

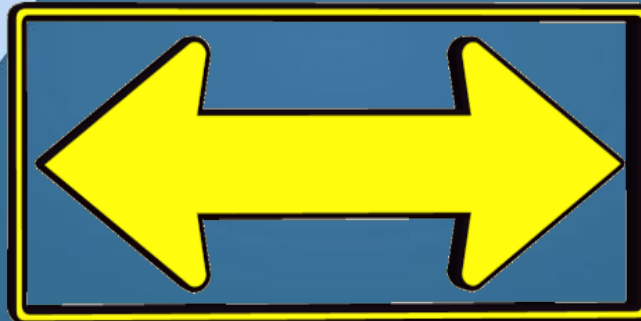
Geroscience and climate science: Oppositional or complementary?

Colin Farrelly 



“Climate Geroscience:
The Case for ‘Wisdom-Inquiry’
Science” (*forthcoming*)

Last 3
slides



ETHICS AND SOCIAL IMPLICATIONS

Translational Gerontology



ROYAL SOCIETY
OPEN SCIENCE

royalsocietypublishing.org/journal/rsos



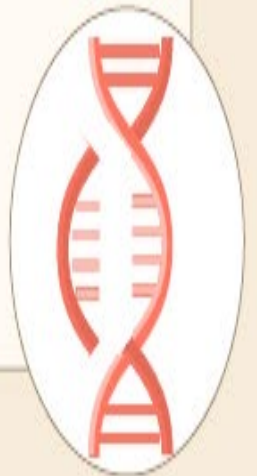
Imagination and idealism
after the COVID-19 pandemic:
the science of healthy ageing

Colin Farrelly

Citadel of health in late life

Geroscience hypothesis

- Maintains that strategies designed to modify the biological drivers of ageing will increase **healthspan**
- Highlights the importance of **simultaneously** delaying or preventing the onset of many age-related diseases





REVIEW
Healthy aging: The ultimate preventative medicine
Matt Kaeberlein,^{1*} Peter S. Rabinovitch,¹ George M. Martin^{1,2}

Interventions Testing Program
The ITP provides preliminary data on interventions to promote healthy aging in people.



12 agents that significantly increase median lifespan

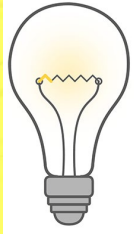
20 Years Ago

THE MILBANK QUARTERLY
A MULTIDISCIPLINARY JOURNAL OF POPULATION HEALTH AND HEALTH POLICY

Extending Life: Scientific Prospects and Political Obstacles

Richard A. Miller (2002)

the obstacles blocking the development of the hypothetical discipline of applied gerontology are at this point about 85 percent political and 15 percent scientific, and they will not be overcome by biologists alone.



Science

Policy

> Proc Natl Acad Sci U S A. 2014 Sep 16;111 Suppl 4(Suppl 4):13585-92.
doi: 10.1073/pnas.1317516111. Epub 2014 Sep 15.

Science communication as political communication

Dietram A Scheufele¹

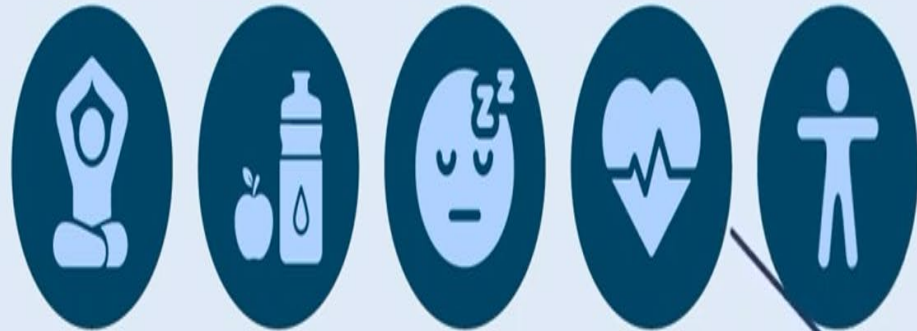
“Scientific debates in modern societies **often blur the lines** between the science that is being debated and the political, moral, and legal implications that come with its societal implications”.



