

National Institutes of Health in the FY 2009 Budget

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HIGHLIGHTS

- **The National Institutes of Health (NIH) would receive exactly the same budget in 2009 as in 2008, a total of \$29.5 billion (up 0.0 percent). Most of NIH's institutes and centers (IC's) would see their budgets remain flat for the fifth year in a row, with no allowance for inflation.** NIH R&D would also remain flat at \$28.7 billion (down 0.0 percent; see Table II-9).
- **In 2009, there would be fewer new research grants, the real size of the average research grant would shrink for the fifth year in a row, and the success rate for grant competitions could fall to a new low of 18 percent.**
- After peaking in 2004, the NIH budget has declined every year in real terms, and if enacted the 2009 request would leave NIH funding 8 percent below 2004 after adjusting for economy-wide inflation and 13 percent below 2004 after adjusting for NIH's own calculations of biomedical research inflation.
- With the budget freeze, there would be few new initiatives. A rare growth area would be the NIH Common Fund (NIH Roadmap) in the Office of the Director with a \$534 million request (up 7.7 percent; see Table II-10).
- R&D in the other Department of Health and Human Services (HHS) agencies combined would rise 14.6 percent to \$1.3 billion because of a \$250 million request for biomedical countermeasures R&D for the Biomedical Advanced Research Development Authority (BARDA) in the Office of the Secretary, more than double the \$102 million 2008 allocation (see Table II-8).

OVERVIEW OF THE FY 2009 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.

The FY 2009 NIH budget of \$29.5 billion would be exactly the same as the recently finalized 2008 budget (see Table II-9). A year ago, the Bush Administration requested \$28.9 billion for 2008, but Congress added \$600 million to the request for a 1.1 percent increase over the previous year.

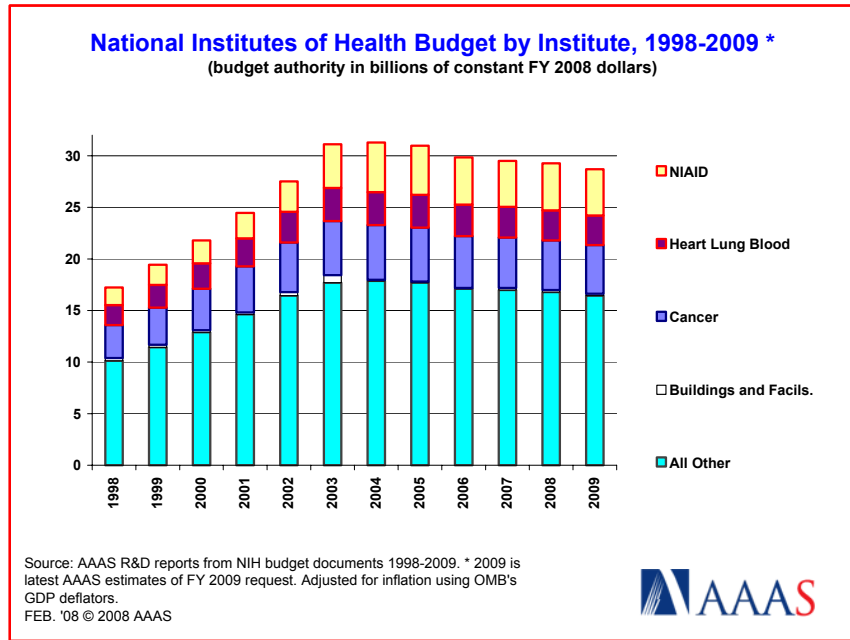


Figure 1.

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 \$28.7 billion next year, nearly even with 2008 (down \$10 million for a 0.0 percent cut). Recent budget trends of cuts or

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flat funding represent a sharp turnaround after a completed five-year doubling campaign involving 15 percent increases for each of the five years between 1998 and 2003 (see Figure 1). Growth in the NIH budget slowed sharply in 2004, and in inflation-adjusted terms NIH funding has declined since then. The 2009 budget would continue the downward trend for the fifth year in a row within a shrinking overall domestic budget.

NIH funding would lag well behind inflation in the economy as a whole, projected at 2.0 percent next year (see Figure 1). The 2009 NIH budget would be 7.7 percent below the 2004 peak after adjusting for inflation. But NIH would fall even further behind in its own calculations of biomedical research 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 2009 to be 3.5 percent, the same rate as 2008. In recent years, the BRDPI inflation rate has outpaced the economy-wide inflation rate by close to 2 percentage points a year. Using BRDPI, the 2009 budget would be 13 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.)

NIH INSTITUTES IN THE FY 2009 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 2009 budget, nearly all IC's would see their budgets remain flat for the fifth year in a row. Among the 20 independent institutes, none would see an increase greater than 0.5 percent, and nearly all would receive only \$1 or \$2 million more than the current year. 16 of the 20 institutes would have less money in 2009 than in 2005 even before inflation is factored in.

