

National Institutes of Health in the FY 2007 Budget

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HIGHLIGHTS

- **The National Institutes of Health (NIH) would have flat funding for the second year in a row in the proposed FY 2007 budget.** After falling for the first time since 1970 in 2006, the 2007 request would keep the NIH budget exactly even at \$28.6 billion (see Table II-9). All but three of NIH's institutes and centers (IC's) would see their budgets shrink for the second year in a row.
- **Only three NIH IC's would receive increases in the 2007 budget.** The National Institute of Allergy and Infectious Diseases (NIAID), home to NIH's biodefense effort, would increase slightly by 0.3 percent to \$4.4 billion, but would remain below the 2005 funding level. The Fogarty International Center would receive a 0.5 percent increase back to the 2005 funding level. But the Office of the Director (OD; up \$140 million or 26.6 percent) budget would increase dramatically because of increases for biodefense R&D and the NIH Roadmap for Biomedical Research.
- Nearly all other NIH IC's would see their budgets decline between 0.5 and 0.8 percent, after a similar cut in 2006 (see Table II-9).
- NIH R&D funding, 97 percent of the total NIH budget except for training and some overhead costs, would barely increase by \$5 million (0.0 percent) to \$27.8 billion (see Table II-9).
- **Because of these flat to declining budget trends, NIH projects that it will fund only 19 percent of all research project grants (RPG) applications in 2006 and 2007.** While the number of new grants would increase slightly in the 2007 budget, the total number of RPG's would continue to slide, as would the inflation-adjusted size of the average research grant (see Table II-10).

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- R&D in the other Department of Health and Human Services (HHS) agencies combined would fall 4.1 percent to \$1.3 billion (see Table II-8).

OVERVIEW OF THE FY 2007 NIH BUDGET

The National Institutes of Health (NIH) is the second-largest supporter of R&D in the federal government, after the Department of Defense. In its mission to promote biomedical research and other fundamental inquiries that may lead to medical advances, it is by far the largest federal supporter of basic research, applied research, and R&D at colleges and universities, and has a disproportionate impact on support for the biomedical life sciences and related fields. Because of its support of research that offers the hope of breakthrough advances in the treatment of disease, NIH has long been popular both in Congress and with presidential administrations of both parties, and benefits from strong support not only in the scientific community but also from an extensive network of disease-oriented patient advocacy groups.

The FY 2007 NIH request of \$28.6 billion would be exactly even with the 2006 budget, and would be down \$66 million from the 2005 budget (see Table II-9). Last year, the Bush Administration requested a slight increase for NIH, but Congress wound up appropriating the first cut in the NIH budget since 1970. There would be similar trends for NIH's R&D investments. NIH classifies 97 percent of its budget as R&D, including R&D facilities. (The remainder is for overhead costs and research training.) NIH R&D would total \$27.8 billion next year, again flat compared to 2006 and down from 2005. After a completed five-year doubling campaign involving 15 percent increases for each of the five years between 1998 and 2003, biomedical researchers hoped for a gradual easing into slower growth rates. But growth in the NIH budget slowed sharply to 3.2 percent in 2004, and slowed even further to 2.2 percent in 2005, and reversed in 2006. The 2007 budget would continue the downward trend. Within an overall domestic budget that would decline for the second year in a row, NIH would actually do better than most other discretionary health programs.

After several years of gains, 2007 would be the third year in a row that NIH would lag behind inflation in the economy as a whole, projected at 2.2 percent next year (see Figure 1). The 2007 NIH budget would be 5.3 percent below the 2004 peak after adjusting for inflation. But NIH would fall even further behind in its own calculations of biomedical research

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inflation. NIH calculates a Biomedical Research and Development Price Index (BRDPI), an index that attempts to calculate the inflation rate for goods and services purchased by the NIH budget. Recently, NIH projected the BRDPI increase for FY 2007 to be 3.8 percent, after a 4.1 percent increase in 2006. Using BRDPI, the 2007 budget would be nearly 11 percent less than the 2004 budget in biomedical inflation-adjusted terms. (AAAS and the federal government generally use the economy-wide GDP deflator to adjust R&D dollars for inflation.)

