

American Geriatrics Society (AGS) Comments: National Institutes of Health (NIH) – Office of Science and Technology Policy (OSTP) Listening Session on the Advanced Research Projects Agency for Health (ARPA-H)

July 23, 2021

The American Geriatrics Society (AGS) appreciates the opportunity to provide feedback on the planning process of the Advanced Research Projects Agency for Health (ARPA-H). The AGS is a national non-profit organization comprised of nearly 6,000 geriatrics healthcare professionals and basic and clinical researchers dedicated to improving health, independence, and quality of life and ensuring older adults have access to high-quality care that is free of ageism, racism, sexism, and other forms of discrimination and bias.

We are appreciative of Dr. Richard Hodes and the National Institute on Aging (NIA) for their leadership in the national scientific effort to understand the nature of aging and to extend the healthy, active years of life. The NIA sponsors and conducts most federal aging-related research and applies scientific advancements to enhance the health, safety, and independence of older adults. The ongoing federal commitment to investments in science, research, and technology leads to cutting-edge discoveries in medicine and improved patient care and reduced costs.

The AGS supports President Biden's proposal to establish ARPA-H. Federal investments in research have led to discoveries that have contributed to increased lifespan and helped to delay the onset of chronic diseases (healthspan). Two notable successes include reductions in mortality and delayed onset for heart disease and cancer. Despite these advances in preventing and treating individual diseases, 68.4 percent of Medicare beneficiaries still live with two or more chronic conditions and 36.4 percent have four or more such conditions,¹ and often older adults experience changes in physical or cognitive function that affect their daily activities, independence, and ability to age in place in their communities.

To be successful, ARPA-H must address age as a shared risk factor for all diseases and infuse attention to the following key principles across the research that the proposed new agency funds:

- Fundamental aging mechanisms are root cause contributors to the conditions that drive the bulk of morbidity, mortality, and health expenditures across the lifespan.
- Aging begins at conception and fundamental aging processes can contribute to disabling conditions and chronic diseases, even in children.

¹ <http://dx.doi.org/10.5888/pcd10.120137>

In addition, ARPA-H must ensure that the research it supports is robust and equitable and includes: (1) individuals with coexisting chronic diseases; (2) inclusivity and representativeness with no upper age limits; (3) outcomes that are aligned with what matters to patients (e.g., maintaining independence, reducing pain and other symptoms, improving quality of life); and (4) aging as a shared risk factor for multiple chronic diseases in the study design. When medical evidence is generated from study populations that are not reflective of most of the people who need the care, we miss opportunities to learn how to optimize health and resilience and avoid suffering. Further, we see lack of attention to these issues in basic, clinical, and translational research as a significant barrier to commercialization and broad dissemination of new therapies and devices that are useful, safe, and effective for all of us to use as we age.

A strong partnership between the NIA and ARPA-H that is nimble and undeterred by possible failure would accelerate research in the two following areas:

- **Geroscience**, or the study of biological mechanisms that drive aging and disease, focuses on developing feasible, practical, and safe interventions to delay the onset of multiple chronic diseases and conditions, such as arthritis, cardiovascular disease, cancer, Alzheimer’s disease, and frailty. Interventions that slow aging processes have the potential to dramatically lower health care costs while significantly improving quality of life. Currently, there are at least eight classes of interventions that target fundamental aging processes, such as senolytic drugs, some of which delay, prevent, or alleviate over 40 conditions and diseases across the age range in animal models and are now or will be in early phase clinical trials. Slowing down the aging process by the same extent that dietary caloric restriction has demonstrated in animal models would have a greater impact on increasing longevity in humans than the complete elimination of all deaths from cancer, heart disease, stroke, and diabetes combined.²
- **Gerontechnology** is an intersection of technology and aging to find technological solutions that optimize and maximize independence in older adults. Multiple converging trends have driven an interest and need for work in this area including the rapid pace of technological development, growth of the aging population, increase in the numbers and survival of persons with disability, and increasing interest from business, industry, and government in addressing health care needs with technology. Technologies such as smartphones and watches, wearables, tablets, smart speakers, robots, and mobility devices can enhance communication, reduce isolation, improve physical activity and mobility, support cognition, improve access to healthcare, and assist with personal caregiving needs. These sorts of technologies also have the potential to identify digital phenotypes of disease and disability.

Gerontechnology uses a transdisciplinary team approach by integrating clinicians, engineers, computer scientists, and gerontologists with older adults and those who care for them. This approach maximizes the likelihood that the technology developed is useful,

² <https://doi.org/10.1111/1468-0009.00006>

effective, safe, and preserves privacy for a diversity of older adults, which is often not the case with existing technologies.

To be truly successful, AGS recommends additional investments in:

- The network capacity that is needed so that investigators from different institutions can work collaboratively using the same data. The additional advantage of this investment is that researchers from other institutions will also be able to conduct additional analyses on data generated by another institution.
- Developing the next generation of aging researchers with a focus on supporting geriatrics health professionals to embark on careers in aging research; developing geroscientists; and ensuring that all researchers have the training that is necessary for including complex older adults in research.

Thank you for the opportunity to submit these comments and participate in the public listening session. We see the proposed investment in ARPA-H as an inflection point in ensuring that research leads to innovations that support all of us as we age. Please do not hesitate to contact Anna Kim, akim@americangeriatrics.org, if we can provide any additional information or assistance.