



**THE ALLIANCE FOR
LONGEVITY INITIATIVES**

The California Healthspan Initiative

**Strategic state investments to grow California's
longevity economy to extend healthy lifespans.**

Executive Summary

California needs to prepare now for the stress that an aging population will put on the housing and healthcare systems and the associated costs to the public. By launching a new California investment strategy to keep people healthier longer we can grow the economy, decrease public healthcare costs, and improve lives. By launching the California Healthspan Initiative (CHI) the state can start to prepare for the significant demographic shifts toward an aging population that are going to significantly challenge the economy and strain the healthcare system. The proposal is to fund the development of technologies that will improve the healthspan of our aging population, improving lives, decreasing healthcare costs, and empowering people to live longer and healthier in their golden years. Central to this endeavor is a new field of research and development called geroscience that aims to improve health and decrease the burden of age related challenges through evidence based practices and technologies that not only increase longevity but improves long-term wellness, functionally compressing the time where serious symptoms of aging and chronic disease impact lives. Without direct investment in geroscience, the state will face unprecedented demands on healthcare systems and create disastrous drain on the state economy. The rise in chronic diseases among the aging population necessitates innovative solutions to extend healthy lifespan and improve the quality of life.

California, with its rich ecosystem of biotech companies and research organizations, is uniquely positioned to lead this charge. The CHI aims to leverage California's global leadership in geroscience by funding a strategic mix of research projects and investments. Specifically, the initiative is designed to support research endeavors that, despite their critical importance to advancing our understanding and treatment of aging, lack immediate economic incentives or have longer timelines that do not fit the mold for traditional research funding or private investment. CHI will support both academic researchers and companies in California that are building much needed technologies to transform health and improve wellness in an aging population through pioneering research and tangible healthcare solutions.

Launching the CHI is not just a financial strategy but a commitment to public health and economic resilience. By prioritizing investments in both foundational research lacking commercial incentives and in companies poised to improve lives and decrease healthcare costs, the CHI positions California to lead a new era in healthcare innovation and substantially grow the economy of the state by building and attracting new innovative businesses and decreasing healthcare costs.

Demographic Shifts and an Aging Population

The world is struggling to cope with a significant demographic transformation, as the proportion of elderly individuals continues to rise at an unprecedented rate. According to the 2020 U.S. Census, the Baby Boomers generation made up 16.8% of the U.S. population.¹ By 2030, that number will increase to over 21%. By 2054, older adults (65 years and above) in the U.S. will outnumber children, a vast majority of them being centenarians (**Figure 1**).²⁻³ While people are living longer, which is a good thing, they are doing so in worse health for longer. From 2000 to 2019, life expectancy worldwide increased from 66.8 to 73.4 years (an increase of 6.6 years), but Health Adjusted Life Expectancy (HALE) only increased from 58.3 to 63.7 years (an increase of 5.4 years).⁴ According to the World Health Organization, “this was due to declining mortality rather than reduced years lived with disability.”

