

2006 Investment in U.S. Health Research



Perhaps the most important health measurement in the U.S. today is our investment in research to improve health outcomes.

Unfortunately, just as Americans are facing emerging and increasingly complex health threats, our overall investment in research has leveled off. And although the United States is still leading the world in science and research, there are clear indicators that other countries are successfully emulating the American model of innovation, including advances in health. Seventy percent of Americans say the U.S. is losing its global competitive edge in science, technology and innovation according to a recent poll (see graph). In light of the looming challenges to our nation's pre-eminence in research, now is the time to accelerate investments.

Research!America has been tracking and analyzing the various streams of funding that make up the total U.S. investment in health research for about a decade, and trends tell us we are headed in the wrong direction. In 2006, we estimate that \$116 billion was spent on research to improve health. This amount is less than 6% of the \$2.1 trillion¹ spent on health in the United States.

To be more precise, a mere 5.5 cents of each American health dollar is invested in research to solve costly, chronic conditions such as obesity, heart disease, cancer, diabetes and Alzheimer's. The rest is spent primarily on insurance, delivery and care.

Health care spending in the U.S. has skyrocketed and now makes up 16% of our economy. This level of spending (~\$7,000 per person annually) on health would certainly seem worth it if the resulting health outcomes at least matched other industrialized nations who spend half as much. American citizens pay more for their health care than anyone else in the world, but they do not live as long or as well as many.

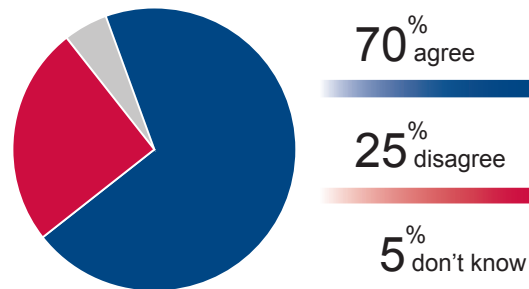
According to the Organisation for Economic Cooperation and Development or OECD, people in more than 20 countries including Korea, Greece and Mexico live longer on average than Americans. The U.S. has 47 million residents not covered by health insurance, two-thirds of Americans are overweight or obese and we are facing the retirement of the Baby Boomer generation who will draw in record numbers on Social Security and Medicare.

While U.S. investment in health research increased only 4.2% between 2005 and 2006, health spending increased 6.8% and it is expected to grow at a similar rate for at least the next decade.

Can we afford to spend less on research in the face of ever increasing health care costs?

U.S. Competitive Edge in Innovation

Do you agree or disagree with this statement?
The U.S. is losing its global competitive edge in science, technology and innovation.



SOURCE: Your Congress—Your Health Survey, 2007
Charlton Research Company for Research!America

We estimate the amount of money spent on research to improve health at \$116 billion. This amount is less than 6% of the \$2.1 trillion¹ spent on health in the United States in 2006.