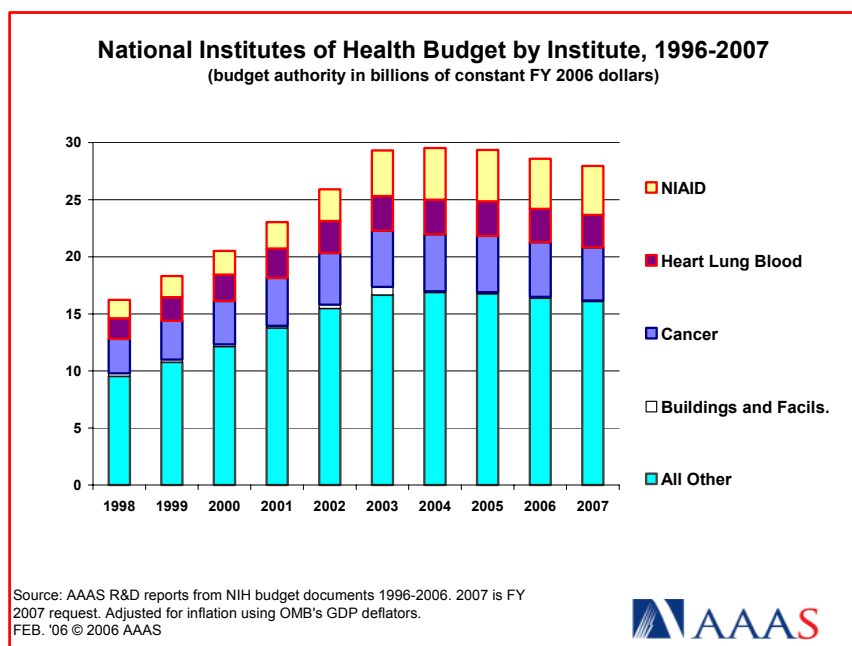


Figure 1.

NIH INSTITUTES IN THE FY 2007 BUDGET

The NIH budget is actually appropriated in 26 separate budget accounts, roughly corresponding to NIH's institutes and centers (IC's; see Table II-9). There are 20 institutes with separate budgets, along with four centers, an Office of the Director (OD), and a Buildings and Facilities account. There are three other centers that are not separately budgeted.

In the FY 2007 budget, all but three IC's would see their budgets decline for the second year in a row. Among the 20 independent institutes, only the National Institute of Allergy and Infectious Diseases

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(NIAID) would receive even a slight increase of 0.3 percent, but its budget would still remain below the 2005 level. The 19 other institutes would see their budgets decline between 0.2 and 0.8 percent for the second year in a row. The Fogarty International Center (FIC) would receive a slight 0.5 percent increase that would match an equally sized cut in 2006, while the three other centers' budgets would fall for the second year in a row.

Only the Office of the Director (OD) would see its budget increase significantly in 2007. The OD budget would climb \$140 million or 26.6 percent to \$668 million in 2007, after a similar increase in 2006. In both 2006 and 2007, the bulk of the increases would go to biodefense and other terrorism research. In 2006, OD takes over responsibility for a \$47.5 million radiological and nuclear countermeasures portfolio from the Office of the HHS Secretary, and a \$50 million biodefense countermeasures development fund from NIAID. The 2007 budget would add \$110 million in new funds for the Advanced Development fund for biodefense countermeasures, bringing total OD investment to \$160 million. The remaining \$29 million OD increase in 2007 would go to expand the NIH Roadmap for Medical Research (see below).

Because of stagnant and declining funding in recent budgets and the 2007 request, all NIH IC's, except the Office of the Director, have lost ground significantly in inflation-adjusted terms (see Figure 1). The largest institute, the National Cancer Institute (NCI), would see its budget decline 0.8 percent in 2007 down to \$4.8 billion. After factoring in (economy-wide) inflation, the NCI budget would be 6.8 percent below the 2004 funding level. The National Heart, Lung, and Blood Institute (NHLBI) would have 0.7 percent less than the current year for \$2.9 billion in 2007, a 6.4 percent inflation-adjusted loss compared to 2004. The other NIH institutes would see similar losses. (The losses would be even greater if calculated with the biomedical research BRDPI inflation index.)