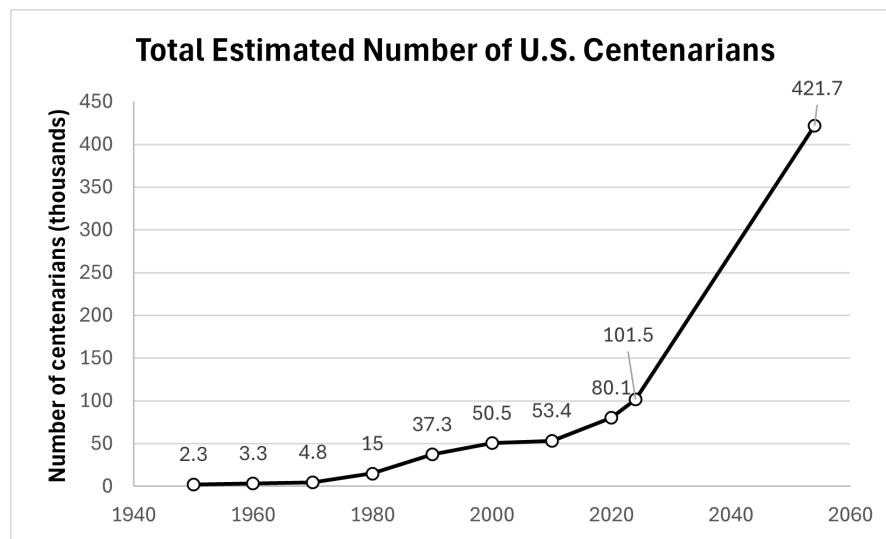


Figure 1. U.S. Census Bureau data showing a projected increase in centenarians over the next 30 years. Graphed adapted from [Pew Research Center](#).

Currently the sixth youngest state, California will soon begin aging faster than the nation. According to the state’s Interim Population Projections, the number of people in California over 65, will double from 4.3 million in 2010 to 10.0 million in 2065 increasing from 11% of the population in 2010 to 25.5% by 2065 (**Figure 2**). This contrasts with the rest of the country

¹ Caplan, Z. (2024, May 25). 2020 Census: 1 in 6 People in the United States Were 65 and Over.

<https://www.census.gov/library/stories/2023/05/2020-census-united-states-older-population-grew.html>. Accessed on 3/27/2024.

² Vespa, J. (2018, March 13). The U.S. Joins Other Countries with Large Aging Populations. <https://www.census.gov/library/stories/2018/03/graying-america.html>. Accessed on 3/27/2024.

³ Schaeffer, K. (2024, January 9). U.S. centenarian population is projected to quadruple over the next 30 years.

<https://www.pewresearch.org/short-reads/2024/01/09/us-centenarian-population-is-projected-to-quadruple-over-the-next-30-years/>. Accessed on 3/27/2024.

⁴ Global Health Estimates: Life expectancy and leading causes of death and disability.

<https://www.who.int/data/gho/data/themes/mortality-and-global-health-estimates/gh-life-expectancy-and-healthy-life-expectancy#:~:text=Globally%2C%20life%20expectancy%20has%20increased, reduced%20years%20lived%20with%20disability.> Accessed on 3/27/2024.

which will take almost thirty years to double, growing from 40 million in 2010 to 81 million in 2040.

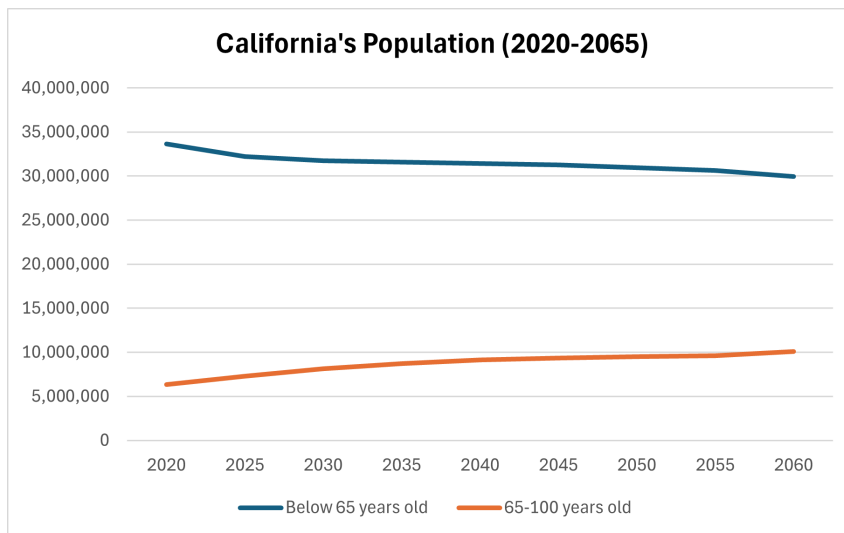


Figure 2. Projected number of California’s population between 2020 to 2060. Data was graphed using summarized data from the Department of Finance’s Population Projections, Vintage 2023.

