NIH…
Turning Discovery Into Health

Our Society

NIH-supported advances lead to improvements in health that can bolster the economy, improve productivity, and reduce the costly burden of illness and disability in the U.S. and worldwide. NIH funding also spurs economic growth, both by supporting jobs in research and by generating biomedical innovations that are commercialized into new products.

The following sections describe some key ways that NIH-supported research contributes to our society:

NIH Funding Contributes Directly to Economies across the Country

- With a 2018 budget of $37 billion, NIH is the **largest single public funder of biomedical research** in the world. **Every state** and almost every Congressional district has earned a share of this investment.[1]
- In FY 2017, NIH extramural funding generated an estimated **$68.8 billion in economic output nationwide.**[2]
- In FY 2009 alone**, NIH funded 50,885 grants that directly supported 313,049 full- and part-time positions**, according to a recent, in-depth analysis conducted by NIH staff.[3]
- Discoveries arising from NIH-funded research provide a foundation for the U.S. biomedical industry, which contributed **$69 billion to our GDP**[4] and supported **7 million jobs**.[5]

NIH Research Drives Economic Growth

- NIH investments in research focused on a particular area stimulate increased private investment in the same area.[6] A $1.00 increase in public *basic* research stimulates an additional **$8.38 of industry R&D investment** after 8 years. A $1.00 increase in public *clinical* research stimulates an additional **$2.35 of industry R&D investment** after 3 years.[7]
- The NIH's Human Genome Project (HGP) has resulted in nearly **$1 trillion of economic growth**—a 178-fold return on investment—at a cost of only $2 per year for each U.S. resident.[8]
- NIH-funded basic research fuels the **entry of new drugs into the market** and provides a **positive return to public investment** of 43%, by some estimates.[9,10]
- NIH-supported research helped create the first cancer drug targeted at a family of molecules called kinases. This initial breakthrough launched a new wave of drug development, with drug companies creating dozens of other drugs targeting similar molecules to treat cancer and other diseases.[11]

Healthier Citizens Lead to a Healthier Economy

- Research-related gains in average life expectancy for the period from 1970 to 2000 have an economic value estimated at **$95 trillion**, about **$3.2 trillion per year**.[12]
- Cancer death rates have been dropping by more than 1.5% annually for the past 15 years.[13] Each 1% reduction in cancer deaths has a present value of nearly **$500 billion** to current and future generations of Americans. A full cure would be worth approximately **$50 trillion**—more than three times today's GDP.[14]
- Thanks to the development of cochlear implants, which resulted in part from NIH-supported research, children with severe hearing loss can regain the ability to perceive sounds and understand speech, saving them and their families the costs of specialized education and therapy, with more than 38,000 devices implanted in American children.[15] Studies have shown that early implantation **saves society more than $30,000 per child**.[16]
- The Hib vaccine, developed through NIH research to immunize young children against a bacteria that causes the most common form of childhood bacterial meningitis, is estimated to **save society more than $1.8 billion in direct treatment costs for children born in 2009 alone**.[17]
- The CDC estimates that for children born in 2009, childhood vaccinations (many of which resulted from NIH-funded research) will **save 42,000 lives, prevent 20 million cases of disease, reduce direct health care costs by $13.5 billion, and save $68.8 billion in indirect costs over their lifetimes**.[18]
- NIH-supported research has developed evidence-based, early childhood behavioral interventions that have **positive long-term effects on substance use and related behavioral health problems in adolescence and beyond, with savings ranging from $2.88 to as much as $25.92 per dollar invested.**[19]
- The knowledge gained from an NIH-funded clinical trial on postmenopausal hormone therapy was found to have long-term financial and health outcomes worth an estimated **$37.1 billion** in net economic gain since the study was published in 2002, a return of approximately **$140 on every dollar** invested in the trial.[20]

Contributing and Competing Globally

- The U.S. continues to be the **largest funder of biomedical research worldwide.**[21]
- The U.S. was the **largest R&D-performing country in 2016**, with total expenditures estimated at $510 billion.[22] China, Japan, and Germany round out the top 4 for their contributions to the global total for research and development.[23]
- The **U.S. produced 25.5% of the articles in the world's top 10% most-cited publications in 2016**, with the European Union publishing 32.25% and China publishing 14.01% of the publications in the world's top journals.[24]
- **U.S. research is becoming increasingly collaborative on a global scale:** 47.04% of U.S. publications were coauthored with institutions in other countries in 2016, compared with 26.85% in 2003.[25] In addition, U.S. publications in science and engineering are highly cited by researchers from other countries.
- However, relative to the major countries in North America, Europe, and Asia-Oceania, the U.S. demonstrated the **slowest medical research investment annual growth** from 2004 to 2011

(1%/year). China (16.9%), Australia (9.3%), Japan (6.8%), Canada (4.5%), Europe (4.1%), and other Asian countries (20.8%) are all increasing their annual investments at a faster pace.[26]

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