



## Establish an Advanced Research Projects Agency for Health (HARPA)

Through the creation of a Health Advanced Research Projects Agency (HARPA), we have the opportunity to directly address the most urgent medical research challenges.

While there are more than 9,000 diseases that affect humans, there are treatments for only 500 of them, in spite of a \$52B annual NIH budget. If we are going to deliver on the promise of truly curing disease and improving lives, we need to develop highly targeted programs that leverage the successful basic science research programs run by other agencies like the NIH; focus on developing tools that enable vast improvements in healthcare and fill market failures; and de-risk innovation for private companies.

Since the United States declared “The War on Cancer” in 1971, there has been no improvement in the pancreatic cancer mortality rate. Ninety-one percent of pancreatic cancer patients die, the highest mortality rate of all major cancers. There are no reliable early detection tests and no curative treatments. Yet, the National Cancer Institute approaches pancreatic cancer research in much the same way it did decades ago: awarding small grants, spread out over many research institutions, over many years, with the same results. We need a bold new approach to federal scientific research where we measure effectiveness by lives saved, and we report tangible results to the American people.

In 1958, Defense Advanced Research Projects Agency (DARPA) was established with a national sense of urgency amidst one of the most dramatic moments in the history of the Cold War. Since its creation after the launch of Sputnik, DARPA has played a critical role in the development of a broad range of transformational technologies for the Department of Defense (DoD), including the Internet, stealth aircraft, GPS-based precision navigation, night vision, autonomous vehicles, speech recognition, and robotic prostheses. In fact, in the early 1990s, DARPA was the lead agency in the development of breakthrough imaging technology for breast cancer.

Even though the U.S. spends more than \$4.1T on healthcare annually, DARPA’s high-risk, high-reward approach has yet to be used to address critical problems and necessary capabilities for biomedical research and health.

HARPA’s objective would be to develop transformational tools and technologies that fundamentally change the way we approach medical research. The federal pancreatic cancer research model, for example, is broken and requires a bold new approach. Urgency and leadership are the cornerstones of DARPA’s effectiveness. DARPA’s success with breast cancer research in the 1990s demonstrates that alternative research models- within the government- work and save lives. DARPA “works within an innovation ecosystem that includes academic, corporate and governmental partners... to create new strategic opportunities.” Pancreatic cancer research needs a DARPA-like approach to yield results.

Potential opportunities are limitless, and could include:

- 1) Early diagnosis from a single drop of blood,
- 2) Harnessing advances in artificial intelligence to vastly reduce diagnostic errors from medical imaging, allowing doctors to catch diseases like pancreatic and lung cancer at the earliest stages,
- 3) Leveraging the immune system to fight chronic disease the way the body fights infections, transforming the lives of people living with chronic diseases like type 1 diabetes, multiple sclerosis, lupus, and arthritis.

The NIH funds basic science and clinical research. HARPA will leverage these and other federal research assets to build new capabilities for diseases that have not benefitted from the current system.

HARPA would enable a completely different approach to driving new capabilities in biomedical research.

# HARPA: Ecosystem

