&response-content-disposition=inline%3B+filename%3DThe_aging_of_the_Human_Species.pdf&Expires=1663013961&Signatu

would be noise compared to the population growth that is already destined to occur by mid-century.

2.12 Would Geroscience Accelerate Population Growth, Leading to Overpopulation?

No. As indicated, the momentum that will lead to a human population of about 9-10 billion by 2050 is an inevitable byproduct of past trends in fertility – referred to as momentum for population growth already built into the age structure. Even if death rates were to decline as a result of Geroprotectors, the effect on the growth rate of the population would be almost imperceptible.[26] Please keep in mind that Geroprotectors are not designed for life extension; they're designed to extend healthspan and compress frailty and disability. The link between Geroprotectors and global population growth is negligible.

2.13 Is Aging a Disease?

This is a point of contention in the field of aging. By declaring aging a disease, some believe it will be easier to get the FDA to approve targeted therapeutic interventions. Others, myself included, suggest that aging is no more of a disease than puberty or menopause – it is a natural developmental byproduct of operating our living machines long enough to witness its effects. Calling aging a disease implies that all older people are, by definition, diseased – which is an example of ageism. We're not against aging or growing older – which is what the 'aging disease' designation implies by default. What we are seeking to achieve is an extension of the period of healthy life. Declaring aging a disease is just not necessary to launch this new movement in public health.

Besides, the FDA has already approved Geroprotectors to target multiple disease endpoints all at once, without declaring aging a disease.

2.14 Does Geroscience Intervene in God's Will?

Some critics suggest that the fundamental goal of Geroscience is to tamper with mother nature or god's will, and that we should not be pursing such efforts. But virtually all of public health is designed to tamper with our external and internal environments in one way or another to seek out ways to allow our bodies and minds to operate more efficiently and with less disease. For example, dentistry taught us how to make our teeth last longer; vaccinations are designed to use the body's own defense mechanisms to combat communicable diseases; antibiotics enable us to combat bacterial infections that used to kill with regularity; diet and exercise are the body's equivalent of an oil, lube, and filter for your car (it's not required in either case, but we now

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[26] https://www.afar.org/imported/fall2013ppar.pdf [see Table 1 on p.5]

know that our cars and bodies operate more efficiently when done); surgical procedures that remove the gall bladder or appendix or the use of stents to treat cardiovascular disease or knee and hip replacements are all designed to combat "natural" bodily functions that are harmful; and the dissemination of medications as simple as aspirin or statins that are designed to help the body overcome immediate challenges – all together, among many other examples of "tampering" with how are bodies operate, represent forms of interfering with natural processes ongoing in the body. If one is critical of Geroscience, then they should not avail themselves of all of the other medical interventions described here that are designed to combat disease or treat and prevent the health challenges that come with extended survival.

Should someone not feel inclined to use Geroprotectors because it would violate their personal beliefs, they have the option to not use such interventions. Seventh Day Adventists adhere to this line of reasoning.

For those who wish to avail themselves of the tools of science and medicine to combat disease and extend healthspan, Geroscience will place into their physician's hands, what might be thought of as one of the most comprehensive tools ever developed by modern medicine to combat all of the diseases of aging simultaneously.

2.15 Are There Secondary Benefits Associated with a Successful Geroprotector?

If Geroprotectors had been available at the beginning of the Covid-19 pandemic, it would likely have dramatically reduced death and disability related to this communicable disease? Why? Because Covid-19 and other communicable diseases prey on subgroups of the population that are experiencing multiple health challenges (e.g., pre-existing conditions) – the very phenomenon of competing risks described earlier that explains why this virus tends to kill most effectively at older ages. The declining effectiveness of our immune system is one of the hallmarks of biological aging, so any intervention that delays the process of aging, will have secondary benefits associated with multiple infectious diseases including pneumonia and seasonal influenza, among others.

Geroprotectors will also likely be needed for astronauts that travel for extended periods in space due to high risks associated with exposure to radiation.

It is difficult to determine this far in advance what other attributes of human health might benefit from Geroprotectors, but it is safe to say that any intervention that enables us to slow down biological aging is likely to have as yet unforeseen benefits.

It is difficult to imagine any harm to human health that would follow from interventions that yield more healthy years of life.

CURRICULUM VITAE [updated 6/10/21]

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Environmental issues with special expertise on the human health effects of chemical weapons.

BOARDS

Board of Directors, American Federation for Aging Research (AFAR) (2013-present)

Scientific Advisory Committee, PepsiCO (2017-2019)

Wealthspan Financial Partners (2021-present)

COMPANIES

Co-Founder and Chief Scientist, Lapetus Solutions, Inc. lapetussolutions.com

Chief Scientist, Wealthspan Financial Partners, mywealthspan.com

NIH REVIEW RESPONSIBILITIES

National Institutes of Health special emphasis review panel ZRG1 HOP B 90 [February, 2005; June, 2005; February, 2006]
National Institute of Health review panel on the biodemography of aging [June, 2014]

HONORS AND AWARDS

Ellison Medical Foundation Award, 2019

First Alvar Svanborg Memorial Award, 2017

Irving S. Wright Award, American Federation for Aging Research, 2016

Donald P. Kent Award, Gerontological Society of America, 2016

Named on of Next Avenue's Influencers in Aging, 2016
http://www.nextavenue.org/showcase/influencers-aging-2016/

Tulane University, Distinguished Lecture in Aging, 2015.

Elected Fellow: Gerontological Society of America, 2011.

Kathy N. Johnson Achievement Award, Home Care Assistance, 2013.

George Randolph and Patricia Scott Named Vising Professorship on the Physiology of Aging, Mayo Clinic, 2013.

TEACHING AND RESEARCH POSITIONS

2000-present	Professor, School of Public Health, Division of Epidemiology and Biostatistics, University of Illinois at Chicago
2000-2001	Senior Research Associate, National Opinion Research Center, University of Chicago
1998-present	Research Fellow, London School of Hygiene and Tropical Medicine
1992-present	Research Associate, Population Research Center, University of Chicago
1988-2000	Research Associate, Associate Professor, Department of Medicine, University of Chicago
1988-1992	Scientist, Argonne National Laboratory (Manager: Social Sciences Section)
1985-1988	Assistant Scientist, Argonne National Laboratory
1987-1990	Research Associate, National Opinion Research Center, University of Chicago
1983-1985	Assistant Professor, Department of Sociology, University of Utah
1982-1983	Scientific Assistant, Argonne National Laboratory
1982	Research Assistant, Population Research Center, University of Chicago
1980-1981	Resident Student Associate, Argonne National Laboratory

1977-1979 Senior Research Assistant, Community and Family Study Center, University of Chicago

GRANTS, FELLOWSHIPS AND AWARDS

Lapetus Solutions, Inc., 2015-2017. Estimating Mortality and Survival: An Interdisciplinary Approach. S. Jay Olshansky (P.I.): $90,000

MacArthur Foundation Research Network on an Aging Society, 2008-2015. Jack Rowe (P.I.): $10 million.

MacArthur Foundation Research Network on an Aging Society, 2007. Development of a new and independent set of national forecasts of the size and age structure of the population of the U.S. to 2030 and 2050 with an emphasis on newly developed scenarios about the course of survival. $85,000.

Senior Fulbright Specialist, 2003-2008. J. William Fulbright Foreign Scholarship Board, Bureau of Education and Cultural Affairs of the Department of State (ECA), and the Council for International Exchange of Scholars (CIES). First Senior Fulbright: France (2005-2006).

Jack Anderson Lectureship Award, 2003. American Academy of Facial Plastic and Reconstructive Surgery.

Ellison Medical Foundation, American Federation for Aging Research, Alliance for Aging Research, National Institute on Aging, 2003/2004. Special issues of the Journal of Gerontology: Biological Sciences. $47,000.

National Institute on Aging/University of Chicago, 2003. International Association of Biomedical Gerontology, 10th Congress. $5,000.

University of Chicago, 2001. International Repository for Historical Scholarship on Aging. $10,000.

University of Chicago, 1998-99. Biodemographic Study of Parental Age Affects on Lifespan. National Institute on Aging, Pilot Study (R03), (PI: L. Gavrilov), $50,000.

University of Chicago, 1998-2003. Training Program on the Biodemography of Aging. National Institute on Aging, Independent Scientist Award (K02), (PI: S. Jay Olshansky), $468,150.

Argonne National Laboratory, 1995-96. Creation of Center for Biodemographic Studies. Funded by Argonne National Laboratory (CO-PI), $45,000.

University of Chicago, 1995. REVES 8 Conference. National Institute on Aging (PI: S. Jay Olshansky), $38,853.

University of Chicago, 1994-99. Center on Aging. National Institute on Aging (CO-PI), $650,000.

University of Chicago, 1994-95. A Biodemographic Paradigm of Human Mortality. Social Security Administration, (PI: S. Jay Olshansky), $136,000.

University of Chicago, 1992-97. Interdisciplinary Training Program on Aging (Special Emphasis Research Career Award) (K01), National Institute on Aging, (PI: S. Jay Olshansky), $463,000.

Argonne National Laboratory, 1989-90. Comprehensive Epidemiologic Data Resource, Department of Energy, (CO-PI: S. Jay Olshansky), $300,000.

Argonne National Laboratory, 1987-Summer. Co-coordinator of the workshop on "Mortality and Health Care Policy" held at the 18th Summer Seminar on Population. East-West

Population Institute, Honolulu, Hawaii and Beijing, China.

National Opinion Research Center, University of Chicago, 1987-90. Forecasting Life Expectancy and Active Life Expectancy, National Institute on Aging, (PI: Dr. Christine Cassel), $570,000.

University of Utah, 1985. John R. Park Teaching Fellowship. Awarded by the University of Utah Research Committee.

University of Utah, 1985. Participant in the 16th Summer Seminar on Population held in Honolulu, Hawaii and Xi'an, China. Awarded by the East-West Population Institute.

University of Utah, 1984-1986. Cross-Cultural Patterns in the Age Distribution of Cause-Specific Death Rates and Epidemiologic Transitions, Intermountain West Gerontology Research Center.

University of Utah, 1983-1986. The Demographic Effects of Treating and Preventing Degenerative Diseases, Biomedical Research Support Grant, University of Utah.

University of Chicago

1982-83 – NICHD Fellowship

1979-80 – Marshall Field Fellowship

1977-79 – NICHD Fellowship

1978 – Summer Participant in the 9th Summer Seminar on Population, Honolulu, Hawaii and Seoul, Korea. Awarded by the East-West Population Institute.