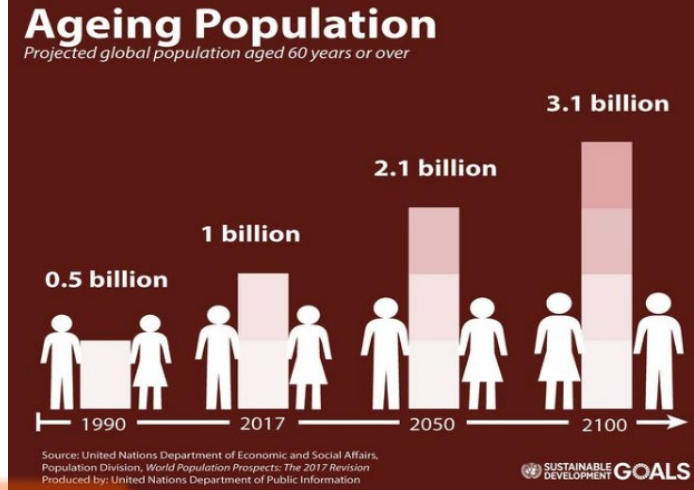
MASS MEDIA



Is it socially responsible to aspire for
gerotherapeutic drugs?



Why think there may be a tension between the goals of geroscience and climate science?



Interdependence

Promote an ethos of planetary health stewardship by framing healthy aging interdependently with the environment.