NIH FUNDING MECHANISMS

The majority of NIH's budget is distributed to external performers through Research Project Grants (RPG's), which are investigator initiated, peer reviewed, and competitively awarded throughout the NIH budget (see Table II-10). NIH projects a decline in the number of RPG's for the third year in a row in 2007, down steadily from a high of 37,060

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in 2004 down to a projected 35,805 next year (see Figure 2). Because of a large number of existing RPG's ending in 2006, NIH expects to offer 9,337 new RPGs in 2007, up 275 from this year, but the trends are clearly downward from the more than 10,000 new grants awarded in both 2003 and 2004. (RPG's last 3.7 years on average, and nearly all are funded a year at a time in successive budgets.)

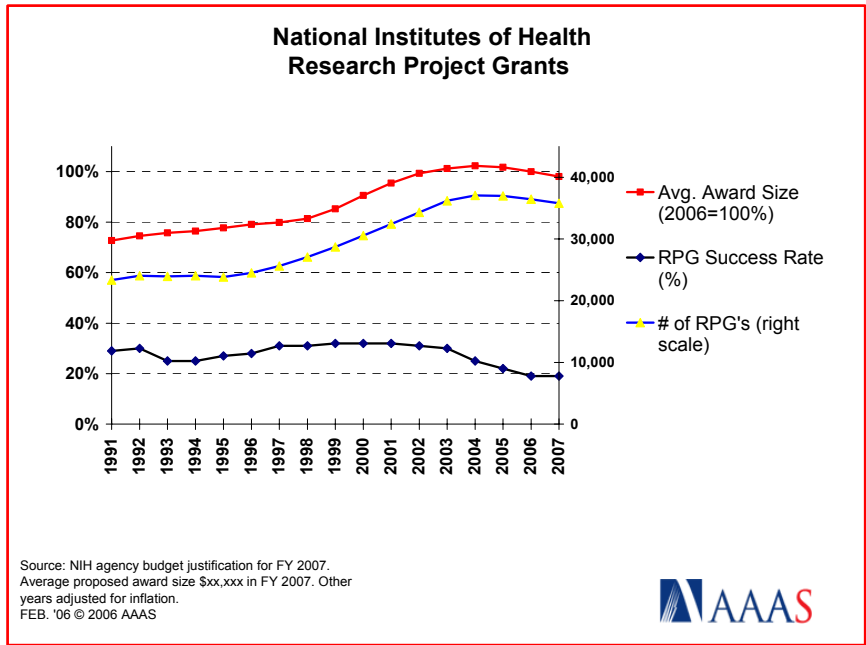


Figure 2.

Total funding for RPG's would be \$14.5 billion in 2007, down 1.6 percent after a slightly smaller cut in 2006 (see Table II-10). Tight budgets would force NIH to reduce the average size of both new and continuing grants. Although the average RPG would be a projected \$405,500 in 2007, up slightly from previous years, in real terms the average RPG would continue to lose ground to inflation (see Figure 2), and NIH warns researchers that they are unlikely to see any inflationary adjustments in 2006 and 2007 for the second or later years of their grants.

For new grantees in 2007, the picture looks bleaker. The average new RPG could fall to \$350,400 in 2007, the lowest since 2003. Although much of the fall would be due to unusually large HIV-related grants

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awarded in recent years transitioning to continuing status in 2007, the average new grant would continue to lag well behind inflation.

From funding an average of 1 out of 3 grant applications earlier in the decade, NIH now expects to fund fewer than 1 in 5 applications. **NIH projects a decline in the success rate for new grant applications for the sixth year in a row to 19 percent in 2006 and 2007, down steeply from a high of 32 percent in FY 2001** (see Figure 2) because recent surges in the number of applications have far outpaced the number of grants awarded. Although the number of RPG's increased from 25,000 in the early '90s to more than 35,000, the number of grant applications has increased so fast that the success rate is now well below the success rates of the NIH doubling period 1998-2003 when they exceeded 30 percent. Several NIH institutes would see success rates well below the 19 percent NIH-wide average. The largest National Cancer Institute, already facing a 20 percent success rate in 2005, projects a decline to 16 percent in the 2007 budget. The National Institute of Neurological Disorders and Stroke (NINDS), most recently at 22 percent in 2005, projects only a 15 percent success rate in the 2006 and 2007 grant competitions.