Marquette University

1976-1977 – Scholarship

COURSES TAUGHT

Introduction to Epidemiology (graduate)
Epidemiology of Aging (graduate)
Epidemiology Literature Review (graduate)
Human Aging (graduate)
Mortality (graduate)
Scientific Revolutions (undergraduate honors)
Population Studies (undergraduate)
Medical Sociology (undergraduate)

PUBLICATIONS

JOURNAL ARTICLES

Olshansky, S.J. 2021. Aging Like Struldbruggs, Dorian Gray or Peter Pan. *Nature Ageing* (in press).

S Jay Olshansky, PhD, Hiram Beltrán-Sánchez, PhD, Bruce A Carnes, PhD, Claire Yang, PhD, Yi Li, PhD, Bradley Willcox, MD. 2020. Longevity and Health of U.S. Presidential Candidates for the 2020 Election, *Public Policy & Aging Report*, Volume 30, Issue 2, Pages 67–72, https://doi.org/10.1093/ppar/praa007

Olshansky, S.J., et al., 2020. Projected lifespan and healthspan of Joe Biden and Donald Trump before the 2020 election. *Journal on Active Ageing*. https://www.icaa.cc/2020elections.htm

Chen, C., Maung, K., Rowe, JW, and the Research Network on an Ageing Society. Gender differences in countries' adaptation to societal ageing: international cross-sectional comparison. *The Lancet* (in press).

Olshansky SJ, Carnes BA. Inconvenient Truths About Human Longevity. J Gerontol A Biol Sci Med Sci. 2019 Nov 13;74(Suppl_1):S7-S12. doi: 10.1093/gerona/glz098. PMID: 31001621.

Olshansky, S.J., 2019. The Longevity Dividend. Encyclopedia of Gerontology and Population Aging. Springer.

Olshansky, S.J., 2018. From Lifespan to Healthspan. *JAMA* 320(13):1323-1324. doi:10.1001/jama.2018.12621

Stambler, I., et al., 2018. Aging Health and R&D for Healthy Longevity Must Be Included into the WHO Work Program. *Aging and Disease* 9(1):1-3.

Goldman, D., et al., 2018. Measuring How Countries Adapt to Societal Aging. *PNAS* 115(3):435-437.

Olshansky, S.J., 2017. Is Life Extension Today a Faustian Bargain? *Frontiers in Medicine*. 4: doi: 10.3389/fmed.2017.00215

Olshansky, S.J., 2017. The Future of Health. *J Am Geriatr Soc*. 2017 Dec 5. doi: 10.1111/jgs.15167.

Olshansky, S.J., Hayflick, L. 2017. The Role of the WI-38 Cell Strain in Saving Lives and Reducing Morbidity. *AIMS Public Health* 4(2):127-138.

Olshansky, S.J., Carnes, B.A., Yang, C., Miller, N., Anderson, J., Beltrán-Sánchez, H., Ricanek, K. 2016. The Future of Smart Health. *Computer* 49(11):32-39.

Winkelman, W.J., Brandt, S., Olshansky, S.J. 2016. Why better care of aging skin matters. *The Journal on Active Aging* March/April, pp. 34-42.

Rowe, J., Berkman, L., Fried, L., Fulmer, T., Jackson, J., Naylor, M., Novelli, W., Olshansky, S.J., Stone, R. 2016. Preparing for Better Health and Health Care for an Aging Population. *National Academy of Medicine* doi: 10.1001/jama.2016.12335

Olshansky, S.J. 2016. Measuring our narrow strip of life. *Nature* doi:10.1038/Nature19475

Nikolich- Zugich, J., Goldman, D.P., Cohen, P.R., et al., 2015. Preparing for an aging world: engaging biogerontologists, geriatricians, and the society. *Journal of Gerontology: Biological Sciences* doi: 10.1093/gerona/glv164

Olshansky, S. J., Carnes, B. A., & Butler, R. N., 2015. If Humans Were Built to Last. *Scientific American*, *24*, 106-111.

Olshansky, S.J., 2015. The seven most important demographic events that will influence Medicare in the future. *Generations* 39(2):149-156.

Olshansky, S.J., 2015. The demographic transformation of America. *Daedalus* 144(2): 13-19.

Olshansky, S. J., Goldman, D. P., & Rowe, J. W., 2015. Resetting Social Security. *Daedalus* 144(2):68-79.

Zissimopoulos, J., Goldman, D., Olshansky, J., Rother, J., & Rowe, J. 2015. Individual and Social Strategies to Mitigate the Risks and Expand Opportunities of an Aging America. *Daedalus* 144(2):93-102.

Olshansky, S.J. 2014. Articulating the case for the longevity dividend. *American Journal of Lifestyle Medicine*. April 24, 2014; doi: 10.1177/1559827614530073

Goldman, D.P., Cutler, D., Rowe, J.W., Michaud, P.C., Sullivan, J., Peneva, D., Olshansky, S.J. 2013. Substantial health and economic returns from delayed aging may warrant a new focus for medical research. *Health Affairs* 32(10):1698-1705.

Olshansky, S.J. 2013. Articulating the Case for the Longevity Dividend. Public Policy & Aging Report 23(4):3-6.

Goldman, D.P., Olshansky, S.J. 2013. Delayed aging versus delayed disease: A new paradigm for public health. *Public Policy & Aging Report* 23(4):16-18.

Olshansky, S.J. 2013. Can a lot more people to one hundred and what if they did? Accident Analysis & Prevention 61:141-145. http://dx.doi.org/10.1016/j.bbr.2011.03.031

Lowsky, D., Olshansky, S.J., Bhattacharya, J., Goldman, D. 2013. Heterogeneity in Healthy Aging. Journal of Gerontology: Biological Sciences doi: 10.1093/gerona/glt162.

Carnes, B.A., Olshansky, S.J., Hayflick, L. 2012. Can Human Biology Allow Most of Us to Become Centenarians? Journals of Gerontology: Biological Sciences doi: 10.1093/gerona/gls142.

Olshansky, S.J., Carnes, B.A. 2012. Science Fact Versus SENS Foreseeable. Gerontology 59(2):190-192. [DOI:10.1159/000342959]

Olshansky, S.J., Antonucci, T., Berkman, L. et al. 2012. Differences in Life Expectancy Due to Race and Educational Differences are Widening, and Many May Not Catch Up. Health Affairs 31(8):1803-1813.

Carnes, B.A., Olshansky, S.J., Hayflick, L. 2012. Can Human Biology Allow Most of Us to Become Centenarians? Journals of Gerontology: Biological Sciences doi: 10.1093/gerona/gls142.

Olshansky, S.J. 2012. Zeno's Paradox of Immortality. Gerontology 59(1):93-94. DOI: 10.1159/000341225

Olshansky, S.J. 2012. Accelerated Aging of US Presidents. JAMA 307(14):1480a-1542.

Olshansky, S.J. 2011. Aging of US Presidents. JAMA 306(21):2328-2329.

Reither, E.N., Olshansky, S.J., Yang, Y. 2011. Forecasting the Future of Health and Longevity. Health Affairs 30(8):1562-1568.

Olshansky, S.J., 2011. Aging, Health, and Longevity in the 21st Century. Public Policy & Aging Report 20(4):3-13.

Olshansky, S.J. et al. 2011. The Global Agenda Council on the Ageing Society. Global Policy 2(1): doi: 10.1111/j.1758-5899.2010.00053.x

Rowe, J.W., et al. 2010. Policies and politics of aging for an aging America. Contexts 9 (1):22-27.

Olshansky, S.J., Carnes, B.A. 2010. Ageing and Health. The Lancet 375(9708):25.

Olshansky, S.J. 2010. The Law of Mortality Revisited: Interspecies Comparisons of Mortality. Journal of Comparative Pathology 142:S4-S9.

Rowe, J.W., et al. 2009. Facts and fictions about an aging America. Contexts 8(4):16-21.

Olshansky, S.J., Goldman, D., Zheng, Y., Rowe, J.W. 2009. Aging in America in the Twenty-first Century: Demographic Forecasts from the MacArthur Research Network on an Aging Society. The Milbank Quarterly 87(4):842-862.

Goldman, D.P., Zheng, Y., Girosi, F., Michaud, P.C., Olshansky, S.J., Cutler, D., Rowe, J.W. 2009. The benefits of risk factor prevention in Americans aged 51 years and older. American Journal of Public Health 99(11):2096-2101.

Olshansky, S.J., Carnes, B.A., Mandell, M.S. 2009. Future trends in human longevity:

Implications for investments, pensions and the global economy. Pensions 14(3):149-163.
Olshansky, S.J., Perls, T. 2008. New developments in the illegal provision of growth hormone for "anti-aging" and bodybuilding. JAMA 299(23):2792-2794.
Butler, R.N., Miller, R.A., Perry, D., Carnes, B.A., Williams, T.F., Cassel, C., Brody, J., Bernard, M.A., Partridge, L., Kirkwood, T., Martin, G.M., Olshansky, S.J. 2008. New model of health promotion and disease prevention for the 21st century. British Medical Journal 337:149-150.
Olshansky, S.J. 2008. Longevity in the twenty-first century. Population Studies 62(2):245-249. http://dx.doi.org/10.1080/00324720802136806
Olshansky, S.J., Persky, V. 2008. The Canary in the Coal Mine of Coronary Artery Disease. Archives of Internal Medicine 168(3):261.
Olshansky, S.J. 2007. Life Expectancy. World Book Encyclopedia.
Olshansky, S.J, Perry, D., Miller, R.A., Butler, R.N. 2007. Pursuing the Longevity Dividend: Scientific Goals for an Aging World. Ann NY Acad Sci 1114:11-13.
Carnes, B.A., Olshansky, S.J. 2007. A realist view of aging, mortality and future longevity. Population and Development Review 33(2):367-381.
Olshansky, S.J., Butler, R.N., Carnes, B.A. 2007. Re-engineering Humans. The Scientist 21(3):28-31.
Carnes, B.A., L. Holden, S.J. Olshansky and J.S. Siegel. 2006. Mortality partitions and their relevance to research on senescence. Biogerontology 7:183-198.
Olshansky, S.J., Perry, D., Miller, R.A., Butler, R.N. 2006. In pursuit of the Longevity Dividend. The Scientist 20(3):28-36.
Olshansky, S.J. 2005. Prescient visions of public health from Cornaro to Breslow. International Journal of Epidemiology doi:101093/ije/dyi283.
Carnes, B.A., Nakasata, Y.R., Olshansky, S.J. 2005. Medawar revisited: Unresolved issues in research on ageing. Ageing Horizons 3:22-27.
Olshansky, S.J., Grant, M., Brody, J., Carnes, B.A. 2005. Biodemographic perspectives for epidemiologists. Emerging Themes in Epidemiology 2:10 [http://www.ete-online.com/contents/2/1/10].
Warner, H., Anderson, J., Austad, S.et al. 2005. Science fact and the SENS agenda. EMBO Reports 6(11):1106-1108.
Perls, T., Reisman, N.R., Olshansky, S.J. 2005. Provision or distribution of growth hormone for "anti-aging": Clinical and legal issues JAMA 294(16):2086-2090.
Olshansky, S.J., Rattan, S.I.S. 2005. At the heart of aging: is it metabolic rate or stability? Biogerontology 6:1-5.
Olshansky, S.J., Rattan, S.I.S. 2005. What determines longevity: metabolic rate or stability? Discovery Medicine 5(28):359-362.
Olshansky, S.J. 2005. Projecting the future of U.S. health and longevity. Health Affairs Sept. 26, 10.1377/hlthaff.w5.r86
Olshansky, S.J., Carnes, BA, Hershow, R., Passaro, D., Layden, J., Brody, J., Hayflick, L., Butler, RN., Allison, DB., Ludwig, DS. 2005. Misdirection on the road to Shangri-La. Sci. Aging Knowl. Environ. http://sageke.sciencemag.org/cgi/content/full/2005/22/pe15.
Olshansky, S.J., Passaro, D., Hershow, R., Layden, J., Carnes, BA., Brody, J., Hayflick, L., Butler, RN., Allison, DB., Ludwig, DS. 2005. Peering into the future of American