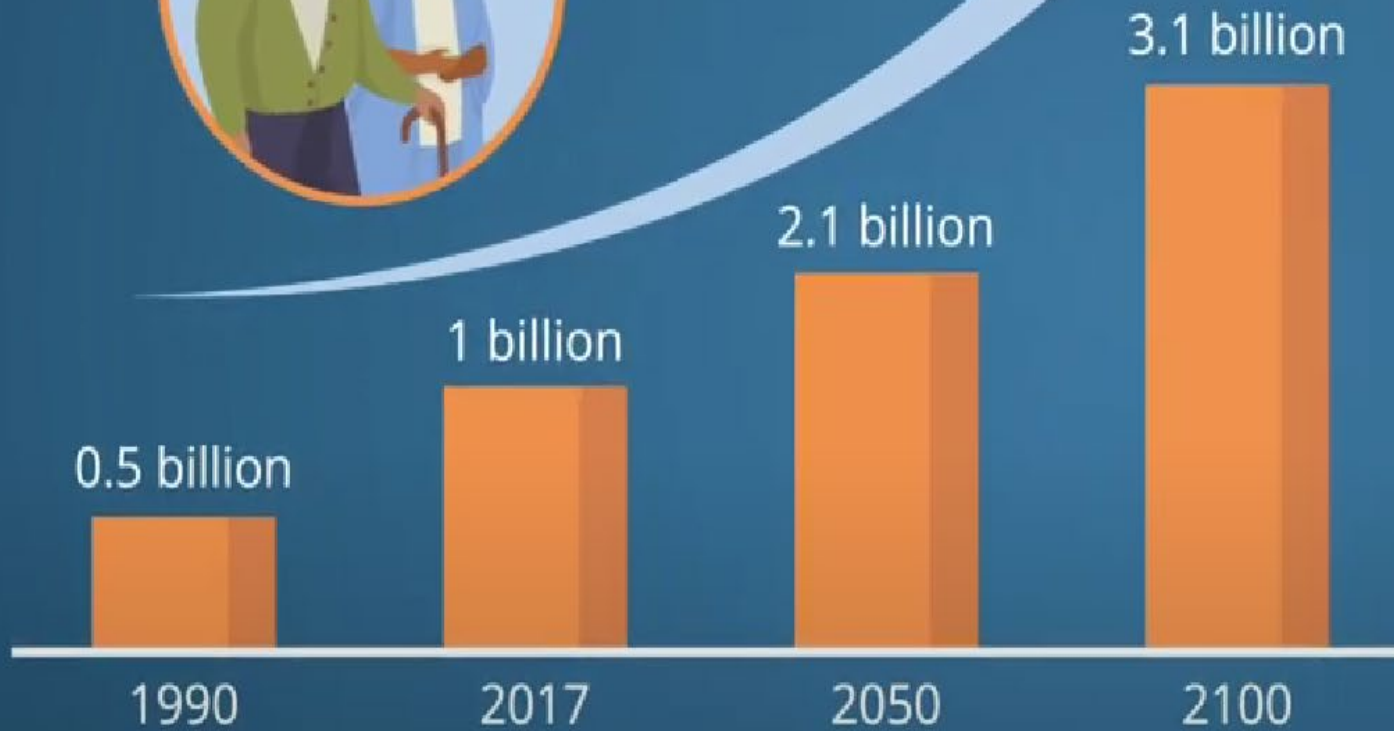


Biology of aging

People aged 60 and above



Success



