

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. As the world's largest supporter of biomedical research, the NIH competitively awards extramural grants and supports in-house research. However, because NIH funding has not caught up to 2008 levels when adjusted for inflation, the opportunities to discover life-changing cures and treatments 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 clinical and translational research that is not performed in the private sector or other government agencies. Formed in 1887, the NIH comprises 27 institutes and centers and annually invests more than \$40 billion in medical research. More than 80% of the NIH's funding is awarded through almost 50,000 competitive grants to more than 300,000 researchers at over 3,000 universities, medical schools, and other research institutions around the United States and throughout the world.¹

In the past, the Congress has shown bipartisan support for biomedical research by consistently increasing the budgets of the agencies that support 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, allowing 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.²

CONSIDERATIONS

Since the doubling of its budget, the NIH has received annual funding increases below the rate of biomedical inflation.³ As a result, the NIH budget is insufficient to fund highly-meritorious and necessary research. At present, less than one in five projects can be supported. Further analysis of the NIH budget shows that

- Excluding 2020, the NIH budget has not kept pace with inflation since 2001.
- While the total number of awards funded by NIH has recovered due to recent increases in the NIH budget, success rates remain at historically low averages.

Not only does the low number of grants 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. In order to fully understand the importance of maintaining the growth experienced during the doubling period, policymakers must first understand the positive impact that research programs have on the population 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, the Study of Osteoporotic Fractures found that for women, one of the best predictors of fracture is bone mineral density of the hip, resulting in a better method for identifying those at risk for osteoporosis and preventing costly and debilitating fractures that cost \$18 billion annually in direct care. 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%.⁴ However, if funding levels for biomedical research do not even keep pace with inflation, many of the breakthroughs in medical care that are on the horizon will not be realized.

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¹ Impact of NIH Research: Our Society. *National Institutes of Health*. <https://www.nih.gov/about-nih/what-we-do/impact-nih-research/our-society>. Updated May 26, 2016. Accessed May 11, 2017.

Impact of NIH Research: Our Knowledge. *National Institutes of Health*. <https://www.nih.gov/about-nih/what-we-do/impact-nih-research/our-knowledge>. Updated March 11, 2016. Accessed May 11, 2017.

² Diabetes Prevention Program (NIH Publication No. 09-5099). (2008.) U.S. Department of Health and Human Services, *National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases*. Retrieved from https://www.niddk.nih.gov/about-niddk/research-areas/diabetes/diabetes-prevention-program-dpp/Documents/DPP_508.pdf. Accessed May 9, 2017.

³ NIH Research Funding Trends. *Federation of American Societies for Experimental Biology*. <http://faseb.org/Science-Policy-and-Advocacy/Federal-Funding-Data/NIH-Research-Funding-Trends.aspx>. Accessed May 11, 2017.

⁴ Diabetes Prevention Program (NIH Publication No. 09-5099). (2008.) U.S. Department of Health and Human Services, *National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases*. Retrieved from https://www.niddk.nih.gov/about-niddk/research-areas/diabetes/diabetes-prevention-program-dpp/Documents/DPP_508.pdf. Accessed May 11, 2017.



POSITION STATEMENT

Impact on the national, regional, and local economy

Biomedical research funds allocated by the federal government support both basic and translational research, ensuring that the discoveries made in the laboratory become 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, and a large portion of the projected increase in health care costs will be due to the prevention and treatment of these diseases. To save the country billions in healthcare costs, significant investment in biomedical research will be needed. For instance, treatments that delay or prevent diabetic retinopathy save the country \$1.6 billion a year,⁵ and primary prevent programs that reduce the risk of developing type 2 diabetes can result in a net savings to Medicare of \$2 billion over 10 years.⁶

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. Two examples from California and Texas follow: for each dollar of taxpayer investment, UCLA generates almost \$15 in economic activity, resulting in a \$9.3 billion impact on the Los Angeles region, meanwhile, the estimated economic impact of Baylor University on the surrounding community in Houston is more than \$358 million, generating more than 3,300 jobs.⁷ 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 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.

A recent Research!America poll found that 64% of Americans feel that it is very important to maintain our position as a global leader in scientific research, and 76% believe that it is very important to create more career opportunities in science and research.⁸ 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 new and existing researchers.

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 in order to provide the additional resources needed to enable American scientists to address the burgeoning scientific opportunities and maintain the country's status of the preeminent research enterprise. As such:

- For FY 2021, 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 \$44.7 billion, representing a \$3 billion increase over the FY 2020 enacted level
 - National Science Foundation—\$9.4 billion
 - Department of Energy's Office of Science—\$7.4 billion
 - Department of Veterans Affairs—\$860 million for VA Medical and Prosthetics Research Program

⁵ 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.

⁶ 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.

⁷ National Institutes of Health State Funding Facts for FY 2016: California. *FASEB*. <http://faseb.org/viewer.aspx?type=statefactsheet&id=32&nocache=636301149385780676&Name=Value-of-NIH-Funding-in-California.pdf>. Accessed May 11, 2017.

National Institutes of Health State Funding Facts for FY 2016: Texas. *FASEB*. <http://faseb.org/viewer.aspx?type=statefactsheet&id=403&nocache=636301149388588877&Name=Value-of-NIH-Funding-in-Texas.pdf>. Accessed May 11, 2017.

⁸ America Speaks: Survey Data Reflecting the Views of Americans on Medical, Health, and Scientific Research. *Research!America*. http://www.researchamerica.org/sites/default/files/RA-PDS_Vol16_12_0.pdf. Accessed May 11, 2017.