The growing elderly population presents novel challenges, profoundly impacting healthcare systems, economies, and societal structures globally. The rising demand for geriatric care, chronic disease management, and long-term support services is stretching already strained resources. The average life expectancy in the United States (U.S.) is expected to rise from 79.11 in 2023 to 85.6 in 2050. The need for policies that support the aging population’s health as a means to combat healthcare and economic disaster has never been more pressing.

Geroscience: The Intersection of Aging and Chronic Diseases

The process of aging is the primary risk factor of chronic diseases. Gradual physiological changes drive chronic, deadly conditions like cardiovascular disease, cancer, diabetes, and neurodegenerative disorders. Geroscience has identified the "Hallmarks of Aging", which delineate the physiological changes that occur with age, leading to chronic, age-related diseases and death (**Figure 3**).⁵ For instance, genomic instability, a hallmark of aging, plays a significant role in the development of cancer. Beyond cancer, genomic instability is also directly associated with neurological and neuromuscular diseases. These hallmarks of aging are responsible for increased susceptibility to all age-related diseases. The development of a “gerotherapeutic” would not only delay the onset of age-related disease, increasing healthy lifespan (healthspan), but it would increase lifespan more than the cure of any one of these age-related diseases.

⁵ López-Otín C, Blasco MA, Partridge L, Serrano M, Kroemer G. Hallmarks of aging: An expanding universe. *Cell*. 2023 Jan 19;186(2):243-278. doi: 10.1016/j.cell.2022.11.001. Epub 2023 Jan 3. PMID: 36599349.

Collaborative research by the University of Southern California Schaeffer Center for Health Policy and Economics, Harvard University, Columbia University, and others indicate that curing all cancers would only extend global life expectancy by 3 years, whereas a therapy that delays the onset of aging by just 10% could yield nearly 8 years of added life expectancy.⁶