NIH also distributes about 10 percent of its budget through R&D contracts (see Table II-10). **Funding for R&D contracts would continue to increase, by 1.6 percent to \$2.7 billion in FY 2007.** R&D contract funding has grown dramatically over the last few years as biodefense research became a top priority in NIH, doubling to \$2.8 billion between FY 2001 (before the fall 2001 anthrax attacks) and FY 2004. Expanded contract awards for genetic research would keep this funding stream increasing in 2007.

NIH funding of research centers would also continue to grow in FY 2007, by 2.3 percent to \$2.8 billion, for support of 1,373 centers, down slightly from recent years. These multi-year multidisciplinary commitments of funds, mostly to universities, have grown in importance within the NIH budget over the past decade and would hit an all-time high of nearly 10 percent of the total NIH budget in FY 2007.

The institutes also operate an enormous federal research enterprise, mostly in Bethesda, MD. Intramural research would total \$2.8 billion in 2007, down 0.3 percent after a similarly sized increase in 2006, keeping the intramural portfolio at the historic level of roughly 10 percent of the NIH budget.

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NIH is heavily involved in research training of the next generation of biomedical researchers. Research training programs would receive \$760 million in FY 2007, down slightly from the current year (see Table II-10). Tight budgets would keep NIH at approximately 17,500 full-time training positions for another year. Stipends for predoctoral and postdoctoral trainees would stay flat, with no adjustments for inflation.

A new program to encourage new investigators would launch in FY 2007. Pathways to Independence, starting up with \$15 million, would provide up to 5 years of support for scientists just beginning their research careers. These awards, which combine research and training support, are designed to transition scientists from mentored research to independent research and would go partway to alleviating the great difficulty that new investigators have in winning their first full NIH grants. (The \$15 million in new funding would make up most of the \$21million increase in “Other Research” (see Table II-10).)

NIH PRIORITY AREAS

NIH continues to expand funding for clinical research, high-risk basic research, new research tools, and multidisciplinary collaborative research in the **NIH Roadmap for Biomedical Research**. The total roadmap, after increasing from \$240 million to \$329 million within a declining total NIH budget in 2006, would increase another \$113 million or 34.4 percent to \$443 million in 2007 (see Table II-10). The Roadmap would continue to be managed in the Office of the Director, and OD would provide the largest single contribution with \$111 million in 2007 (up 35 percent). The remaining Roadmap funds would come from a transfer of 1.2 percent of each IC’s budget (up from 0.9 percent in 2006), totaling \$332 million (up 34 percent). Various parts of the Roadmap are then parceled out for selected IC’s to administer.

Among the three large themes in the Roadmap, Research Teams of the Future, aimed at encouraging interdisciplinary research and high-risk basic research, would receive the largest increase to \$81 million (up 84.5 percent). The majority of this funding would go toward interdisciplinary research centers and interdisciplinary research training, with another large portion going to the NIH Director’s Pioneer Awards, five-year awards to individual investigators to encourage high-risk basic research. The goal of Re-engineering the Clinical Research Enterprise, focused on

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enhancing clinical research training and clinical research networks, would climb 54 percent to \$181 million. The New Pathways to Discovery theme would increase 8.1 percent to \$181 million for its diverse portfolio of programs, ranging from funding of molecular libraries to nanomedicine to computational biology, all centered on cutting-edge research to build biological databases and other research tools that could benefit all biomedical research.

Biodefense R&D continues to be the other expanding priority in the NIH portfolio. NIH would devote \$1.9 billion for biodefense R&D in FY 2007, up \$110 million or 6.2 percent from the current year. The entire \$110 million increase would go to the Advanced Development fund in the Office of the Director (OD). The fund, which OD inherited from NIAID in 2006 at a level of \$50 million, would increase to \$160 million to develop new biodefense countermeasures which could eventually wind up in the Strategic National Stockpile for use after a terrorist attack. The additional funds would go primarily toward vaccines and treatments for anthrax and smallpox. Of the remaining biodefense portfolio, all except a small construction investment would go to competitively awarded research grants and contracts, mostly from NIAID. In addition to the biodefense investment, NIH OD also requests \$96 million, the same as the current year, for an R&D program on radiological and nuclear countermeasures.