Longevity. Discovery Medicine 5(26):130-134.
Olshansky, S.J., Passaro, D., Hershow, R., Layden, J., Carnes, BA., Brody, J., Hayflick, L., Butler, RN., Allison, DB., Ludwig, DS. 2005. A potential decline in life expectancy in the United States in the 21st century. New England Journal of Medicine 352:1103-1110.
Olshansky, S.J. 2004. The Future of Human Life Expectancy. In: World Population to 2300. United Nations, ST/ESA/SER.A/236, pp. 159-164.
Olshansky, S.J., Hayflick, L., Perls, T. 2004. Introduction: Anti-Aging Medicine: The Hype and the Reality—Part II. Journal of Gerontology: Biological Sciences 59A: B649-B651.
Olshansky, S.J., Hayflick, L., Perls, T. 2004. Introduction: Anti-Aging Medicine: The Hype and the Reality—Part I. Journal of Gerontology: Biological Sciences 59: B513-B514.
Olshansky, S.J. 2004. Looking forward to a general theory of population aging. Commentary. Journal of Gerontology: Medical Sciences 59:M611-M612.
Butler, R.N., Warner, H.R., Williams, T.F., et al. 2004. The aging factor in health and disease: The promise of basic research on aging. Aging Clinical and Experimental Research 16(2):104-112.
Olshansky, S.J., Hayflick, L., Carnes, B.A. 2003. Anti-Aging Medicine: Fact, Fallacy, or Fraud? CSA Journal 19:25-33.
Olshansky, S.J., Carnes, B.A., Butler, R. 2003. If Humans Were Built to Last. Scientific American (Special Issue on Evolution, May). Extension of earlier published version.
Olshansky, S.J. 2003. From Michelangelo to Darwin: The Evolution of Human Longevity. Israel Medical Association Journal (52)5:316-318.
Carnes, B.A., Olshansky, S.J., Grahn, D. 2003. Biological Evidence for Limits to the Duration of Life. Biogerontology 4(1):31-45.
Olshansky, S.J., Carnes, B.A., Brody, J.A. 2002. A Biodemographic Interpretation of Lifespan. Population and Development Review 28(3):501-513
Butler, R.N., Fossel., M., Harman, S.M., Heward, C.B., Olshansky, S.J., Perls, T., Rothman, J., Rothman, S.M., Warner, H.R., West, M.D., Wright, W.E. 2002. Is There an Antiaging Medicine? Journal of Gerontology: Biological Sciences 57: B333-B338.
Gavrilov, L., Gavrilova, N., Olshansky, S.J., Carnes, B.A. 2002. Genealogical Data and Biodemography of Human Longevity. Social Biology 49 (1-2):120-133.
de Grey, A., Gavrilov, L., Olshansky, S.J., Coles, L.S., Cutler, R.G., Fossel, M., Harman, S.M. 2002. Anti-aging: One term, two worlds. Science 296(5568):655.
Olshansky, S.J., Hayflick, L., Carnes, B.A. 2002. No Truth to the Fountain of Youth. Scientific American, pp. 92-95 (June).
Olshansky, S.J., Hayflick, L., Carnes, B.A., et al. 2002. Position Statement on Human Aging. Scientific American (June), http://www.sciam.com/agingstatement.cfm Also published in the Journal of Gerontology: Biological Sciences 57A(8): B1-B6, 2002.
Olshansky, S.J. 2002. Aging. World Book Encyclopedia. Chicago.
Olshansky, S.J., Carnes, B.A., Désesquelles, A. 2001. Prospects for Human Longevity. Science 291 (5508):1491-1492.
Olshansky, S.J., Carnes, B.A., Butler, R. 2001. If Humans Were Built to Last. Scientific American 284(3):50-55.
Olshansky, S.J. 2001. Mortality. The Macmillan Encyclopedia of Aging (D. J. Ekerdt, Ed.).
Carnes, B.A., Olshansky, S.J. 2001. Heterogeneity and its Biodemographic Implications for

Longevity and Mortality. Experimental Gerontology 36:419-430.
Olshansky, S.J., Carnes, B.A. 2000. The Quest for Immortality. Danish Gerontological Society Journal.
Olshansky, S.J., Rogers, R.G., Carnes, B.A., Smith, L. 2000. Emerging Infectious Diseases: The Fifth Stage of the Epidemiologic Transition? World Health Statistics Quarterly 51 (2,3,4):207-217.
Olshansky, S.J. 1999. Le Mur De L'espérance De Vie (Limits to How Long Humans Can Live). La Recherche 322:92-95.
Carnes, B.A., Olshansky, S.J., Gavrilov, L., Gavrilova, N., Grahn, D. 1999. Human Longevity: Nature vs Nurture – Fact or Fiction. Perspectives in Biology and Medicine 42(3):422-441.
Olshansky, S.J., Carnes, B.A., and C. Cassel. 1998. The Future of Long Life (letter). Science 281:1611-1612.
Olshansky, S.J., Carnes, B.A., and D. Grahn. 1998. Confronting the Boundaries of Human Longevity. American Scientist 86(1):52-61.
Olshansky, S.J., R. Wilkins. 1998. Guest editors: Special issue of Journal of Aging and Health devoted to research findings from REVES 8, Volume 10, No. 2.
Carnes, B.A., S. J. Olshansky, and D. Grahn. 1998. A Biological Approach to the Interspecies Prediction of Radiation-induced Mortality Risk. Radiation Research 149:487-492.
Carnes, B.A., Olshansky, S.J. 1997. A Biologically Motivated Partitioning of Mortality. Experimental Gerontology 32:615-631.
Olshansky, S.J., Carnes, B.A. 1997. Ever Since Gompertz. Demography 34(1):1-15.
Olshansky, S.J., Carnes, B.A., Rogers, R.A., Smith, L. 1997. Infectious Diseases: New and Ancient Threats to World Health. Population Bulletin 52(2):1-58.
Bennett, N.G., Olshansky, S.J. 1996. Forecasting U.S. Age Structure and the Future of Social Security: The Impact of Adjustments to Official Mortality Schedules. Population and Development Review 22(4):703-727.
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Olshansky, S.J. 1995. New Developments in Mortality. The Gerontologist 35(5):583-587.
Olshansky, S.J. 1995. The Practical Implications of Increasing Human Life Expectancy. European Journal of Public Health 5(1):35-39.
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Olshansky, S.J., Carnes, B., Cassel, C. 1993. Fruit Fly Aging and Mortality (letter). Science 260(110):1565-1566.
Olshansky, S.J. 1993. Human Longevity Without Disease. Geriatrics 48(3):85-88.
Olshansky, S.J., Carnes, B., Cassel, C. 1993. The Aging of the Human Species. Scientific American, April, pp. 46-52.
Olshansky, S.J. 1992. Estimating the Upper Limits to Human Longevity. Population Today 20(1):6-8.
Cassel, C.K., Rudberg, M.A., Olshansky, S.J. 1992. The Price of Success: Health Care in an Aging Society. Health Affairs 11(2):87-99.
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Life for Worsening Health: The Expansion of Morbidity Hypothesis. Journal of Aging and Health 3(2):194-216.
Olshansky, S.J., Williams, R.G. 1991. Consolidating Data on the Health Effects of the Production of Nuclear Weapons and Energy. PSR Quarterly 1(3):145-156.
Olshansky, S.J., Carnes, B.A., Cassel, C. 1990. In Search of Methuselah: Estimating the Upper Limits to Human Longevity. Science 250:634-640.
Olshansky, S.J., Williams, R.G. 1990. Culture Shock at the Weapons Complex. The Bulletin of the Atomic Scientists 46(7):29-33.
Grigsby, J.S., Olshansky, S.J. 1989. The Demographic Components of Population Aging in China. The Journal of Cross-Cultural Gerontology 4(4):307-334.
Olshansky, S.J. 1988. On Forecasting Mortality. The Milbank Quarterly 66(3):482-530.
Olshansky, S.J. 1987. Simultaneous/Multiple Cause Delay: An Epidemiological Approach to Projecting Mortality. Journal of Gerontology 42(4):358-365.
Olshansky, S.J. 1987. The Compression of Mortality and Morbidity: Comments on the Debate. Gerontologica Perspecta 1:19-23.
Olshansky, S.J., Payne, B., Segel, T. 1987. The Effects on Property Values of Proximity to a Site Contaminated With Radioactive Waste. Natural Resources Journal 27:579-590.
Olshansky, S.J., Ault, B. 1986. The Fourth Stage of the Epidemiologic Transition: The Age of Delayed Degenerative Diseases. The Milbank Quarterly 64(3):355-391.
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BOOKS AND BOOK CHAPTERS

Olshansky, S.J., Kirkland, J., Martin, G. 2022. Pursuing the Longevity Dividend: II. Cold Spring Harbor Laboratory Press (forthcoming).

Olshansky, S.J., 2020. The Rise of Generians: How Science is Revolutionizing Life Industries (Methuselah Books) Paperback – March 21, 2020

Olshansky, S.J., Ashburn, K., Stukey, J. (Eds.). 2020. Pursuing Wealthspan: How Science is Revolutionizing Wealth Management (Methuselah Books) Paperback – July 26, 2020

S. Jay Olshansky (2020) What is a Healthy Body? A Biodemographer's View. In: Sholl J., Rattan S.I. (eds) Explaining Health Across the Sciences. Healthy Ageing and Longevity, vol 12. Springer, Cham. https://doi.org/10.1007/978-3-030-52663-4_3

Olshansky, S.J., Martin, G., Kirkland, J., 2015. Aging: The Longevity Dividend. Cold Spring Harbor Laboratory Press.
Olshansky, S.J., 2015. Articulating the case for the longevity dividend. In: Olshansky, Martin, and Kirkland (Eds.), Aging: The Longevity Dividend, Cold Spring Harbor Laboratory Press.