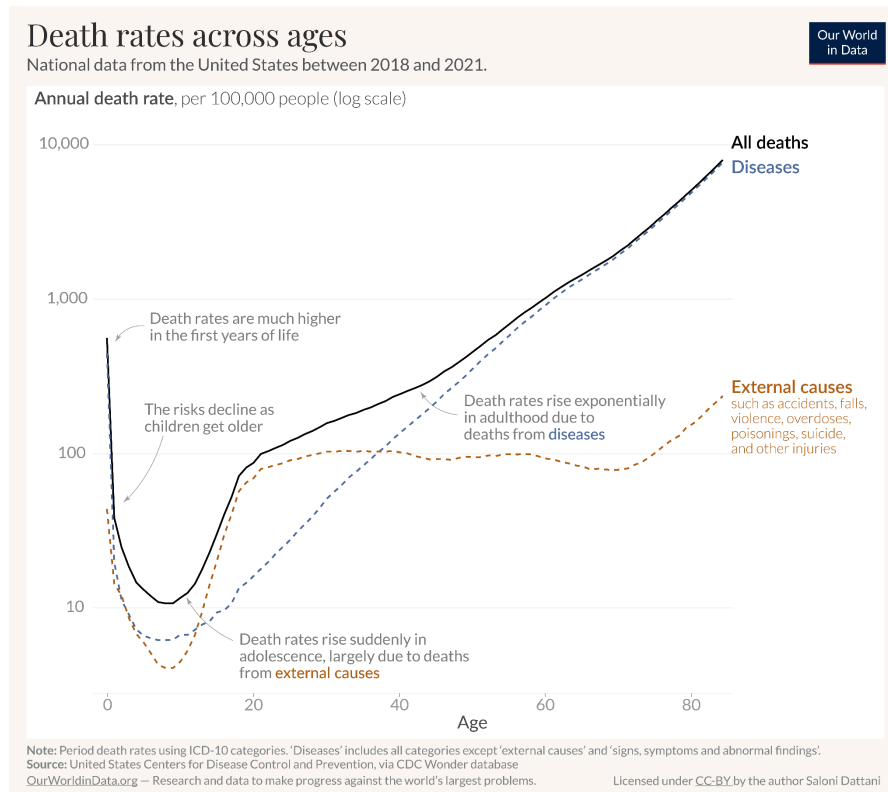


Figure 3. Death rates across ages in the United States between 2018 and 2021 reported by the United States Centers for Disease Control and Prevention Wonder database.

Dozens of companies in the U.S. and elsewhere are now developing therapies aimed at treating these hallmarks of aging. This has led to the exploration of novel therapeutic avenues, such as cellular reprogramming and gene therapies, offering new possibilities for rejuvenating aged organs, tissues and cells. Advancements in genomics and proteomics have played a crucial role, enabling the identification of biomarkers of aging. The incorporation of artificial intelligence and machine learning has also been pivotal in the development of data driven, evidence based interventions to extend wellness and healthspan by enhancing the analysis of complex aging-related data and paving the way for more personalized healthcare solutions.

Challenge: Keep Older People Healthier for Longer

This recognition of aging as the biggest risk factor for morbidity is beginning to shift the focus of

⁶ Wu, S. (2013, October 7). USC Today: Delayed aging is better investment than cancer, heart disease research. Accessed on 3/27/2024.

medical research towards not just treating diseases of aging, but targeting the aging process itself to ameliorate age-related decline. The challenge of rising life expectancy and the aging of the baby boomer generation will be particularly challenging because it will not come with a corresponding extension in the human healthspan where people maintain their overall health for a longer period of time. The concept is relatively simple, the longer we delay or prevent the onset of aging-associated disorders, increase the proportion of healthy people in the population and consequently compress morbidity to a restricted period near the end of life, the better off society will be. Such a healthcare strategy would result in economic and social benefits by providing an opportunity to prevent disability in older adults. But federal investment in geroscience has been slow and unfocussed leaving it to private sector investment, which will primarily focus on developing technologies and services with maximum profit potential.

California's Healthspan Research Ecosystem

As the field of geroscience rapidly evolves, California has emerged as the global leader. This leadership is rooted in the state's longstanding tradition of technological innovation, world-class academic institutions, and a dynamic existing biotechnology industry. Coupled with a modest public funding, private investment for geroscience research in California soared \$3.64 billion in California compared to just \$0.46 billion in Massachusetts, leading the nation by a large margin in 2022.