HIV/AIDS research continues to be another focus area in the budget. The HIV/AIDS R&D portfolio would decline slightly by 0.5 percent to \$2.9 billion. The majority (\$1.5 billion) of this research would be funded by NIAID, the lead institute for AIDS research. Included in the FY 2007 budget is \$100 million to be transferred to the **Global Fund to Fight HIV/AIDS, Malaria, and Tuberculosis** – an international public-private partnership to provide grants for the prevention, treatment, and cure of these diseases.

The emerging threat of pandemic flu also receives attention in the NIH budget, and would increase within a flat budget. The 2007 budget proposes \$199 million for pandemic influenza research, up \$35 million from the current year. The research would focus on developing and testing candidate vaccines and treatments, expanding clinical trials in Asia, and other studies.

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NIH would also start a new Genes, Environment, and Health initiative in 2007 with a \$68 million request to build on some 2006 exploratory studies. The initiative would examine the complex interplay of genetic and environmental factors in disease and would involve several IC's.

NIH PERFORMERS AND CHARACTER OF WORK

NIH distributes approximately 85 percent of its budget to extramural performers; approximately 10 percent to intramural research, mostly at NIH's Bethesda, Maryland, campus; and the remaining 5 percent to management, administration costs, and intramural facilities.

The majority of NIH's extramural support goes to colleges and universities; as a result, NIH is by far the largest federal supporter of R&D at colleges and universities with nearly two-thirds of the federal total. Because the federal government funds 58 percent of all R&D at colleges and universities, at most universities and colleges with medical schools NIH is the single largest funding source for R&D.

NIH classifies the majority of its budget as basic research, \$16.0 billion out of \$28.6 billion in FY 2007 (up 0.2 percent; see Table II-1). NIH is by far the largest federal supporter of basic research, and in FY 2007 would provide 57 percent of all federal support, a share that has been steadily increasing for decades. NIH is also the largest federal supporter of applied research, a proposed \$11.7 billion in FY 2007 (down 0.2 percent). Taken together, NIH would fund 51 percent of all federal basic and applied research in the 2007 budget.

NIH would fund \$114 million in R&D facilities and capital equipment in FY 2007, down slightly from the current year but less than half the \$297 million investment in 2005 and far below the \$1.1 billion investment in 2003, because a major effort to renovate and construct biodefense laboratories launched in the aftermath of the 2001 anthrax attacks is winding down. Much of this funding comes from the Buildings and Facilities account, which would remain at \$81 million; in 2003, this account was \$639 million because of large biodefense facilities construction projects. Most of these facilities are now nearing completion. The B&F appropriation funds intramural construction at NIH facilities, while in the NIAID budget there would be \$25 million for extramural biodefense construction grants to finish several laboratories around the country. The remaining \$8 million in facilities funding would

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come from the National Cancer Institute to renovate its laboratory facilities in Frederick, MD.

R&D IN OTHER HHS AGENCIES

Total R&D in the Department of Health and Human Services (HHS) would be \$29.1 billion in FY 2007, a slight cut of 0.2 percent after a similar cut in 2006 (see Table II-8). NIH dominates the HHS R&D portfolio, but the rest of HHS (excluding NIH) would fund a still-substantial \$1.3 billion in R&D in FY 2007, a cut of 4.1 percent. All HHS agencies including NIH would see their R&D funding remain flat or decline, consistent with an overall declining discretionary health budget.

OUTLOOK FOR THE NIH BUDGET

Although physical sciences research would be a high priority in the FY 2007 budget, biomedical research would share the fate of other domestic programs in tight budgetary conditions. Recent flat and declining budgets for NIH are a sharp contrast from the 15 percent annual increases during the NIH doubling period of 1998 to 2003. Looking to the future, the Bush Administration's outyear budget projections show that in the push to reduce the budget deficit in half over the next few years NIH will be one of the agencies slated to sacrifice. Although key physical sciences research agencies would see their R&D budgets increase in 2008 and beyond, the NIH budget is projected to fall in 2008, 2009, and 2010 before rebounding slightly in 2011, but only to \$27.9 billion, well below the current level. After adjusting for inflation, the NIH budget could fall a further 12 percent over the next five years. (See Chapter 4 for more on these outyear projections.) While Congress will try its best to boost the 2007 request when it begins the FY 2007 appropriations process in late spring, it is worth remembering that in a similar situation last year Congress ended up turning a small requested increase into a final cut.