Olshansky, S.J., 2015. Has the rate of human aging already been modified? In: Olshansky, Martin, and Kirkland (Eds.), Aging: The Longevity Dividend, Cold Spring Harbor Laboratory Press.

Antonucci et al., 2015. Society and the Individual at the Dawn of the Twenty-First Century. Handbook of the Psychology of Aging.

Olshansky, S.J., 2013. Demography of Human Aging and Longevity. Encyclopedia of Human Biology.

Olshansky, S.J. 2012. Leadership: The Elders. In: Global Population Ageing: Peril or Promise. World Economic Forum, Global Agenda Council on an Ageing Society, pp. 42-45.

Olshansky, S.J, Beard, J.R., Borsch-Supan, A. 2012. The Longevity Dividend: Health as an Investment. In: Global Population Ageing: Peril or Promise. World Economic Forum, Global Agenda Council on an Ageing Society, pp. 57-60.

Olshansky, S.J., Hayflick, L. 2011. Public policies intended to influence adult mortality. International Handbook of Adult Mortality (Richard G. Rogers and Eileen M. Crimmins, Eds.) (in press).

Olshansky, S.J. 2010. Why Do Anti-Aging Doctors Die? In: Longevity Rules (S. Greenbaum, Ed.). Eskaton Press, California, pp. 91-94.

Olshansky, S.J. 2010. Health Trends and future projections. Handbook of Aging and the Social Sciences, Elsevier (Eds. R. Binstock and L. George).

Olshansky, S.J., Perry, D., Miller, R.A., Butler, R.A. 2009. In pursuit of the longevity dividend. In: Unnatural Selection: The Challenges of Engineering Tomorrow's People (Eds. P. Healy and S. Rayner), Earthscan, London, pp. 95-102.

Fontaine, K.R., Keith, S.W., Greenberg, J.A., Olshansky, S.J., Allison, D.B. 2009. Obesity's Final Toll: Influence on Mortality Rate, Attributable Deaths, Years of Life Lost and Population Life Expectancy. In V.R. Preedy & R. R. Watson (Eds.), Handbook of disease burdens and quality of life measures (pp. 1085-1105). New York: Springer.

Olshansky, S.J., Carnes, B.A. 2008. The Future of Human Longevity. International Handbook of the Demography of Aging. (Peter Uhlenberg, Ed.). Springer.

Olshansky, S.J. 2005. Anti-Aging Interventions. The Encyclopedia of Health and Aging. Sage Publications.

Olshansky, S.J. 2005. Anti-Aging Medicine. The Encyclopedia of Aging. Oxford University Press.

Olshansky, S.J., Carnes, B.A. 2004. Anti-Aging Medicine and The Quest for Immortality. In Aging Interventions and Therapies. Edited by Suresh Rattan, World Scientific Publishers.

Butler, R.N., Olshansky, S.J. 2004 (co-editors). The Prolongation of Life: Optimistic Studies. by Ilya Ilyich Metchnikoff. Classics in Longevity and Aging. Springer Publishing Company: New York.

Olshansky, S.J. 2004. The Reality and Hype of Anti-Aging Medicine. Anti-Aging in Plastic Surgery, ed. by Brian Kinney and James Carraway, Quality Medical Publishing.

Olshansky, S.J., Carnes, B.A. 2004. In Search of the Holy Grail of Senescence. In: The Fountain of Youth: Scientific, Religious, and Ethical Perspectives on a Biomedical Goal, edited by Stephen Post and Bob Binstock, Oxford University Press.

Butler, R.N., Olshansky, S.J. 2003 (co-editors). A History of Ideas About the Prolongation of Life. Classics in Longevity and Aging. Springer Publishing Company: New York.

Olshansky, S.J., Carnes, B.A. 2003. A Journey Through the Interdisciplinary Landscape of Biodemography. In: Expanding the Boundaries of Health and Social Science: Case Studies of Inter-disciplinary Innovation, Eds. Frank Kessel, Patricia Rosenfeld, Norman Anderson. Oxford University Press.

Olshansky, S.J., Carnes, B.A. 2002. The Biology of Aging and the Duration of Life. Encyclopedia of Aging.

Olshansky, S.J., Carnes, B.A. 2001. The Quest for Immortality: Science at the Frontiers of Aging, Norton Press: New York.

Olshansky, S.J., Carnes, B.A. 2001. Modern Topics in the Biology of Aging (R. Adelman and V. Cristofalo, Eds.), Annual Review of Gerontology and Geriatrics, Volume 21. Springer Publishing Company, Inc., New York.

Carnes, B.A., Olshansky, S.J. 2001. Interspecies Patterns of Age-Related Mortality. Pathobiology of the Aging Dog, ILSI Press: Lafayette, Indiana, pp.

Olshansky, S.J. 2001. The Demography of Aging. Geriatric Medicine. Cassel, C.K., H.J. Cohen, E.B. Larson, D.E. Meier, N.M. Resnick, L.Z. Rubenstein, and L.B. Sorensen (Eds.). New York: Springer, (Chapter 2), (revision of 1997 chapter).

Olshansky, S.J., Rudberg, M.A. 1997. Postponing Disability: Identifying Points of Decline and Potential Intervention. Public Health and Aging, T. Hickey, M. Speers, and T.R. Prohaska (Eds.), Johns Hopkins University Press, pp. 237-251.

Olshansky, S.J., Cassel, C. 1997. Implications of the Accrual of Chronic Non-fatal Conditions in Very Elderly People. Osteoarthritis and the Aging Population. D. Hammerman (Ed.), Baltimore: The Johns Hopkins University Press, (Chapter 2, pp. 15-29).

Olshansky, S.J. 1997. Practical Limits to Life Expectancy in France. In: Longevity: To the Limits and Beyond. J.M. Robine et al., Eds., Springer-Verlag: Berlin, pp. 1-10.

Olshansky, S.J., Carnes, B.A. 1996. Prospects for Extended Survival: A Critical Review of the Biological Evidence. In: Health and Mortality Among Elderly Populations, G. Caselli and A. Lopez (Eds.) (Chapter 3, pp. 39-58), Clarendon Press: Oxford.

Olshansky, S.J. 1996. Mortality. Encyclopedia of Human Biology. Academic Press (revision of 1991 chapter).

Olshansky, S.J. 1994. Aging and the Aged II. Life Expectancy and the Life Span. Encyclopedia of Bioethics. Macmillan Publishing Company: New York.

Olshansky, S.J., Ault, B. 1987. The Fourth Stage of the Epidemiologic Transition: The Age of Delayed Degenerative Diseases. In: Should Medical Care be Rationed by Age?,T. Smeeding et al., (Eds.), Roman and Littlefield: Totawa, New Jersey.

Olshansky, S.J., Anderson, R.M., Teachman, J. 1979. An Analysis of the Impact of Organized Family Planning Efforts on Korean Fertility. In The Impact of Family Planning Programs on Fertility Rates, Teachman et al., Community and Family Study Center, University of Chicago.

Tsui, A., Bogue, D., Evans, M., Campbell, T., Ahmed, A., Charnowski, C., Olshansky, S.J. 1979. Illustrative Functional Projections 1975-2000. Community and Family Study Center, University of Chicago.

BOOK REVIEWS

Olshansky, S.J. 2014. "The Longevity Seekers" by Ted Anton and "The Ageless Generation" by Alex Zhavoronkov. *Health Affairs* 33(5):901-903.

Olshansky, S.J., 2012. "To Live Forever". Review of Immortality: The Quest to Live Forever and How it Drives Civilization by Stephen Cave. New Scientist 7 April, 2012.

Olshansky, S.J., 2011. "Century Smashers". Review of 100 Plus by Sonia Arrison. New Scientist 20 August, 2011.

Olshansky, S.J. 2010. "The three-ring circus of eternal life". Review of Long for this World: The Strange Science of Immortality by Jonathan Weiner and The Youth Pill: Scientists at the Brink of an Anti-Aging Revolution by David Stipp. New Scientist 42: July 10.

Olshansky, S.J. 2010. "Exposing the Longevity Business". Review of: Eternity Soup: Inside the Quest to End Aging. Nature 464:491-492.

Olshansky, S.J. 2009. The World is Fat: The Fads, Trends, Policies, and Products That Are Fattening the Human Race by Barry Popkin. Population and Development Review 35(3):646-647.

Olshansky, S.J. 2004. Redesigning Humans: Our Inevitable Genetic Future by Gregory Stock and War Against the Weak by Edwin Black (joint review). Quarterly Review of Biology 79(2):181-187.

Olshansky, S.J. 2003. Merchants of Immortality by Stephen Hall. Nature. 424:880-881.

Olshansky, S.J. 2003. Ageless Quest, by Lenny Guarente. American Scientist (91): 274-276.

Olshansky, S.J. 2002. Rising Life Expectancy: A Global History, by James C. Riley. Population and Development Review.

Olshansky, S.J. 2000. Lifelines: Living Longer, Growing Frail, Taking Heart, by Muriel Gillick. Journal of the American Medical Association, 284(19).

Olshansky, S.J. 1998. Population and Development Review 24(2):381-394. Between Zeus and the Salmon, The Biodemography of Longevity. National Academy Press: Washington, 1997.

Olshansky, S.J. 1998. Journal of the American Medical Association 280:1198. The Good Death: The New American Search to Reshape the End of Life, by Marilyn Webb. Bantam: New York, 1997.

Olshansky, S.J. 1992. Population and Development Review 18(3):555-557. The Biology of Life Span: A Quantitative Approach. Gavrilov, L.A., Gavrilova, N.S. Harwood Academic Publishers: Switzerland, 1991.

PUBLIC POLICY DOCUMENTS (selected from over 20)

Tanzman, E., Olshansky, S.J. 1994. Environmental Impact Review of the Chemical Weapons Convention. Ratified by the U.S. Congress and signed by the President of the United States.

Olshansky, S.J., Krummel, J.R., Policastro, A.J., and McGinnis, L.S. 1994. Chemical Stockpile Disposal Program: Review and Comment on the Phase I Environmental Report for the Pueblo Depot Activity, Pueblo, Colorado. Prepared by Argonne

National Laboratory, Argonne, Illinois.