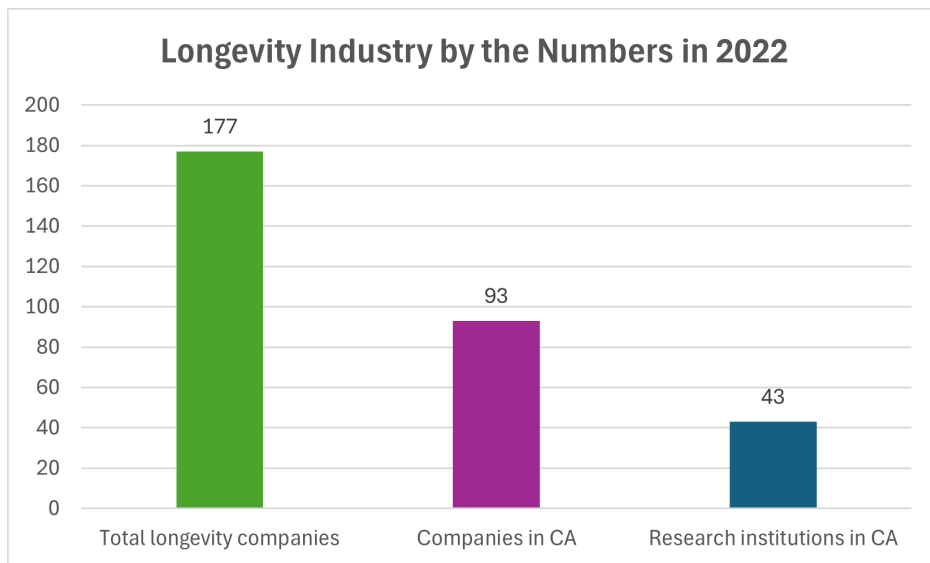


Figure 4. Breakdown of the longevity industry by companies and research institutions in California. Data is compiled from Agingbiotech.info, Longevitylist, and Spannr.

The state is home to about 93 companies out of the 177 companies that specialize in longevity research (**Figure 4**). Out of the 93, 65 companies are based in San Francisco while the remaining are dispersed across Los Angeles and San Diego, making California home to 53% of this

industry globally^{7,8,9}. California is also home to roughly 43 geroscience and longevity research organizations, which include non-profits and educational institutions, like the Buck Institute for Research on Aging, University of California San Francisco, University of Southern California, and Glenn Foundation for Medical Research at Stanford School of Medicine to name a few. Overall, this robust network of longevity companies and research organizations foster a rich environment for research and collaboration in the field and ultimately leads to the birth of new biotechnology start-ups.

The California Healthspan Initiative (The CHI)

The California Healthspan Initiative is a groundbreaking effort designed to spearhead solutions to the “aging demographic crisis” and support the continued growth of the geroscience field in California. Through the CHI, the state will solidify its status as the global leader in geroscience innovation. California’s state government will also be the first state within the U.S. to support this field directly, thus positioning itself to reap the economic, social, and healthspan benefits of the rapidly growing geroscience industry. The scope of the CHI includes two primary domains: funding for foundational research and a geroscience state investment fund to drive industry growth.

Foundational Research

The Alliance for Longevity Initiatives propose \$100 million dollars per year be granted to academic and nonprofit institutions by the California state government to support foundational research and development. The research funding aspect of CHI is dedicated to supporting geroscience research and development, particularly in the context of developing therapeutics to address the Twelve Hallmarks of Aging. This arm of the initiative is pivotal for supporting long-term, high-reward research projects and impactful research projects that lack traditional economic incentives. CHI's funding will be crucial in bridging this gap, ensuring that vital, long-term, high-impact research can continue to feed the growth of private sector industry.

State Investment Fund

We propose \$200 million dollars per year be invested by the California state government through the creation of the California Healthspan Fund. This fund will concentrate on investing in the most economically promising sectors of the geroscience industry that demonstrate potential for translation to patients. The focus areas include fields ranging from drug development, to advanced health and data tracking to the application of artificial intelligence in

⁷ <https://agingbiotech.info/companies/>. Accessed on 3/27/2024.

⁸ <https://longevitylist.com/longevity-industry-database/>. Accessed on 3/27/2024.

⁹ <https://spannr.com/companies>. Accessed on 3/27/2024.

geroscience. All will be aimed at improving the healthspan of the aging population. Investment decisions will ultimately be decided by the California Healthspan Fund staff. This investment strategy not only supports pioneering research but will also serve to support the existing geroscience industry in California.

Launching the CHI

Achieving the CHI's goals will likely necessitate a ballot initiative in California. Key to this effort is fundraising to assemble an advocacy team capable of ensuring the initiative's placement on the ballot and garnering voter support in California. The following are some (but not all) possible mechanisms to fund CHI:

Option 1: New Tax on Luxury Vehicles. We propose a 1% tax on luxury automobiles sold in the state. In 2022, the state witnessed the sale of over 1.667 million cars. Given that California boasts a significant luxury vehicle market—accounting for approximately 25.1% of all vehicles—it's reasonable to anticipate annual sales of around 416,000 luxury cars.