Nearly 20% of the population in Africa

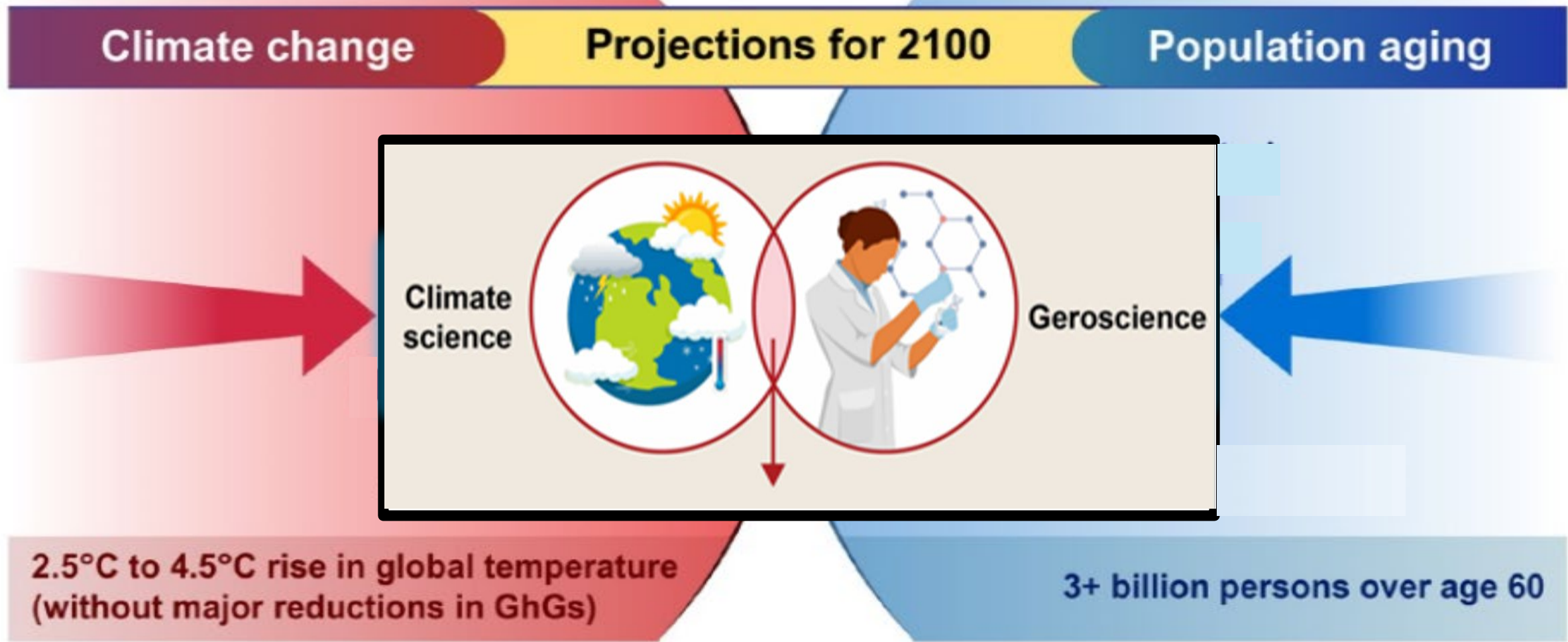
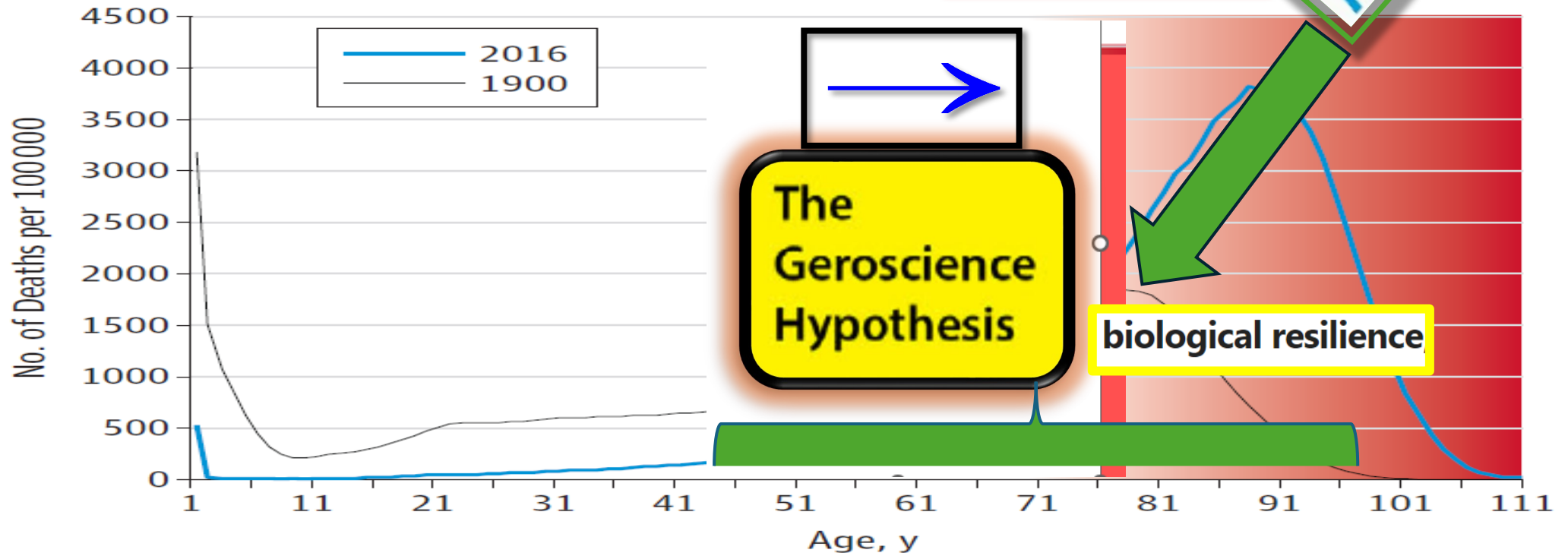