Krummel, J.R., Policastro, A.J., Olshansky, S.J., and McGinnis, L.S. 1990. Chemical Stockpile Disposal Program: Review and Comment on the Phase I Environmental Report for the Pine Bluff Arsenal, Pine Bluff, Arkansas. Prepared by Argonne National Laboratory, Argonne, Illinois

Olshansky, S.J., Policastro, A., Hoffecker, J., Liebich, R., Yin, S., McDonnell, M. 1987. Environmental Assessment of an Aircraft Conversion, 89th Tactical Fighter Squadron, Air Force Reserve, Wright-Patterson Air Force Base, Ohio. Prepared by Argonne National Laboratory, Argonne, Illinois.

PAPERS PRESENTED AT PROFESSIONAL MEETINGS

Olshansky, S.J. 2017. "The Future of Aging and Health" IAGG, San Francisco.

Olshansky, S.J. 2011. "Aging and Health Disparities in the U.S. in the 21st Century" Living to 100 Symposium, Orlando.

Olshansky, S.J., 2010. "Challenges to our understanding of a good old age" Gerontological Society of America, New Orleans.

Olshansky, S.J. 2010. "Aging in America in the 21st Century" REVES, Havana, Cuba.

Olshansky, S.J. 2009. "A biodemographic view of genetic mechanisms of aging." IAGG, Paris.

Olshansky, S.J. 2009. "Why we age: A biodemographic perspective." IAGG, Paris.

Olshansky, S.J. 2009. "The concept of pleiotropic antagonism: Fundamental trade-offs in the biology of aging." IAGG, Paris.

Olshansky, S.J. 2009. "U.S. population size and age structure in 2030 and 2050: forecasts from the MacArthur foundation aging society network." IAGG, Paris.

Olshansky, S.J. 2007. "In Search of the Law of Mortality" Joint Statistical Meeting, Salt Lake City.

Olshansky, S.J. 2006. "Growth hormone for anti-aging: The fallout from the November 2005 JAMA commentary" American Geriatrics Society, Chicago.

Olshansky, S.J. 2004. "Anti-Aging Medicine: The Hype and the Reality." Session chair, Gerontological Society of America.

Olshansky, S.J. 2003. "Isn't it About Time We Did Research on Aging." Gerontological Society of America, San Diego.

Olshansky, S.J. 2003. "Obesity, Infectious Diseases, and Prospects for Human Life Expectancy and the Demographic Consequences of Immortality." The International Association of Biomedical Gerontology 10th Congress, Cambridge, England.

Olshansky, S.J. 2003. "Is There A Biological Warranty Period for the Duration of Life?" REVES, Guadalajara, Mexico.

Olshansky, S.J. 2002. "Has Anyone Ever Died of Old Age?" Gerontological Society of America, Boston.

Olshansky, S.J. 2001. "Is There A Limit to the Human Life Span?" International Union for the Scientific Study of Population, Salvador, Brazil.

Olshansky, S.J., Carnes, B.A., Butler, R.A. 2001. "If Humans Were Built To Last." 17th International Meeting on Gerontology, Vancouver, Canada.

Olshansky, S.J., Carnes, B.A., Désesquelles, A. 2001. "Prospects for Human Longevity."

American Association for the Advancement of Science, San Francisco (session organizer with Charles Nam).

Olshansky, S.J., Carnes, B.A. 2001. "If Humans Were Built To Last." 13th International Meeting of REVES, Vancouver, Canada.

Olshansky, S.J., Carnes, B.A. 2000. "The Quest for Immortality." Gerontological Society of America, Washington, D.C.

Olshansky, S.J., Carnes, B.A. 2000. "A Journey Through the Interdisciplinary Landscape of the Biodemography and Aging." American Psychological Association, Washington, D.C.

Olshansky, S.J., Carnes, B.A. 2000. "Anatomical Oddities and Design Flaws of the Human Body." 12th International Meeting of REVES, Los Angeles.

Olshansky, S.J., Rogers, R., Carnes, B.A. 1998. "Emerging Infectious Diseases: The Fifth Stage of the Epidemiologic Transition?" Population Association of America, Chicago.

Olshansky, S.J., Carnes, B.A. 1997. "Methuselah Revisited: Limited to Life and Global Population Aging." Gerontological Society of America, Cincinnati.

Olshansky, S.J., Carnes, B.A., Rogers, R., Smith, L. 1996. "Epidemiologic Transitions: The Re-emergence of Infectious Diseases." Population Association of America, New Orleans.

Olshansky, S.J. 1995. "Long-term Disability: Prevalence, Causes and Intervention." Gerontological Society of America, Los Angeles.

Carnes, B.A., Olshansky, S.J., Grahn, D. 1995. "The Continuing Search for a Fundamental Law of Mortality: Have We Exceeded Our Biological Limit to Life?" Gerontological Society of America, Los Angeles.

Olshansky, S.J., Carnes, B.A. 1995. "Living on Manufactured Time: Have We Exceeded Our Biological Limit to Life?" Second Global Conference on Aging, Jerusalem, Israel.

Olshansky, S.J., Carnes, B.A. 1995. "Living on Manufactured Time: Health Implications of Exceeding the Biological Limit to Life." REVES 8, Chicago.

Carnes, B.A., Olshansky, S.J., Grahn, D. 1995. "Continuing the Quest for the Holy Grail of Senescence." Population Association of America, San Francisco. Also, chair of the session on the Biodemography of Aging.

Olshansky, S.J., Carnes, B.A. 1994. "Demographic Perspectives on Human Senescence." REVES 7 meeting in Canberra, Australia.

Carnes, B.A., Olshansky, S.J. 1994. "Evolutionary Perspectives on Human Senescence." REVES 7 meeting in Canberra, Australia.

Olshansky, S.J. 1993. "The Demographic Reality of Human Longevity." Gerontological Society of America, New Orleans.

Olshansky, S.J. 1992. "Population Aging, Declining Mortality, and the Expansion of Morbidity Hypothesis." American Association for the Advancement of Science, Chicago.

Olshansky, S.J., Rudberg, M.A., Carnes, B.A., Cassel, C., Brody, J.A. 1991. "Trading Off Longer Life for Worsening Health: The Expansion of Morbidity Hypothesis." Public Health Conference on Records and Statistics, Washington, D.C.

Grigsby, J.S., Olshansky, S.J. 1991. "Population Aging and Health in India." Gerontological Society of America, San Francisco.

Olshansky, S.J. 1991. "Morbidity, Mortality and Aging." Population Association of America, Washington, D.C.

Olshansky, S.J. 1990. "In Search of Methuselah: Estimating the Upper Limits to Human Longevity." Joint Statistical Meetings, Anaheim. Chair of the session: Estimating the Upper Limits to Human Longevity.

Olshansky, S.J. 1990. "The Demographic and Health Effects of Life-extending Technologies." 2nd International Conference on the Future of Adult Life, The Netherlands.

Olshansky, S.J., Williams, R.G., Goldsmith, R.1989. "Comprehensive Epidemiologic Data Resource (CEDR): Establishing A National Data Base for Studies of Potential Health Effects Among Workers at Department of Energy Facilities." American Public Health Association, Chicago.

Olshansky, S.J. 1988. "Cross-Cultural Comparisons of Epidemiologic Transitions: The Case of Japan, Sweden and the United States." Population Association of America, New Orleans.

Grigsby, J.S., Olshansky, S.J. 1988. "The Demographic Components of Population Aging in China." IUSSP Seminar on Mortality in South and East Asia, Beijing, China.

Olshansky, S.J., Grigsby, J.S. 1987. "The Effects of Varying Mortality Projection Assumptions on Prospective Trends in Population Aging in Developed Countries." Population Association of America, Chicago.

Olshansky, S.J. 1987. "Prospects for Extending Life Expectancy and Life Span of the U.S. Population." Population Association of America, Chicago.

Olshansky, S.J. 1986. "Assessing Causality in Epidemiologic and Environmental Research." Northeastern Political Science Association, Boston.

Olshansky, S.J., Grigsby, J.S. 1986. "The Demographic Components of Population Aging." American Public Health Association, Las Vegas.

Olshansky, S.J., Ault, B. 1986. "The Fourth State of the Epidemiologic Transition: The Age of Delayed Degenerative Diseases." 11th World Congress International Sociological Association, New Delhi.

Olshansky, S.J. 1986. "Citing the Nation's First High-level Nuclear Waste Repository: Social Impacts for Utah." Waste Management '86, Tucson.

Olshansky, S.J. 1985. "Pursuing Longevity: Delay vs Elimination of Degenerative Diseases." American Sociological Association, Washington, D.C.

Payne, B., Olshansky, S.J., Segel, T. 1985. "The Effects on Residential Property Values of Proximity to a Site Contaminated with Radioactive Waste." Waste Management '85, Tucson.

Olshansky, S.J. 1984 "The Demographic Effects of Declining Mortality in the United States: A Prospective Analysis." Population Association of America, Minneapolis.

Olshansky, S.J., Payne, B. 1983. "The Reliability and Validity o the Social Impact Assessment Process in Meeting CEQ and NEPA Regulation: A Case Study." American Sociological Association, Detroit.

DISCUSSANT

Society of Actuaries International Symposium, 2017. Living to 100 and Beyond, Orlando.
Society of Actuaries International Symposium, 2014. Living to 100 and Beyond, Orlando.
Society of Actuaries International Symposium, 2011. Living to 100 and Beyond, Orlando.
Society of Actuaries International Symposium, 2008. Living to 100 and Beyond, Orlando.

Society of Actuaries International Symposium, 2004. Living to 100 and Beyond, Orlando.
Society of Actuaries International Symposium, 2002. Living to 100 and Beyond: Mortality at Advanced Ages, Orlando.
Population Association of America, 2000. The Biodemography of Aging, Los Angeles.
Population Association of America, 1998. The Biodemography of Aging, Chicago.
10th International Meeting of REVES, 1996. International Trends in Health Expectancy, Tokyo.
9th International Meeting of REVES, 1996. Multidimensional Nature of the Health Concept: Definitions, Methodologies and Data Collection Techniques, Rome.
Gerontological Society of America, 1995. New Perspectives in Longevity, Los Angeles.
Population Association of America, 1995. Changing Patterns of Mortality: A Global View, San Francisco.
Odense Research Workshop, 1994. Oldest-Old Trajectories: Twins and Centenarians, Hindsgavl, Denmark.
Michigan-Rand Summer Seminar, 1994. The Demography and Economics of Aging, Santa Monica.
Population Association of America, 1994. Methodological Developments in Mortality Research, Miami.
Gerontological Society of America, 1993. Session Chair: Trends in and Prospects for Old Age Morbidity and Mortality, Cincinnati.
Population Association of America, 1992. Trends and Differentials in Causes of Death in Developed Countries, Denver.
Population Association of America, 1991. Forecasting Mortality and Health, Toronto.
American Sociological Association, 1988. Frontiers of the Life Cycle: Social Consequences of the Mortality Revolution, Atlanta.
Public Health Conference on Records and Statistics, 1987. Chair of the session on Forecasting Health, Service Utilization and Health Personnel Requirements, Washington, D.C.
Population Association of America, 1986. Death in Contemporary America II: Mortality of the Old and Very Old, San Francisco.