\$ in millions

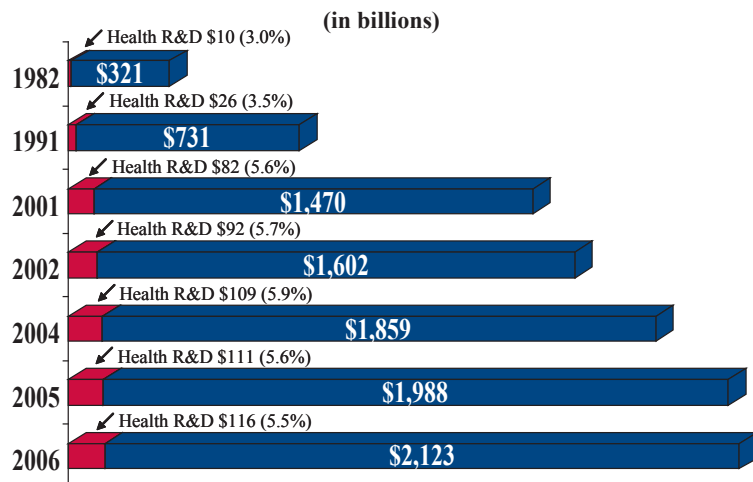
Total: Estimated U.S. Health Research Expenditures	116,079
Pharmaceutical Industry (Research and Development) ^{2,3,4}	36,959
Biotechnology Industry (Research and Development) ^{2,3,4}	18,241
Medical Technology Industry (Research and Development, 2004) ⁵	9,460
Subtotal: Industry	64,660
National Institutes of Health ⁶	28,516
National Science Foundation (Biological Sciences, Bioengineering, Chemistry, Math, Physics, Behavioral Sciences, Computer and Information Science and Engineering) ⁶	1,903
Department of Defense (Medical Research, Chemical and Biological Defense) ⁶	1,614
Department of Agriculture ⁶	1,159
Department of Energy (Biological and Environmental Research, Advanced Scientific Computing Research) ⁶	792
Department of Veterans Affairs (Medical and Prosthetic Research) ⁶	769
Centers for Disease Control and Prevention ⁶	546
Environmental Protection Agency (Clean Air, Clean Water, Health & Human Ecosystems, Pesticides & Toxics) ⁶	472
NASA (Human Research Program) ⁶	415
Department of Homeland Security (Chemical and Biological) ⁶	387
Agency for Healthcare Research and Quality ⁶	346
Department of Commerce (National Institute of Standards and Technology) ⁶	267
Department of the Interior (Biological Research) ⁶	180
U.S. Agency for International Development ⁷	152
Food and Drug Administration ⁶	148
Centers for Medicare and Medicaid Services ⁶	28
Health Resources and Services Administration ⁶	12
Subtotal: Federal Government	37,706
Universities (Institutional Funds, 2005) ⁸	8,258
State and Local Government Contributions (2005) ⁸	2,940
Independent Research Institutes (Institutional Funds) ⁹	915
Voluntary Health Associations ¹⁰	892
Philanthropic Foundations (2005) ¹¹	708
Subtotal: Other	13,713

Compiled by: Emily Connelly and Stacie Propst, PhD, Research!America (8/2007)

TRENDS in U.S. Investment in Health Research

Chart 1

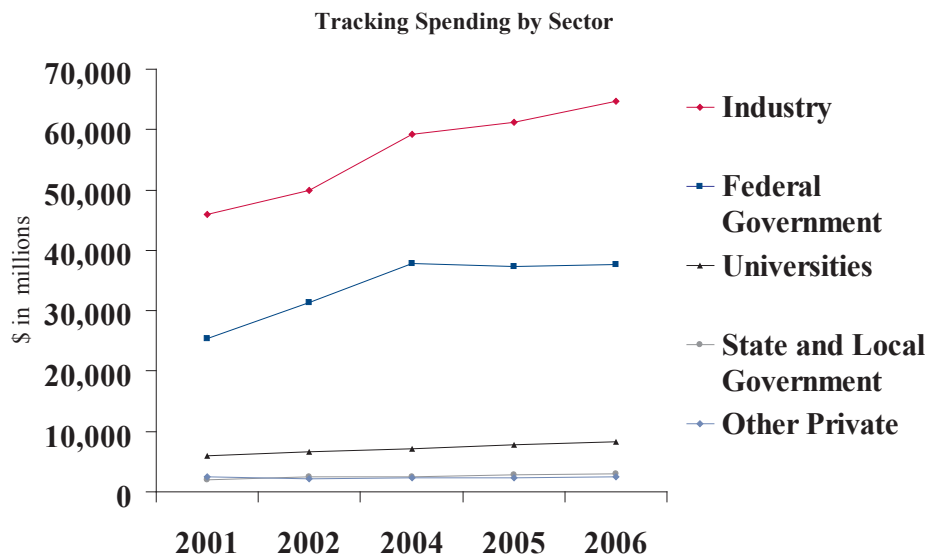
Health R&D as a Percentage of Total Health Costs



Sources: NIH Data Book
 Research!America, Investment in U.S. Health Research 2001, 2002, 2004, 2005, 2006
 Centers for Medicare and Medicaid, National Health Expenditure Amounts 2001-2016

Chart 2

U.S. Investment in Health R&D



Source: Research!America, Investment in U.S. Health Research 2001, 2002, 2004, 2005, 2006

Method and Rationale

The percentage of the health dollar that is spent on research was determined by compiling estimated annual expenditures for health research and dividing the sum by the U.S. national health expenditures for 2006 estimated by the Centers for Medicare & Medicaid Services. This is an upper limit estimate of the investment in research to improve health—a result of the desire to include all disciplines that contribute directly or indirectly to better human health. All research expenditures are for 2006 unless otherwise noted.