FIGURE 1 Climate Change in an Aging World.

SCIENTIFIC DISCOVERY AND THE FUTURE OF MEDICINE

From Lifespan to Healthspan

Figure. Age Distribution of Life Table Deaths in the United States, per 100 000 People, 1900



The red zone represents a period in life when the risk of frailty and disability begins to increase rapidly. The goal of aging science is to delay and compress the red zone, which may extend healthy life. Sources: 1900 data from Bell and Miller¹; 2016 data from Human Mortality Database.²



The War Against Disease

IMA

By C.-E. A. Winslow *The Atlantic* January 1903 Issue

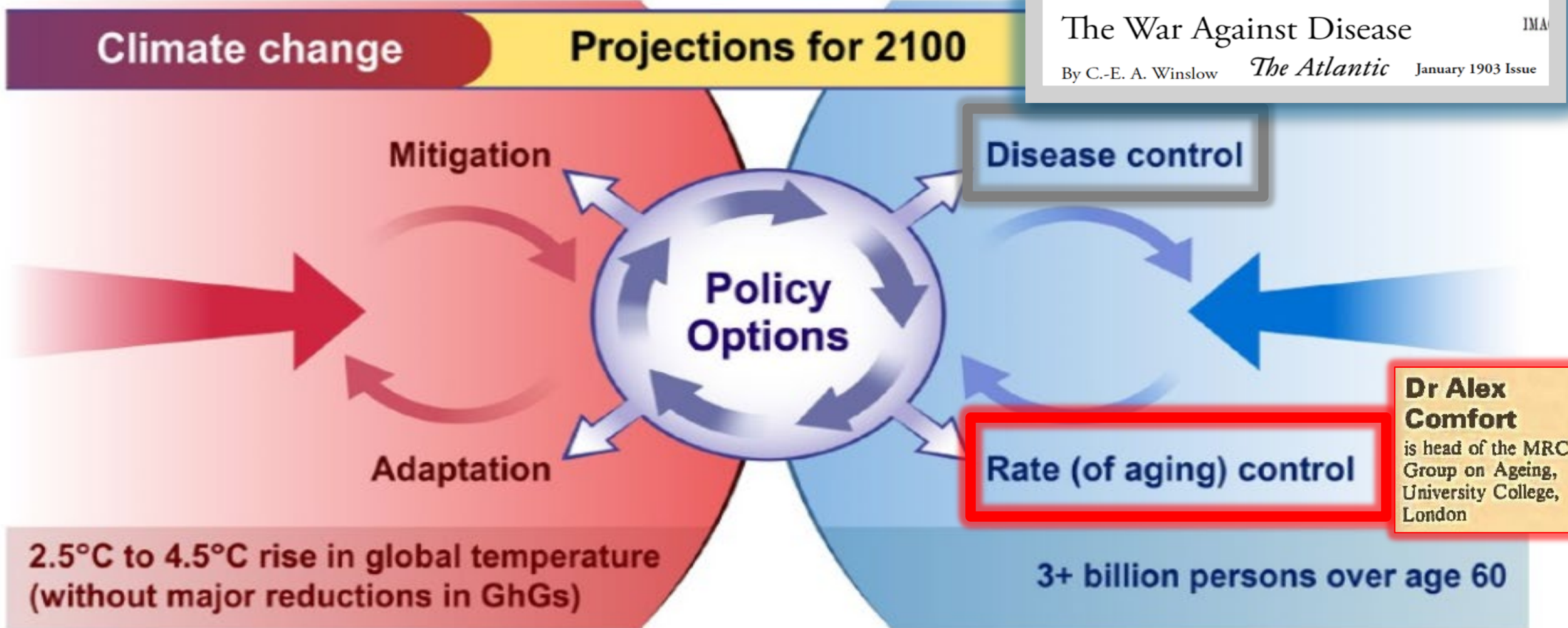
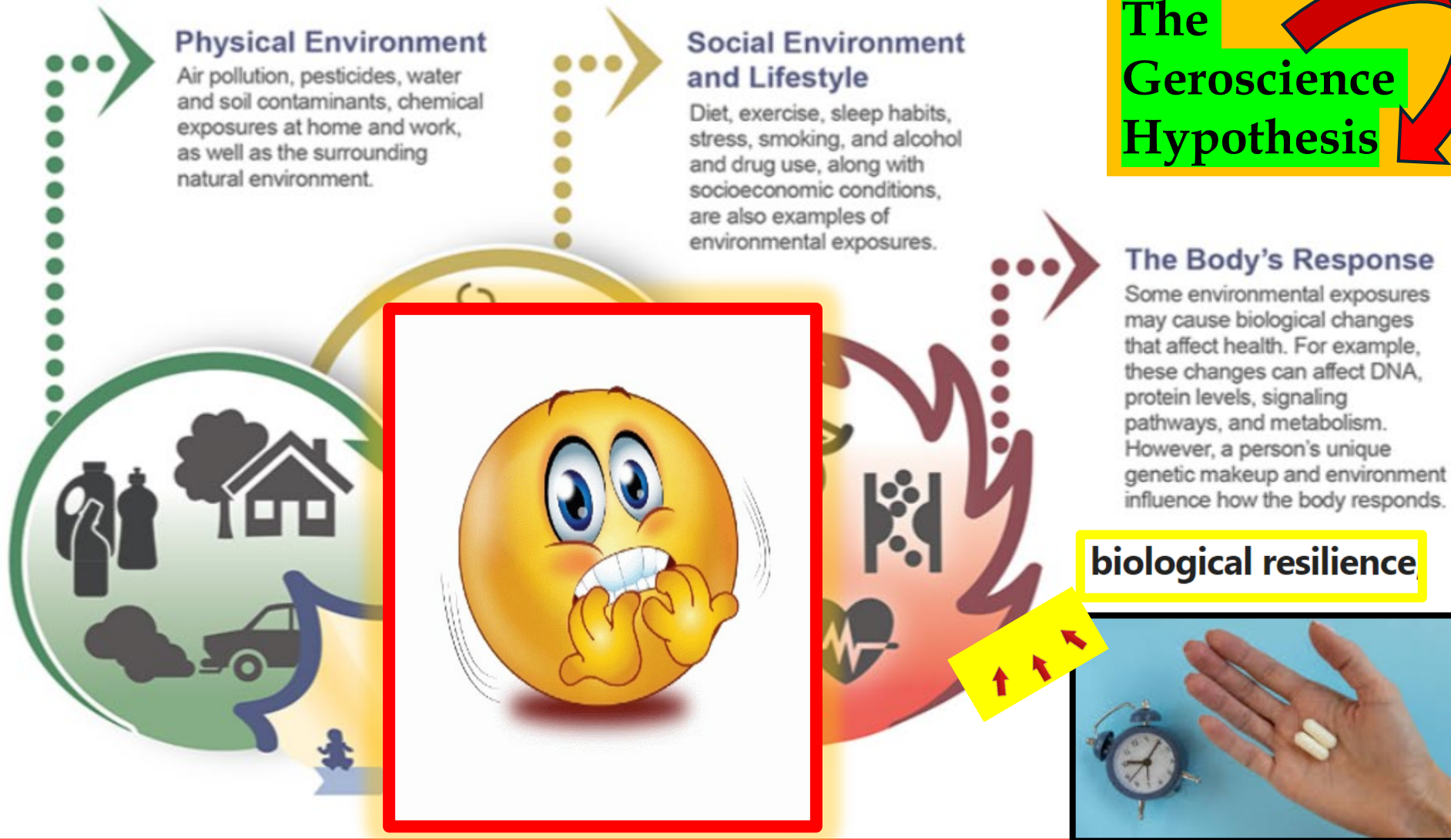