WORKSHOPS AND SEMINARS

Invited speaker, American Medical Association, June 2021
Keynote speaker, Hong Kong University of Science and Technology, May, 2021
Keynote speaker, Oxford Institute of Population Ageing, May, 2021
Invited speaker, National Academy of Medicine, Singapore, February 2020
Invited speaker, Naples Next, Florida, March 2020
Keynote speaker, MBGH Learning Network Program, Healthy & Productive Aging: Employer Strategies that Support the Older Workforce & Covered Retirees, Chicago 2019.
Invited speaker, Society of Actuaries, Chicago, 2018.
Invited speaker, Aging and Longevity, Pfizer, New York, 2018.
Invited speaker, SCOR, West Palm Beach, Florida, 2018.
Invited speaker, LISA, New York, 2018.
Invited speaker, SAS, North Carolina, 2018.
Invited speaker, AFAR, Santa Barbara, California, 2018.

Keynote speaker, Kansas City Actuarial Club, Kansas City, 2017.
Invited speaker, XXIX Madrid Future Trends Forum on "How will Longevity reshape the world?". Fundación Innovación Bankinter: Madrid, Spain, 2017.
Keynote speaker, CFA Montreal's Asset Management Forum, Montreal, 2017.
Keynote speaker, The Future of Human Aging, Milliman, Chicago, 2017.
Kent award speaker, The Longevity Dividend, IAGG, San Francisco, 2017.
Invited speaker, Internal Medicine Grand Rounds, Rush University Medical Center, Illinois, 2017.
Invited speaker, Scientific Advisory Council on Healthy Aging, PepsiCo. Purchase, New York, 2017.
Keynote speaker, Scripps Research Institute, "Advances in Therapeutic Approaches to Extend Healthspan", Florida, 2017.
Keynote speaker, University of Pennsylvania, Philadelphia, 2016.
Keynote speaker, University of North Dakota, Center on Aging, 2016.
Invited speaker, Beeson annual conference, American Federation for Aging Research, Itaska, Illinois, 2016.
Keynote speaker, The Future of Human Aging, Charles Schwab Annual Meeting, Denver, 2016.
Keynote speaker, Actuarial Research Conference, Twin Cities, Minnesota, 2016.
Plenary speaker, Twelfth International Longevity Risk and Capital Markets Solutions Conference, Chicago, 2016.
Keynote speaker, Ozaukee Senior Center, Wisconsin, 2016.
Keynote speaker, LIMRA, Las Vegas, Nevada, 2016.
Keynote speaker, Tulane University, 2016.
Keynote speaker, Institute of Actuaries, London, England, 2016.
Keynote speaker, Functional Aging Institute, Phoenix, 2016.
Invited speaker, AXA Insurance, Paris, France, 2015.
Invited speaker, Caribbean Actuarial Association, Trinidad and Tobago, 2015.
Keynote speaker, Bermuda Life and Annuity Conference, Bermuda, 2015.
Keynote speaker, IMCA, Scottsdale, Arizona, 2015.
Keynote speaker*,* 7th CONSEGURO – National Insurance, Private Pension and Life, Supplementary Health and Capitalization Conference, Sao Paulo, Brazil, 2015.
Keynote speaker, Model Risk Management, Toronto, Canada, 2015.
Keynote speaker*,* Linda Hall Library Lecture, Kansas City, MO, 2015.
Invited speaker*,* Trends in Cardiovascular Medicine for the Primary Physician, Renown Institute for Heart and Vascular Health, Olympic Valley, California, 2015.
Invited speaker*,* University of Colorado, Boulder, 2015.
Keynote speaker, Wisconsin's Health Aging Summit, Stevens Point, Wisconsin, 2015.
Invited speaker, Society of Actuaries, Chicago, 2015.
Invited speaker, Health Journalism 2015, Santa Clara, California, 2015.
Invited speaker, Pint of Science, Chicago, Illinois, 2015.
Keynote speaker, Alternative Investor Institute, Roundtable for Corporate Funds & Insurance Plans, Washington, D.C., 2015.
Invited speaker, Office of the Chief Actuary, Seminar on Demographic, Economic and Investment Perspectives for Canada: 2015-2050, Ottawa, Canada, 2015.

Keynote speaker, Distinguished Lecture in Aging, Tulane Center for Aging, New Orleans, LA., 2015.
Keynote speaker, Weinberger-Vermut Lecture in Genetics and Ethics, Cedars-Sinai, Los Angeles, 2014.
Keynote speaker, UCLA, The future of longevity, Los Angeles, 2014.
Keynote speaker, 5th Annual Mayo Clinic Kogod Center on Aging Conference, Rochester, MN., 2014.
Keynote speaker, American Federation for Aging Research Awards Dinner, New York, 2014.
Keynote speaker, The 24th Annual Conference of the Caribbean Actuarial Association, Barbados, 2014.
Keynote speaker, Life Insurance Settlement Association, Scottsdale, Arizona, 2014.
Keynote speaker, Great West Life Assurance, Toronto, Canada, 2014.
Invited speaker, Longevity & Genetics 2014 Conference, Vancouver, 2014.
Invited speaker, USC Annenberg School of Journalism, National Health Journalism Fellowship, Los Angeles, 2014.
Invited speaker, 5th Annual Mayo Clinic Robert and Arlene Kogod Center on Aging Conference, Mayo Clinic, 2014.
Invited speaker, RAND Summer Institute, Santa Monica, CA 2014.
Invited speaker, Pfizer, New York, 2014.
Keynote speaker, Gerontological Society, Israel, 2014.
Keynote speaker, Conference of Consulting Actuaries, Washington, DC, 2014.
Keynote speaker, Helen Bader Foundation, Milwaukee, 2014.
Keynote speaker, Israel Gerontological Society, Israel, 2014.
Keynote speaker, 2013 George Randolph and Patricia Scott Lectureship on the Physiology of Aging, "A New Era in Human Aging", Mayo Clinic, 2013.
Invited speaker, Society of Actuaries Council Agenda Meeting, Chicago, 2013.
Invited speaker, Aon Hewitt, Chicago, 2013.
Keynote speaker, WHO Global Forum on Innovation for Ageing Populations, Kobe, Japan, 2013.
Invited speaker, Amway, Buena Vista, CA., 2013.
Invited speaker, Healthy Aging Means Business, Gerontological Society of America, Philadelphia, 2013.
Invited speaker, Envision 2013: Stories of the Global Health Challenge. United Nations Dept. of Public Information and the Independent Filmmakers Project. New York.
Invited speaker, Printer's Row, Chicago, 2013.
Keynote speaker, "A closer look at longevity and life expectancy", American Council of Life Insurers, Executive Roundtable, Palm Beach, Florida, 2013.
Keynote speaker, Attacking Diseases by Slowing Aging. Goettingen, Germany, 2013.
Keynote speaker, LIMRA, New York, 2013.
Invited speaker, Glenn Foundation, California, 2013.
Keynote speaker, The Future of Human Longevity, Bosch Foundation, Stuttgart, Germany, 2013.
Keynote speaker, Reinsurance Executive Roundtable, Palm Beach, Florida, 2013.
Invited speaker, "The Longevity Dividend", Grace Lutheran Church, River Forest, Illinois 2013.
Keynote speaker, Conference of Consulting Actuaries, Boca Raton, Florida, 2012.

Invited speaker, Exploratory workshop on "Is There Compression of Morbidity: Evidence and Consequences" Harvard University, Boston, 2012.
Invited speaker, 15th European Health Forum Gastein, Austria, 2012.
Keynote speaker, World Demographic & Ageing Forum, Rethink! Lecture, St. Gallen, Switzerland, 2012.
Invited speaker, Rand Summer Institute, Santa Monica, California, 2012.
Invited speaker, Congregation Solel, Highland Park, Illinois, 2012
Keynote speaker, Life & Annuities Executive Officer Roundtable, Miami, Florida, 2012.
Keynote speaker, Global Financial Services CEO Roundtable, Florence, Italy, 2011.
Keynote speaker, Life Insurance Settlement Association (LISA), Atlanta, 2011.
Keynote speaker, Ethical Humanist Society, Chicago, 2011.
Keynote speaker, The Transportation Research Board's International Conference on Emerging Issues in Safe and Sustainable Mobility for Older Persons, Washington, D.C. 2011.
Keynote speaker, American Academy of Insurance Medicine, Chicago, 2011.
Keynote speaker, Symposium on Health, Longevity, and Society, Taipei, Taiwan, 2011.
Invited speaker, Science Foo Camp, Googleplex, Mountain View, California, 2011.
Invited speaker, Gerontological Society of America corporate advisory panel, Washington, D.C., 2011.
Invited speaker, Living to 100 Symposium IV, Orlando, Florida, 2011.
Keynote speaker, "The Quest for Immortality" North Shore Senior Center, Northfield, Illinois, 2011.
Keynote speaker, "Perspectives on Risk and Life Factors" 9th Insurance Linked Securities Summit, New York, 2011.
Keynote speaker, "Dispelling Aging Myths" 2011 CHSPR Policy Conference, Vancouver, BC, 2011.
Invited speaker, USC Davis School Healthy Aging Retreat, Newport Coast, California, 2011.
Keynote speaker, "The Future of Life Expectancy" Strategic Investments Forum, Dallas, Texas, 2010.
Invited speaker, "A Wrinkle in Time", Slate, Washington, D.C., 2010.
Invited speaker, Techonomy 2010, "The Longevity Dividend", Lake Tahoe, California, 2010.
Invited speaker, Society 2030 meeting, "Changing Population Demographics", Ann Arbor Michigan, 2010.
Keynote speaker, "Aging, Health, and Longevity in the 21st Century" North Shore Village, Chicago, 2010.
Invited speaker, Grantmakers in Aging Midwest Regional Issues Forum, Green Bay, Wisconsin, 2010.
Keynote speaker, AO Foundation, "If Humans Were Built to Last", Lisbon, Portugal, 2010.
Keynote speaker, 7th Insurance Linked Securities, "The Rise and Fall of Human Longevity in the 21st Century", New York, 2010.
Invited speaker, Center for Creative Aging, Harold Washington College, "The Future of Aging in America", Chicago, 2010.
Invited speaker, University of Oklahoma, "Results from the MacArthur Research Network on