The Pharmaceutical Research and Manufacturers of America (PhRMA) reports a biopharmaceutical industry-wide research and development (R&D) figure of \$55.2 billion in 2006. The analysis was performed by Burrill & Company. PhRMA member companies invested \$43.0 billion, of which \$9.0 billion was spent abroad. Non-PhRMA member biotechnology firms invested \$12.2 billion. To accurately represent the R&D investment by each industry, the \$6.0 billion invested by PhRMA member biotechnology firms is included in the biotechnology estimate.

The medical technology industry investment in R&D was estimated in consultation with AdvaMed, the largest association representing manufacturers of medical devices, diagnostic products and medical information systems. The estimate is based on industry data from the U.S. Department of Commerce and Standard & Poor's Compustat.

The Department of Agriculture estimate is based on a consultation with the agency's Office of Budget and Program Analysis. The estimate includes R&D for Federal Grain Inspection, Animal and Plant Inspection Service and portions of the Agricultural Research Service and the Cooperative State Research, Education and Extension Service.

The National Institute of Standards and Technology estimate includes spending on Chemical Science and Technology, Physics, Materials Science and Engineering, Computer Science and Applied Math, Standards and Technology Services, Computer Support and the Advanced Technology Program.

University funds include all institutional funds spent on R&D in science and engineering and represent an upper limit estimate. These are discretionary, general purpose funds that the university has chosen to designate to R&D. When reporting institutional funds spent on R&D to the National Science Foundation, universities can include unrestricted funds from all outside resources, tuition and fees, endowment income, gifts, other institutional funds, as well as indirect costs for externally funded R&D projects.

The state and local government investment represents an estimate of all funds allocated to colleges and universities for R&D. Members of the Association of Independent Research Institutions (AIRI), which include the Howard Hughes Medical Institute, reported their sources of funding in 2006 to AIRI. Only funds from the institutions' endowments and "other" sources were included in this estimate. To see a list of the current AIRI members, visit <http://www.airi.org/general/members-list.htm>.

The Voluntary Health Associations' research funds were calculated from the financial statements of the VHAs that have the largest expenditures for research.

Data reported by the Foundation Center is based on grants of \$10,000 or more awarded by a national sample of 1,154 larger U.S. foundations. Only grants in the medical research category are reported in this estimate. The grants reported by the Foundation Center represent about half of the total grant dollars awarded by all U.S. independent, corporate, community and grantmaking operating foundations.

¹ Centers for Medicare and Medicaid Services (www.cms.hhs.gov/NationalHealthExpendData/downloads/proj2006.pdf)

² Pharmaceutical Research and Manufacturers of America, Pharmaceutical Industry Profile 2007 (www.phrma.org/files/Profile%202007.pdf)

³ Burrill & Company, *Biotech 2006*

⁴ 2006 annual reports of PhRMA member biotechnology companies

⁵ AdvaMed (www.advamed.org)

⁶ American Association for the Advancement of Science, *Research & Development FY 2008, 2007* (www.aaas.org)

⁷ United States Agency for International Development, *Health-Related Research and Development Activities at USAID, 2006* (pdf.usaid.gov/pdf_docs/PDACH111.pdf) and personal correspondence

⁸ National Science Foundation, *Industrial Funding of Academic R&D Rebounds in FY 2005*, January 2007

⁹ Association of Independent Research Institutes, Survey of Members 2006 (www.airi.org)

¹⁰ 2006 annual reports of selected Voluntary Health Associations

¹¹ The Foundation Center, *Distribution of Foundation Grants by Subject Categories*, circa 2005 (fdncenter.org)