With luxury cars selling, on average, around \$75,000 each, the luxury car sector roughly generates a staggering \$31.2 billion in sales annually. Imposing a modest 1% tax (average of \$750 per new luxury car) on these sales could bring in about **\$312 million every year**. This figure not only easily funds the CHI, but also taps into a market that continues to thrive in the state, which means the tax revenue generated by this tax will remain consistent year over year.

Option 2: Increase Taxes on Cigarette and Nicotine Product Sales. We propose elevating the sales tax on cigarette packages from \$2.87 to \$3.50 each as well as vaping and other nicotine delivery products. The tobacco sales tax is already a significant revenue stream for California, generating about \$1.578 billion annually. With the state's consumption hovering around 550 million cigarette packages per year, a \$0.63 tax increase per package could significantly bolster government revenue. This adjustment is projected to bring in an **additional \$347 million**, thereby providing ample support for the CHI. This tax increase isn't just about generating revenue; it's a step towards a healthier California. Higher tobacco taxes often lead to reduced smoking rates, which can in turn lower the incidence of smoking-related diseases. Smoking is more than a public health issue in California—it's a matter of life and death, with about 40,000 deaths each year and staggering costs of \$47.39 billion in healthcare and a loss in productivity.¹⁰ The proposed tax hike serves a dual purpose: it sustains the CHI financially while also aligning with the state's mission to dismantle the tobacco industry's detrimental impact.

Option 3. California can seek approval for a Bond initiative to support the CHI. The California legislature must seek voter approval before they can borrow money for bond initiatives. Voters have an opportunity to approve or deny spending for projects supported through the bond.

¹⁰ Tobacco Free Kids: The Toll of Tobacco in California. <https://www.tobaccofreekids.org/problem/toll-us/california>. Accessed 3/27/2024.

Geroscience companies that receive dollars through the initiative could be asked to pay it back if they become profitable.

The program could also be structured using a matching fund program that requires researchers to raise part of their budget through a matching fund program from philanthropies, government grants, private donations, or investors.

CHI Oversight

The California Geroscience Research Initiative (CHI) is set to be governed by the California Healthspan Research Council (CHRC), an independent body crucial for steering the direction and efficacy of the initiative. The CHRC will consist of members appointed by state's representatives in the Senate Health Committee and Assembly Health Committee. This will ensure that the council benefits from regional expertise and insights directly relevant to the needs of the state, sound investment and novel innovations. Ideal candidates for these positions are distinguished scientists, investors, and biotechnology leaders, offering a blend of academic insight and industry experience. The CHRC will be responsible for creating the California Healthspan Initiative Grant Fund and the California Healthspan Fund, using 1% of the funds allocated to each program to hire a qualified team to manage the program.

Conclusion: A Call to Action for a Healthier Future

In 1849, the California Gold Rush proved that the state was the land of opportunity. Since then, California has remained the gold standard for economic opportunity. As we stand at the precipice of significant global aging trends, California has a chance to repeat history. By launching the California Healthspan Initiative, the state would experience a massive growth of companies, jobs, and revenue that will offset the state investment driving a flood of private capital and academic talent to the state, as well as being positioned to benefit the most from the geroscience revolution. California would lead the world in the effort to extend life and healthspan, reduce morbidity, and respond proactively to the demographic shifts that threaten our economy and society. The CHI embodies a forward-thinking approach that intertwines health advancements with economic resilience.

Central to this vision is the understanding that the proposed funding mechanisms to fund the CHI, are more than a fiscal measure—it's an investment in our collective future. This initiative will not only generate revenue to fund advancements in geroscience research, the ripple effects are even more profound. As healthspan increases and the duration of morbidity decreases, state government spending on chronic diseases will substantially decline. The CHI is a strategic economic move, one that promises to offset initial investments by reducing long-term healthcare costs and bolstering the productivity of an aging yet active workforce.