an Aging Society", Oklahoma City, 2010.
Invited speaker, PGGM, "The future of human longevity and investments in insurance linked securities," The Netherlands, 2009.
Invited speaker, Leiden conference on decelerating increases in life expectancy, The Netherlands, 2009.
Invited speaker, Life Settlements and Longevity Summit, "The future of human longevity:
Is radical life extension within our grasp?", New York, 2009.
Invited speaker, Museum of Science and Industry, [opening of new exhibit on the human body], Chicago, 2009.
Keynote speaker, Horizon21 Conference on Insurance Linked Securities, Zurich, Switzerland, 2009.
Invited speaker, Age Boom Academy, International Longevity Center, New York, 2009.
Invited speaker, MacNeal Hospital, "The aging patient", Chicago, 2009.
Keynote speaker, Annual NICE Knowledge Exchange, "The rise and fall of human longevity in the 21st century, Toronto, Canada, 2009.
Keynote speaker, Merial European Comparative Vaccinology Symposium, Prague, Chech Republic, 2009.
Keynote speaker, IV Fórum Nacional de Seguro de Vida e Previdência Privada, Sao Paulo, Brazil, 2008.
Keynote speaker, Seminario Internacional de Seguros de Vida, Bogota, Colombia, 2008.
Keynote speaker, Knight Center for Specialized Journalism, "Medical advances: treatments, cures, possibilities", Maryland, 2008.
Invited participant and new member of the World Economic Forum, Global Agenda Councils -- Challenges of Gerontology, Dubai, UAE, 2008.
Invited speaker, The Institute of Medicine, "The rise and fall of human longevity in the 21st century." Chicago, 2008.
Invited speaker, AAAS, "A new paradigm of health promotion and disease prevention for the 21st century" Washington, D.C., 2008.
Invited speaker, American Jewish Joint Distribution Committee (JDC), "Life expectancy in the 21st century" New York City, 2008.
Keynote speaker, Power of Excellence: 2008 Canada Life Reinsurance Napa Valley Client Retreat, Napa Valley, California, 2008.
Invited speaker, The crisis of global aging: population, biology, and social implications. School of Public Health, University of Michigan, Ann Arbor, 2008.
Keynote speaker, DI & LTC products, sales, distribution, claims, underwriting and administration. Las Vegas, 2008.
Keynote speaker, The Life Insurance Conference, "Mortality and longevity: A demographer's perspective. Las Vegas, 2008.
Keynote speaker, The Oxford Institute on Ageing, The multidisciplinary toolkit for global ageing research. Oxford, England, 2008.
Keynote speaker, 10th Anniversary of the Integritas Institute for Ethics, Chicago, 2008.
Keynote speaker, The Center for Bioethics and Human Dignity, "The science of aging and life extension." Phoenix, 2008.
Keynote speaker, Society of Actuary's Living to 100 Research Symposium, Orlando, 2008.
Keynote speaker, Genworth's Medical Advisory Council Conference, Washington, D.C.

2007.
Invited speaker, Age Boom Academy Meeting, New York, 2007.
Invited speaker, World Ageing & Generations Congress, Life Expectancy, St. Gallen, Switzerland, 2007.
Invited speaker, Siciliano Forum, Revisiting the call to action on obesity: A focus on healthy lifestyles, Salt Lake City, Utah, 2007.
Invited speaker, GE Healthcare European Media Summit, The future of health care: Europe at the crossroads, Berlin, 2007.
Invited speaker, The Hartford, 2007.
Invited speaker, IIASA, Bridging the micro-macro gap in population forecasting (MicMac). Vienna, Austria, 2007.
Keynote speaker, SIFMA Insurance and Risk-Linked Conference, Human Longevity in the 21st Century, New York, 2007.
Invited speaker, Sirtris Pharmaceuticals, The Future of Human Longevity, Boston, 2007.
Keynote speaker, Society of Actuaries, Denver, 2007.
Keynote speaker, Global Financial Services CEO Roundtable, The impact of increasing longevity on financial services. Ravello, Italy, 2007.
Keynote speaker, Museum of Science and Industry, Centenarians, Chicago, 2007.
Invited speaker, United Nations, Health and Aging. New York, 2007.
Invited speaker, American Medical Association. Why We Age. Chicago, 2007.
Invited speaker, University of Chicago, Business School. In Pursuit of the Longevity Dividend, Chicago, 2007.
Keynote speaker, Sierra Heart Institute. Why we age. Olympic Valley, California, 2006.
Keynote speaker, Sierra Heart Institute. The future of human longevity. Olympic Valley, California, 2006.
Invited speaker, International Conference on Longevity, The Longevity Dividend, Melbourne, Australia, 2006.
Keynote speaker, Center for Health and Behavior annual lecture. Human longevity in the 21st century. Syracuse University, Syracuse, New York, 2006.
Keynote speaker, American Society of Plastic Surgeons. In pursuit of the longevity dividend. Boston, 2006
Keynote speaker, Annual meeting of the Enrolled Actuaries. The future of human longevity. Palm Springs, California, 2006.
Invited speaker, Oklahoma Health Sciences Center. In pursuit of the longevity dividend. Oklahoma City, 2006.
Invited speaker, Age-Boom Academy Meeting. Ageism, self-hate, and anti-aging medicine. New York, 2006.
Invited speaker, Rand Corporation Summer Institute Mini Medical School for Social Scientists. Aging and Health in the 21st century. Santa Monica, California, 2006.
Invited speaker, UIC Department of Movement Sciences. A possible decline in life expectancy in the United States in the 21st century. Chicago, 2006.
Invited speaker, UIC MD/Ph.D. Program. A possible decline in life expectancy in the United States in the 21st Century. Chicago, 2006.
Invited speaker, UIC Campus Forum. Why we age. Chicago, 2006.
Invited speaker, Goldman, Sachs & Co. A possible decline in life expectancy in the United States in the 21st century. New York, New York, 2006.

Invited speaker, James Martin Institute World Forum, 2006. Living longer? Said Business School, Oxford, England, 2006.

Invited speaker, Center for Social Epidemiology and Population Health, University of Michigan. Life expectancy in the 21st century. Ann Arbor, Michigan, 2006.

Invited speaker, Institut Universitaire de Médecine Sociale et Préventive, A possible decline in life expectancy in the 21st century. Lausanne, Switzerland, 2006.

Invited speaker, UNESCO meeting on Health and Wealth. The future of longevity. Paris, France, 2006.

Invited speaker, University of South Florida center on aging. Is aging reversible? Tampa, Fl., 2005

Invited speaker, University of Pennsylvania, Center on Aging. A possible decline in life expectancy in the United States in the 21st century. Philadelphia, PA., 2005.

Invited speaker, Mayo Clinic. Human by Design. William Kogod Center on Aging, Rochester, Minnesota, 2005.

Invited speaker, Chicago Community Trust. A possible decline in life expectancy in the United States in the 21st century. Chicago, 2005.

Plenary speaker, The Future of Life Expectancy in the U.S., Oxford Institute of Aging and British Actuaries, Oxford, England, 2005.

Invited participant, Ageing in Europe: Turning weakness into strength, Aspen Institute, Rome, Italy, 2005.

Invited speaker, Why We Age?, MENSA, Chicago, Illinois, 2005.

Invited speaker, Age Boom Academy – International Longevity Center, The Demographic Dilemma, New York, New York, 2005.

Keynote speaker, Biomedex - 2005. The Future of Human Life Expectancy. Montreal, Canada, 2005.

Invited speaker, Brookings Institute. Will Human Life Expectancy Decline in the 21st Century? Washington, D.C., 2005.

Invited speaker, Royal Society of Medicine. Will Human Life Expectancy Decline in the 21st Century? London, England, 2005.

Invited speaker, Watson Wyatt Lecture. Will Human Life Expectancy Decline in the 21st Century? London, England, 2005.

Invited speaker, Alma College. Human by Design. Alma, Michigan, 2005.

Invited speaker, American Federation for Aging Research. Is There an Anti-Aging Medicine? Washington, D.C., 2004.

Invited speaker, Brainstorm Meeting by Fortune Magazine. If Humans Were Built to Last. Vail, Colorado, 2004.

Invited speaker, New York Academy of Sciences. Anti-aging Medicine: The Hype and Reality. AFAR-sponsored discussion of special issues of the Journal of Gerontology: Biological Sciences, New York, 2004.

Invited speaker, Institute of Medicine. Human Life Expectancy in the 21st Century. Washington, D.C., 2004.

Invited speaker, Nobel Conference XL. The Science of Aging. Gustavus Adolphus College. Saint Peter, Minnesota. 2004.

Invited speaker, European Molecular Biology Organization and European Molecular Biology Laboratory. Time and Aging: Mechanisms and Meanings. Heidelberg, Germany. 2004.

Keynote speaker, 7th International Federation on Aging Global Conference, Singapore, 2004.

Keynote speaker, session chair and organizer, "Anti-Ageing Medicine: The Hype and Reality." International Conference on Longevity, Sydney, Australia., 2004.

Keynote speaker, Society of Actuaries, "Will Human Life Expectancy Decline in the 21st Century?" San Antonio. 2004.

Invited speaker, American Society for Investigative Pathology. Human Aging and Duration of Life. Washington, D.C., 2004.

Keynote speaker, University of Vancouver Centre on Aging. Living Long and Well: Reality vs Scams. Vancouver, Canada. 2004.

Invited speaker, "Will Human Life Expectancy Decline in the 21st Century," Ohio State University. 2004.

Invited speaker, "Anti-Aging Medicine: The Hype and Reality," American Society for Aesthetic Plastic Surgery, Inc. New York, 2004.

Invited speaker, Swiss Reinsurance, "The Duration of Life," Fort Wayne, Indiana, 2003.

Keynote speaker, Midwestern Medical Directors Association Meeting, "The Aging Process," Fort Wayne, Indiana. 2003.

Invited speaker, Age Boom Academy, "Anti-aging medicine," New York, 2003.

Invited speaker, The Voyage to Old-Age: Searching for Human Longevity Genes, "Biological Evidence for Limits to the Duration of Life," Israel, 2003.

Keynote speaker, Jack Anderson Lectureship, American Academy of Facial Plastic and Reconstructive Surgery, Orlando, 2003.

Invited speaker, "Anti-aging medicine: The hype and reality." American Academy of Facial Plastic and Reconstructive Surgery, Orlando, 2003.

Invited speaker, "Anti-aging medicine," SAGECrossroads debate on anti-aging medicine, Washington, D.C., 2003.

Invited speaker, "Is There an Anti-Aging Medicine," Age-Boom Academy, New York, 2003.

Invited speaker, "Duration of Life: Is There A Biological Warranty Period? Endocrine Section Seminar Series, University of Illinois at Chicago, 2003.

Keynote speaker, "Is There A Biological Warranty Period for the Duration of Life?," Bernard Isaacs Memorial Lecture, Jerusalem, Israel, 2003.

Keynote speaker, "Anti-aging medicine: Placebo? Profits? Proven?" Israel Geriatrics Society Meeting, Tel Aviv, 2003.