FIGURE 1 Climate Change in an Aging World.

Non-pharmacological strategies of improving the healthspan (and planetary health!)

Exposomics

Our environment — from the air we breathe, food we eat, and water we drink to the chemicals we ingest and stress we experience — influences health. Scientists strive to measure the exposome, which is the totality of these exposures and the body's response to them. The study of the exposome, called exposomics, will allow scientists to discover how exposure mixtures drive health and disease, so people can take steps to modify their individual exposures and improve their health.



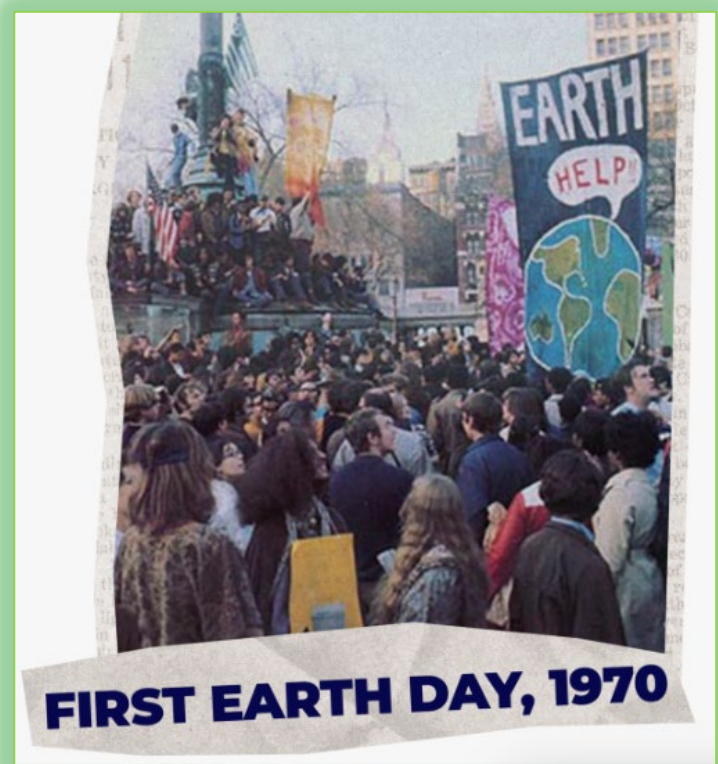


Framing climate change as a problem of intergenerational *conflict* *solidarity*!

