NIH…
Turning Discovery Into Health

Our Nation

NIH funding spurs economic growth, both by supporting jobs in research and by generating biomedical innovations that are commercialized into new products. NIH-supported innovations also cause improvements in health that can bolster the economy, improve productivity, and reduce illness and disability, both in the U.S. and worldwide. These factors work together to help keep the United States competitive in the global landscape of biomedical innovation.

The following represent some key ways in which NIH-supported innovations have contributed to strengthening our society:

NIH Funding Contributes Directly to Local Economies across the Country

- With a 2015 budget of $30.31 billion, NIH is the **largest public funder of biomedical research** in the world. **Every state** and almost every Congressional district has earned a share of this investment.[1]
- In 2012, NIH extramural funding generated an estimated **$57.8 billion in economic output nationwide.**[2]
- Discoveries arising from NIH-funded research provide a foundation for the U.S. biomedical industry, which contributed **$69 billion to our GDP** and supported **7 million jobs** in 2011.[3]

NIH Research Drives Economic Growth

- Multiple studies have found that NIH investments in a disease stimulate increased private investment in the same area.[4,5] 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.[5]
- 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.[6]
- 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.[7,8]
- Every dollar of NIH funding leads to an average of **$2.13 in lifetime pharmaceutical sales**, which does not include the economic benefits of improved health.[9]

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**.[10]
- Cancer death rates have been **dropping by more than 1% annually** for the past 15 years.[11] 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.[12]

- 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.[13]

Contributing and Competing Globally

- The U.S. continues to be the **largest funder of biomedical research worldwide.**[14]
- However, relative to the major countries in North America, Europe, and Asia-Oceania, the U.S. demonstrated the **slowest 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.[15]
- The U.S. still **leads the world in the number of biomedical research articles**, with 33% in 2009[16], but the U.S. share declined 3% from 2000 to 2009 while the number of articles published in China increased by 18.7% annually.[17]
- In 2007, **China overtook the U.S. as the world leader in the number of doctoral degrees** awarded in the natural sciences and engineering.[18]
- The 2014 Global R&D Funding Forecast projects modest growth in U.S. R&D investments through 2020, and indicates that, if current trends hold, **China will surpass the U.S. in total R&D spending by about 2022**.[19]

---

[1] NIH Office of Budget, FY16 Budget Justification. http://officeofbudget.od.nih.gov/pdfs/FY16/Overview%20(Volume%20I).pdf

[2] "The Impact of a Sequester on the National Institutes of Health and Implications for Jobs and the U.S. Economy" Dr. Everett Ehrlich, United for Medical Research, 2013. http://www.unitedformedicalresearch.com/wp-content/uploads/2013/02/UMR_Impact_of_Sequestration_2013.pdf

[3] "Profiles of Prosperity: How NIH-Supported Research Is Fueling Private Sector Growth and Innovation." United for Medical Research, 2013. http://www.unitedformedicalresearch.com/wp-content/uploads/2013/07/UMR_ProsperityReport_071913a.pdf

[4] Pierre Azoulay et al. "Public R&D Investments and Private-sector Patenting: Evidence from NIH Funding Rules" NBER working paper, 2015. http://www.nber.org/papers/w20889

[5] Andrew A. Toole. (2007) "Does Public Scientific Research Complement Private Investment in Research and Development in the Pharmaceutical Industry?" *Journal of Law and Economics*, vol. 50 http://sciencepolicy.colorado.edu/students/envs_5100/Toole2007.pdf

[6] "The Impact of Genomics on the U.S. Economy." Batelle Technology Partnership Practice, for United for Medical Research, 2013. http://www.battelle.org/docs/health-and-pharmaceutical/the-impact-of-genomics-on-the-u-s-economy-june-11-final.pdf?sfvrsn=0

[7] Andrew A. Toole. (2007) "Does Public Scientific Research Complement Private Investment in Research and Development in the Pharmaceutical Industry?" *Journal of Law and Economics*, vol. 50 http://sciencepolicy.colorado.edu/students/envs_5100/Toole2007.pdf

[8] Andrew A. Toole. (2012). The impact of public basic research on industrial innovation: Evidence from the pharmaceutical industry. *Research Policy*, *41*, pp. 1-12 http://www.sciencedirect.com/science/article/pii/S004873331100117X

[9] Pierre Azoulay et al. "Public R&D Investments and Private-sector Patenting: Evidence from NIH Funding Rules" NBER working paper, 2015. http://www.nber.org/papers/w20889

[10] Kevin M Murphy and Robert H Topel "The Value of Health and Longevity" U. Chicago and NBER, 2006. http://www.ucema.edu.ar/u/je49/capital_humano/Murphy_Topel_JPE.pdf

[11] Siegel, R. L., Miller, K. D. and Jemal, A. (2015), Cancer statistics, 2015. CA: A Cancer Journal for Clinicians, 65: 5–29 doi: 10.3322/caac.21254

[12] Kevin M Murphy and Robert H Topel "The Value of Health and Longevity" U. Chicago and NBER, 2006. http://www.ucema.edu.ar/u/je49/capital_humano/Murphy_Topel_JPE.pdf

[13] J.A. Roth et al. "Economic return from the Women's Health Initiative estrogen plus progestin clinical trial: a modeling study" Ann. Intern. Med. 2014. http://www.ncbi.nlm.nih.gov/pubmed/24798522

[14] Moses et al., "The Anatomy of Medical Research: US and International Comparisons" Journal of the American Medical Association, 2015. http://jama.jamanetwork.com/article.aspx?articleid=2089358

[15] ibid

[16] Moses et al., "The Anatomy of Medical Research: US and International Comparisons" Journal of the American Medical Association, 2015. http://jama.jamanetwork.com/article.aspx?articleid=2089358

[17] ibid

[18] "Science and Engineering Indicators 2014" National Science Foundation, February 2014. http://www.nsf.gov/statistics/seind14/index.cfm/chapter-2#s3

[19] "2014 Global R&D Funding Forecast" Battelle and R&D, December 2013. http://www.battelle.org/docs/tpp/2014_global_rd_funding_forecast.pdf