Keynote speaker, "The Quest for Immortality," Virginia Society of Plastic Surgeons, Richmond, Virginia, 2003.

Invited speaker, "The Quest for Immortality," Swiss Reinsurance, Indiana, 2003.

Invited speaker, "The Biodemography of Aging," IUSSP Conference on Aging, New York, 2003.

Invited speaker, "The Demography of Aging," Biomedical Gerontology Conference, Cambridge, England, 2003.

Invited speaker, "Is There an Anti-Aging Medicine," American Society on Aging, Chicago, 2003.

Invited speaker, "Anti-aging medicine," American Society of Plastic Surgeons, New Orleans, 2003.

Invited speaker, "Prospects for Increasing Human Life Expectancy," President's Council on

Bioethics, Washington, D.C., 2002.

Invited speaker, "Extension of Life," NERVE meeting, The Cap Gemini Ernst & Young Center for Business Innovation, Boston, 2002.

Invited speaker, "Forecasting Human Longevity," U.S. Social Security Administration, Washington, D.C., 2002.

Invited speaker, "The Quest for Immortality," UIC Alumni Association, Chicago, 2002.

Invited speaker, "Anti-Aging Medicine," American Society of Plastic Surgeons, San Antonio, 2002.

Invited speaker, "The Demography of Aging," American Society of Plastic Surgeons, San Francisco, 2002.

Invited speaker, "Anti-Aging Medicine," Age Boom Academy, International Longevity Center, New York, 2002.

Keynote speaker, First International Chinese Conference on the Promotion of Healthy Aging, Hainan, China, 2002.

Invited speaker, "Anti-Aging Medicine" American Society of Plastic Surgeons, San Francisco, 2002.

Keynote speaker, "Why Study the Basic Biology of Ageing?" World Assembly on Ageing, Valencia, Spain, 2002.

Invited speaker, "The Quest for Immortality," Western Washington Univ., Washington, 2002.

Invited speaker, "The Quest for Immortality", University of Wisconsin, Parkside, 2001.

Invited speaker, "The Quest for Immortality", Fermi National Laboratory, Fermi, Illinois, 2001.

Invited speaker, "Prospects for Human Longevity", CNA Insurance Company, Chicago, 2001.

Invited speaker, "How Long Can Humans Live?", Foundation IPSEN Longevity Prize lecture,17th World Congress of Gerontology, Vancouver, Canada, 2001.

Invited speaker, "If Humans Were Built To Last," 17th World Congress of Gerontology, Vancouver, Canada, 2001.

Invited speaker, "Anti-Aging Medicine," Canyon Ranch, Tucson, Arizona, 2001.

Invited speaker at the international meeting on the human lifespan, Greece, 2001.

Keynote speaker, P.K. Whelpton Memorial Lecture. Gerontology Center, Miami University of Ohio, 2001.

Keynote speaker at the annual meeting of the Society of Actuaries. "Prospects for Human Longevity in an Aging World." Washington, D.C., 2001.

Invited speaker at the seminar on Demography and Epidemiology: Frontiers in Population Health and Aging, "Biological Implications of the Demography of Aging," Washington, D.C., 2001.

Organizer with Charles Nam of the session on How Long Can Humans Live? at the annual meetings of the American Association for the Advancement of Science, San Francisco, 2001.

Keynote speaker at the annual meeting of LIMRA; "The Quest for Immortality," New Orleans, 2001.

Keynote speaker at the annual meeting of the Swiss Society of Internal Medicine; "Aging and Longevity: From Biology to Epidemiology; Lausanne, Switzerland, 2001.

Invited speaker at the conference on "Demography and Epidemiology: Strengthening

Common Ties in Studies of Health and Aging," Washington, D.C., 2001.

Invited participant at the forum on "Projecting the Future of Social Security" at the Senate Office Building, Washington, D.C., 2000.

Invited speaker at the symposium "Aging in the Past, Present and Future." Salzburg, Austria, 2000.

Keynote speaker at the symposium "Determinants of Human Aging." Sponsored by the German Anthropological Association, Munich, 2000.

Invited speaker on "Methuselah Revisited: Upper Limits to Human Life Expectancy Remain Intact" at the British Biometric Society, England, 1999.

Invited speaker at the workshop on "The Future of Human Longevity." Sponsored by General Electric ERC Frankona, Munich, 1999.

Invited speaker at the workshop on "Human Longevity." Sponsored by AETNA Insurance, Philadelphia, 1999.

Keynote speaker at the Virginia Association of Nonprofit Homes for the Aged, "Aging and Health in the 21st Century," Hot Springs, Virginia, 1998.

Invited speaker on "Infectious Diseases - New and Ancient Threats to World Health," Population Reference Bureau, Washington, D.C., 1997.

Invited testimony before the Trustees of the Social Security Administration of the United States, Canada, and Mexico on the topic of Mortality Forecasting Assumptions, Washington, D.C., 1997.

Invited speaker at the University of Pennsylvania seminar series on aging, "Methuselah Revisited: Practical Limit to Human Life Expectancy Remains Unchanged," Philadelphia, 1997.

Invited speaker at the Ciba Foundation/Royal Society/British Academy meeting on "Objectives of Biomedical Ageing Research," London, 1997.

Invited speaker at the UNESCO sponsored international conference on "Human Ageing: Adding Life to Years," Paris, 1996.

Invited speaker at the international symposium on aging "Longevity: To the Limits and Beyond," sponsored by Foundation IPSEN, Paris, 1996.

Invited speaker at the Michigan-Rand Summer Seminar on the Demography and Economics of Aging, Santa Monica, 1995.

Invited speaker at the Medical Scientist Training Program Symposium, "Aging: From Molecular Effects to Societal Concerns," Stony Brook Health Sciences Center, New York, 1995.

Keynote speaker at the annual meeting of the Occupational Medical Association, Chicago, 1995.

Invited speaker at the Sixth Annual Symposium on Frontiers of Science sponsored by the National Academy of Sciences, Irvine, 1994.

Keynote speaker at the symposium "Children and the Elderly Under Healthcare Reform: An Ethical Analysis," sponsored by Virginia Commonwealth University and the Richmond Bioethics Consortium, 1994.

Keynote speaker at the annual meeting of the American Society of Radiation and Oncology, San Francisco, 1994.

Invited speaker at the Public Health and Aging Conference, "Upper Limits to Human Longevity," Atlanta, 1994.

Invited speaker at the Chicago Conference on Human Health and the Environment, Chicago,

1994.

Invited speaker at the seminar on "Comorbidity and Competing Causes of Death in an Aging Population, Rotterdam, The Netherlands, 1994.

Invited speaker at the 10th Wiener Symposium on Experimental Gerontology, Vienna, Austria, 1994.

Conference coordinator of the seminar on "Interdisciplinary Approaches to Research on Aging," Chicago, 1994.

Guest of honor and invited speaker on aging at Foundation IPSEN, Paris, 1994.

Invited speaker at the international colloquium on "Comparative Perspectives on Aging and Old Age: The United States and Germany," Brown University, 1993.

Invited speaker at the seminar on "Human Longevity" at the Senior Friendship Center, Sarasota, 1993.

Invited testimony before the Trustees of the Social Security Administration on "Mortality Forecasting Assumptions," Washington, D.C., 1993.

Keynote speaker at the International Meeting on "Chronic Disease and Disability," Amsterdam, The Netherlands, 1993.

Invited speaker at the seminar "Health and Mortality Trends Among Elderly Populations: Determinants and Implications," Sendai, Japan, 1993.

Invited speaker at the "Aging-Life-Fitness" symposium at the Institute of Preventive Medicine, Copenhagen, Denmark, 1992.

Invited speaker at the workshop on "Forecasting Survival, Health and Disability," sponsored by the Institute of Medicine, the National Research Council Committees on Population and National Statistics, and the National Institute on Aging, 1992.

Invited speaker at the Interagency Forum on "Aging-related Statistics," sponsored by the U.S. Bureau of the Census, Washington, D.C., 1991.

Invited participant at the workshop on "Epidemiology of Chronic Disease in the Oldest Old" sponsored by the National Institute on Aging and Kaiser Foundation Research Institute, Monterey, California, 1990.

Invited speaker at the seminar on "Multidisciplinary Aspects of Research on the Extension of Human Life Expectancy," sponsored by the University of Michigan, Ann Arbor, 1989.

Invited participant at the workshop on "Estimating the Upper Limits to Human Life Expectancy," sponsored by the National Institute on Aging, Berkeley, California, 1988.

Invited participant at the workshop on "The Demography of Aging" held at the National Academy of Sciences, Woods Hold, Massachusetts, 1988.

PROFESSIONAL ACTIVITIES

Journals:
Biogerontology (Associate Editor)
Journal of Gerontology: Biological Sciences (Associate Editor)
Biomedicine Hub **(Editorial Board)**
Journal of Population Ageing (Editorial Board)
Gerontology (Editorial Board)
Interdisciplinary Topics in Gerontology (Editorial Board)
Public Policy & Aging Report (Editorial Board)

Member: Gerontological Society of America
New York Academy of Sciences
American Association for the Advancement of Science (AAAS)

Listed in: Who's Who in America, 2003
Who's Who in Health Sciences, 2003
Who's Who in Science and Engineering, 3rd Edition.
Who's Who in Medicine and Healthcare, 2nd Edition.
American Men & Women of Science, 1996.
Who's Who in the 21st Century, 2001.
Who's Who in American Education, 2006-2007

Ad Hoc Reviewer:

Journal of the American Medical Association
Journal of the American Statistical Association
Journal of Aging and International Development
The Milbank Quarterly
Oxford University Press
Social Service Review
Social Biology
John Wiley & Sons, Inc.
American Sociological Review
Population and Development Review
Journal of Cross-Cultural Gerontology
Journal of Epidemiology and Community Health
Population Studies
Science
Demography
The Royal Society
The Gerontologist
Retirement Research Foundation
Journal of Gerontology
Health PSR Quarterly
American Journal of Human Biology
Population Research and Policy Review
Annals of Human Biology
Nature
New England Journal of Medicine

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Trimlio.com
Pacific Global Advisors
JPMorgan Pension Advisory Group
U.S. Preventive Medicine
HSBC Global Commission on Ageing and Retirement
ERC Francona: Munich, Germany (reinsurance, human longevity)
Swiss Reinsurance: Zurich and Indiana (reinsurance, human longevity)
University of Illinois at Chicago (mortality and health statistics)
Argonne National Laboratory (chemical demilitarization)
Health Statistics Advisory Board, State of Utah (health statistics)
Nuclear Waste Socioeconomic Technical Review Group, State of Utah (nuclear waste)
San Juan County, Utah (high-level radioactive waste)