> J Gerontol A Biol Sci Med Sci. 2014 Sep;69(9):1087-91. doi: 10.1093/gerona/glt159. Epub 2013 Oct 24.

Impact of climate change on elder health

Bruce A Carnes ¹, David Staats ², Bradley J Willcox ³



JOURNAL ARTICLE

Geriatric medicine in the era of climate change FREE

Bethan Davies ✉, Mahmood F Bhutta

Age and Ageing, Volume 51, Issue 1, January 2022, afab199,
<https://doi.org/10.1093/ageing/afab199>

Contents lists available at ScienceDirect



International Journal of Disaster Risk Reduction

journal homepage: www.elsevier.com/locate/ijdr

Review Article


Elder abuse and neglect in disasters: Types, prevalence and research gaps

Gloria M. Gutman ^{a,*}, Yongjie Yon ^b

Current Cardiology Reports (2022) 24:749–760
<https://doi.org/10.1007/s11886-022-01693-6>

GLOBAL CARDIOVASCULAR HEALTH (L SPERLING AND D GAITA, SECTION EDITORS)

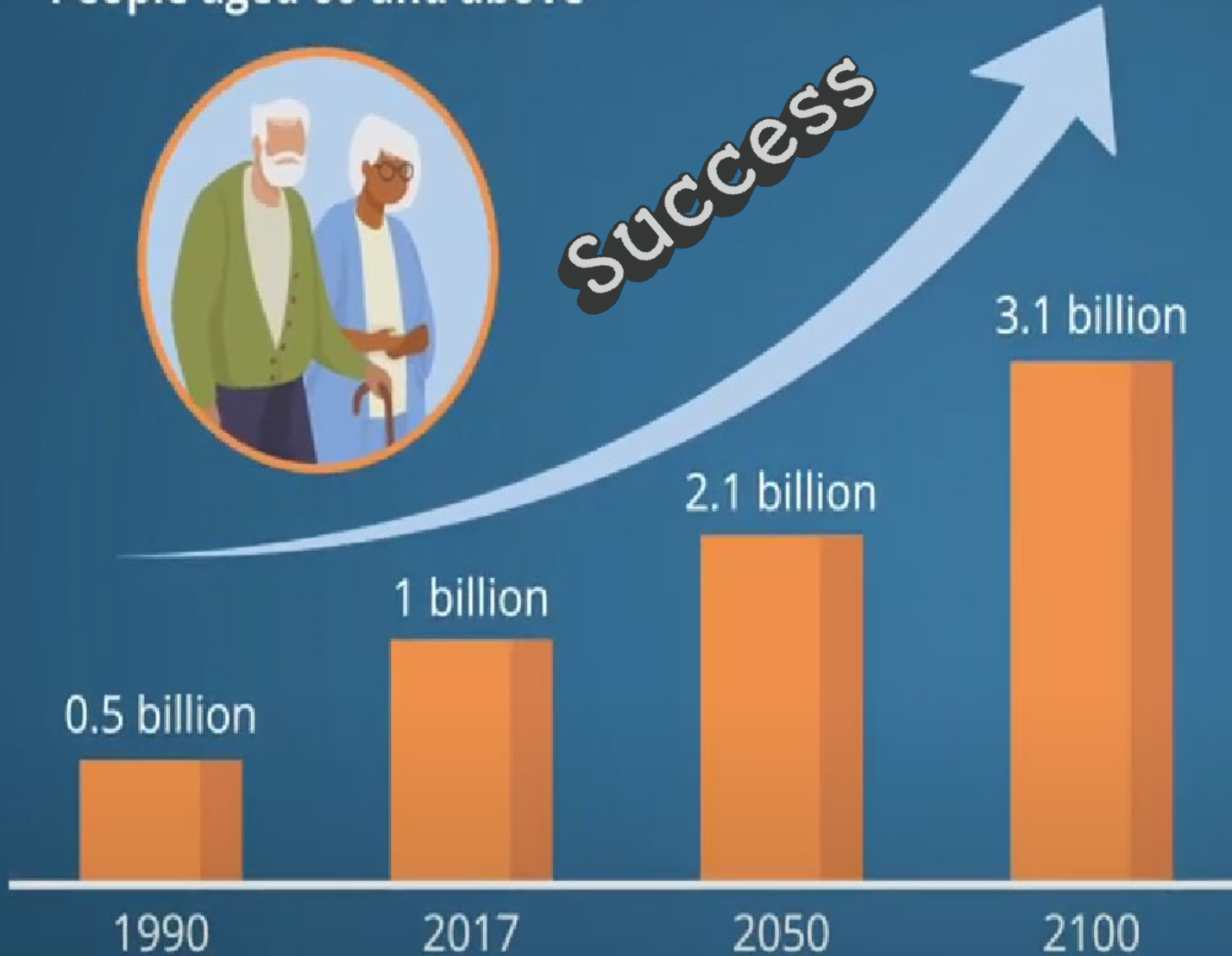
Ageing Hearts in a Hotter, More Turbulent World: The Impacts of Climate Change on the Cardiovascular Health of Older Adults

