ENDOCRINE SOCIETY
Hormone Science to Health

POSITION STATEMENT

BIOMEDICAL RESEARCH FUNDING

INTRODUCTION

A half century of sustained investment by the United States Federal Government in biomedical research has dramatically advanced the health and improved the lives of the American people. The National Institutes of Health (NIH) specifically has had a significant impact on the United States' global preeminence in research and fostered the development of a biomedical research enterprise that is unrivaled throughout the world. One example of the impact of NIH research is its work addressing Type 1 diabetes (T1D), which affects 1.6 million adults in the US. People with T1D cannot make insulin and must rely on external sources of insulin to survive. Monitoring insulin levels and when and how much to dose can be complicated for users, particularly children. To address this, NIH-funded researchers developed a device known as a "bionic pancreas", which uses next-generation technology to automatically deliver insulin to those with T1D.[1] Not only is the bionic pancreas more effective at maintaining blood glucose levels, it is also easier to use and leads to improved quality of life. This was made possible not only through funding of this particular project, but also through sizeable investments in basic research in the decades prior to establish the mechanism of how T1D leads to dysregulation of blood glucose levels. Despite many successes that have improved lifespan and quality of life, NIH funding is not keeping pace with inflation; its most recent appropriation is still only 0.6% above peak funding levels in Fiscal Year (FY) 2003.[2] Without adjusting for inflation or investing in real growth in the biomedical research enterprise, the opportunities to discover lifechanging cures and treatments for current and future public health crises will drastically decrease.

BACKGROUND

Federally funded biomedical research is supported through funding to NIH, National Science Foundation, United States Department of Agriculture, Department of Energy, National Aeronautics and Space Administration, Centers for Disease Control and Prevention, and Department of Veterans Affairs. However, the NIH is the leading and sometimes only source of funds for certain types of vitally important fundamental and translational research that is not performed in the private sector or other government agencies. Formed in 1887, the NIH comprises of 27 institutes and centers and annually invests more than $35 billion in medical research throughout the country.[2] More than 80% of the NIH's funding is awarded through over 55,000 competitive grants to more than 300,000 researchers at over 2,500 universities, medical schools, and other research institutions around the United States and throughout the world.[3]

The Congress has historically shown support for biomedical research by increasing the budgets of the agencies that fund such research. From 1998 to 2003, a commitment was made to double the budget of the NIH from $13.6 billion to $27.3 billion. This was followed by a period of stagnant growth for the agency. However, from FY 2016-FY 2023, the NIH has seen funding increases each year with bipartisan support, with the FY 2023 budget reaching $47.5 billion.[4] Investment in NIH-supported research has allowed the agency to fund a number of important clinical trials for chronic conditions, develop tests for earlier cancer detection, and conduct the Diabetes Prevention Program, among many other advancements. Additionally, the FY 2023 budget authorized the creation of a new Advanced Research Projects Agency for Health (ARPA-H) within NIH, charged with supporting the development of high-potential, high-impact biomedical and health research, with an initial budget of $5 billion.[4]

CONSIDERATIONS

Since the doubling of its budget, the NIH has typically received annual funding increases at or below the rate of biomedical inflation; the purchasing power of NIH funding initially peaked in FY 2003 and steadily declined for more than a decade until more substantial funding increases began in FY 2016. However, the FY 2022 purchasing power was still only 0.6% greater than the FY 2003 level.[4] As a result, the NIH budget is insufficient to fund much of the highly-meritorious research grants received from investigators and scored highly by study sections. While

2055 L Street NW
Suite 600
Washington, DC
20036

T. 202.971.3636
F. 202.736.9705

endocrine.org

[1] Bionic Pancreas Simplifies Management of Type 1 Diabetes. *NIH Research Matters, National Institutes of Health.* https://www.nih.gov/news-events/nih-research-matters/bionic-pancreas-simplifies-management-type-1-diabetes. Updated October 18, 2022. Accessed March 10, 2023.

[2] 2022 Update: NIH's Role in Sustaining the U.S. Economy. United for Medical Research. https://unitedformedicalresearch.org/annual-economic-report/. Updated in 2022. Accessed March 8, 2023.

[3] Overview of FY 2023 Executive Summary. Office of Budget, National Institutes of Health. https://officeofbudget.od.nih.gov/pdfs/FY23/br/Overview%20of%20FY%202023%20Executive%20Summary.pdf. Updated in 2022. Accessed March 8, 2023

[4] National Institutes of Health (NIH) Funding: FY 1996-FY 2023. Congressional Research Service. https://sgp.fas.org/crs/misc/R43341.pdf. Updated May 20, 2022. Accessed March 8, 2022.

the total number of awards funded by NIH has recovered due to increases in the NIH budget, success rates of being awarded a grant are close to the lowest they have ever been. At present, roughly one in five projects are supported.[5]

Not only does the low success rate affect the number of scientists who are able to continue their research and discover new treatments and cures, it also has a significant impact on the United States economy. To fully understand the importance of maintaining the real growth experienced during the doubling period, policymakers must first understand the positive impact that research programs have on the health and economy of the country.

Increased longevity and improved quality of life

Endocrine-related research funded by federal dollars has resulted in significant advances in the prevention and treatment of some of the nation's most prevalent diseases, at a fraction of the cost of simply managing these conditions. For instance, in post-menopausal women, NIH-funded studies have found that one of the best predictors of fracture is bone mineral density of the hip. This finding resulted in a better method for identifying those at risk for osteoporosis, which in turn prevents expensive and debilitating fractures that cost $17 billion annually in direct care.[6] Additionally, studies conducted by the NIH have found that with intensive lifestyle intervention, a patient's risk of getting type 2 diabetes can be reduced by 58%, and that the drug metformin can reduce the development of diabetes by 31%.[7] These interventions go a long way in improving quality of life for those living with diabetes and their associated health care costs; diabetes affects 11% of the entire US population, and $1 in every $4 in US health care costs is spent on caring for people with diabetes.[8] However, if funding levels for biomedical research do not even keep pace with inflation, many breakthroughs in medical care will never be realized.

Impact on the national, regional, and local economy

Biomedical research funds allocated by the federal government support basic, translational, and clinical research, ensuring that the discoveries made in the laboratory translate to realistic treatment options for patients suffering from debilitating and life-threatening diseases. In addition to improving quality and length of life, these advances in treatment also reduce the health care costs of our nation. As the population of the United States ages, the incidence of costly, chronic conditions such as diabetes, obesity, and cancer, will significantly increase. To save the country billions in healthcare costs, significant investment in biomedical research will be needed. In fact, studies on the effectiveness of investing in research yields significant savings on health care costs: for instance, treatments that delay or prevent diabetic retinopathy save the country $1.6 billion a year,[9] and prevention programs that reduce the risk of developing type 2 diabetes can result in a net savings to Medicare of $2 billion over 10 years.[10]

In addition to the impact that research has on spending on health care for the nation's population, research funding also has a significant impact on local economies by supporting the development of new, high-paying jobs. In Los Angles, for example, each dollar of taxpayer investment received by UCLA generates $21 in economic activity, resulting in a $16.6 billion impact on the region.[11] The jobs created by federal dollars spent on research affect not just those conducting the research, but also staff who care for laboratory animals, support grant submission at universities, and many others that directly or indirectly support the research enterprise. Without federal research funding, the revenue injected into local and regional economies would be lost, significantly impacting not only those individuals directly involved in research, but also affecting industries that depend on the downstream revenue.

Continued dominance in science and the global economy

As the amount of real dollars allocated to federal research funding remains flat or declines, so too do the opportunities for researchers. As a result, scientists are often forced to find other careers or move to other countries to continue their research, depleting the pool of talent that government agencies and pharmaceutical companies have to draw from. Without these scientists in our workforce, many medical breakthroughs will either never happen or will be realized and drive public health and economic activity outside of the United States.

[5] Success Rates: R01-Equivalent and Research Project Grants. *NIH Data Book*, *NIH Report*. https://report.nih.gov/nihdatabook/category/10. Updated in 2022. Accessed March 8, 2022.

[6] Tran O, Silverman S, Xu X, Bonafede M, Fox K, McDermott M, Gandra S. Long-term direct and indirect economic burden associated with osteoporotic fracture in US postmenopausal women. Osteoporos Int. 2021 Jun;32(6):1195-1205. doi: 10.1007/s00198-020-05769-3. Epub 2021 Jan 7. Erratum in: Osteoporos Int. 2022 Aug;33(8):1835. PMID: 33411007; PMCID: PMC8128807.

[7] About the National DPP. National Diabetes Prevention Program, Centers for Disease Control and Prevention. https://www.cdc.gov/diabetes/prevention/about.htm. Updated on December 27, 2022. Accessed March 8, 2023.

[8] American Diabetes Association. Economic costs of diabetes in the US in 2017. *Diabetes Care*. 2018;41(5):917–928.

[9] Medical Research: Saving Lives, Reducing the Cost of Health Care, Powering the Economy. Research!America. http://www.researchamerica.org/sites/default/files/uploads/EconomicFactSheet.pdf. Created November 9, 2012. Accessed May 11, 2017.

[10] Thorpe, K. and Z. Yang. Enrolling People with Prediabetes Ages 60-64 in a Proven Weight Loss Program Could Save Medicare $7 billion or More. *Health Affairs*. September 2011.

[11] Systemwide Economic, Fiscal, and Social Impact Analysis. The University of California. https://universityofcalifornia.edu/sites/default/files/economic-impact-report-2021.pdf. Updated January 2021. Accessed March 8, 2023.

A Research!America poll found that 58% of Americans feel that it is very important to maintain our position as a global leader in scientific research, and 61% say current spending on research to prevent, cure, and treat disease is not enough.[12] Cuts to research will disadvantage our scientific workforce, with negative downstream consequences for research and development in the United States. Policymakers must continue to ensure that funding is available to create opportunities for researchers, which will in turn keep the US at the forefront of biomedical breakthroughs globally.

POSITIONS

The Endocrine Society remains deeply concerned about the future of biomedical research in the United States without sustained support from the federal government. The Society strongly supports increased federal funding for biomedical research to provide the additional resources needed to enable American scientists to address the burgeoning scientific opportunities and maintain the country's status as the preeminent research enterprise. As such:

For FY 2024, the Endocrine Society recommends that the agencies that support biomedical research receive the following appropriations in order to recoup the losses caused by biomedical inflation, fund necessary new research programs, and build on the discoveries made during the doubling period:

- National Institutes of Health—at least $50.924 billion, not including additional funds for the Advanced Research Projects Agency for Health (ARPA-H)
- National Science Foundation—$15.7 billion
- Department of Energy's Office of Science—$9.5 billion
- Department of Veterans Affairs—$980 million for VA Medical and Prosthetics Research Program
- At least $700 million for United States Department of Agriculture (USDA) and Food Research Initiative (AFRI)