Andrew Y. Chang ^{1,2,3}  · Annabel X. Tan ¹ · Kari C. Nadeau ^{1,2,3,4} · Michelle C. Odden ^{1,3}

People aged 60 and above



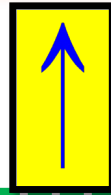
Success



Net Zero

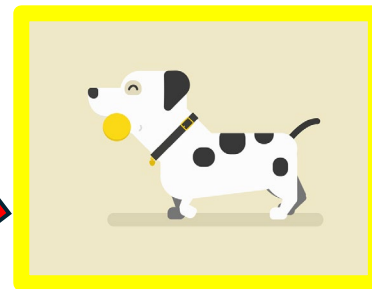
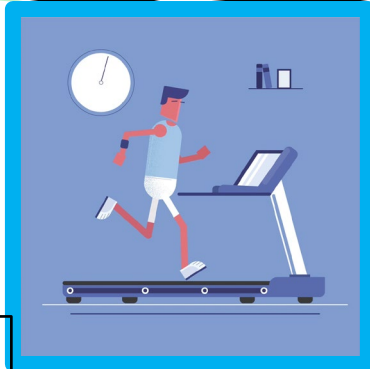
#ItsPossible

“sacred value”



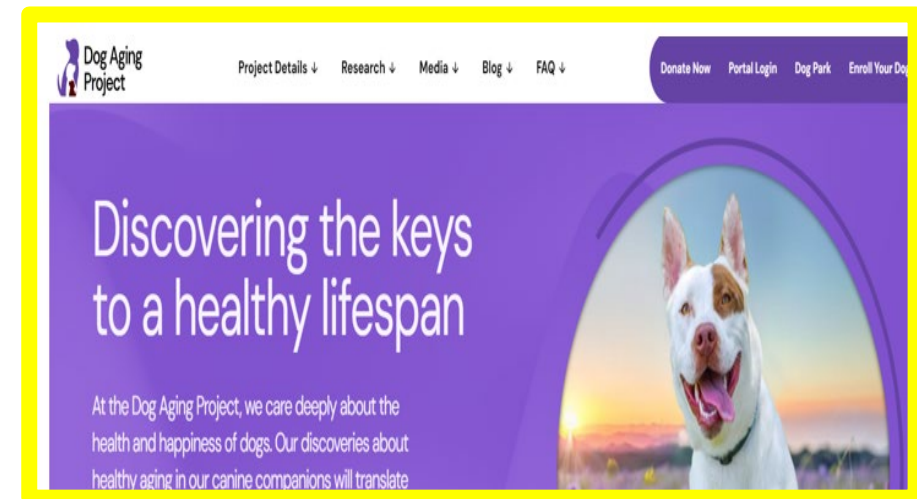
Don't pursue this end via *any means* (e.g. **forfeiting public health interventions that would extend (esp healthy) lifespan.**)

An ethos of planetary health stewardship



Healthcare systems are estimated to contribute 4.4% of global net carbon emissions

Rate (of aging) control



The Non-Ideal Scientific Enterprise



The Epistemic Ideal of 'Responsible Biology'



Scientists pursuing collaborative 'wisdom-inquiry' science