Among NIH's other accounts, only the National Center for Research Resources (NCRR) would see any increase, and even then just a modest 1.0 percent to \$1.2 billion (see Table II-9). The NCRR would invest

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\$452 million in Clinical Research, up \$12 million from 2008, with an emphasis on clinical and translational science awards and general clinical research centers.

Trans-NIH initiatives in the NIH Common Fund (or the NIH Roadmap for Medical Research), now centralized in the Office of the Director (OD), would climb \$38 million or 7.7 percent to \$534 million to become one of the few growth areas in the 2009 budget. OD funding of R&D on nuclear, radiological, and chemical countermeasures would be another, growing \$19 million to \$113 million. The overall OD budget would fall \$52 million or 4.7 percent to \$1.1 billion because the increases above would be more than offset by the proposed cancellation of the National Children's Study, which received \$111 million from Congress in 2008.

Because of stagnant and declining funding in recent budgets and the 2009 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 remain at \$4.8 billion in 2009, 11 percent below the 2004 funding level in real terms. The National Heart, Lung, and Blood Institute (NHLBI) would have \$2.9 billion in 2009, an 11 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. NIH projects a decline in the number of RPG's in 2008, from a high of 37,060 in 2004 down to a projected 36,516 next year (see Table II-10 and Figure 2). NIH expects to offer just 9,757 new (competing) RPG's in 2009, below the 10,000+ new grants awarded in 2003 and 2004. (RPG's last 3.8 years on average, and nearly all are funded a year at a time in successive budgets.)

Total funding for RPG's would be \$14.9 billion in 2009, down from both 2007 and 2008 (see Table II-10). RPG funding has declined steadily in real terms after peaking in 2004. Not only have RPG numbers declined, but the average RPG continues to lose ground to inflation (see Figure 2).

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In the 2009 budget, NIH once again warns researchers that they are unlikely to see any inflationary adjustments for the second or later years for their grants. In real terms, the average RPG of \$408,100 would be 9 percent smaller in 2009 than in 2004, and even smaller if adjusted for biomedical research inflation.

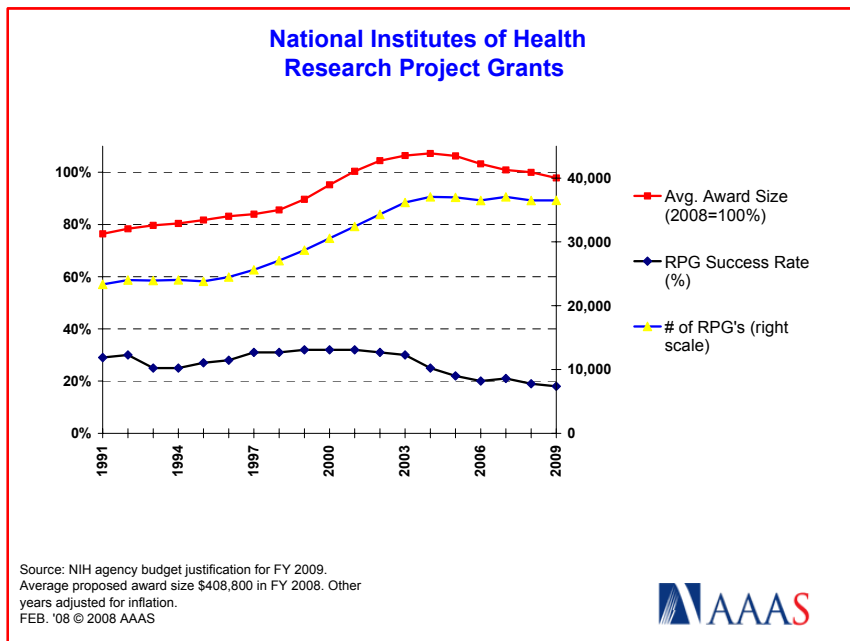


Figure 2.

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 the success rate for new grant applications will fall to 18 percent in 2009, down steeply and steadily 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 (see Figure 2), 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 18 percent NIH-wide average. The National Institute of Environmental Health Sciences (NEHS), most recently at 22 percent in 2006, projects only a 11 percent success rate in its 2009 grant competitions, while the National

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Institute of Child Health and Human Development (NICHD) expects only a 14 percent success rate next year.

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 1.0 percent to \$3.3 billion in FY 2009.** NIH funding of research centers would also continue to grow modestly in FY 2009, by 0.7 percent to \$3.0 billion, for support of 1,417 centers. These multi-year multidisciplinary commitments of funds, mostly to universities, have grown in importance over the past decade.

The institutes also operate an enormous federal research enterprise, mostly in Bethesda, MD. Intramural research would total \$3.1 billion in 2009, continuing the flat funding trends of recent years.

NIH is heavily involved in research training of the next generation of biomedical researchers. Research training programs would receive \$786 million in FY 2009, up slightly from the current year (see Table II-10). Tight budgets would keep NIH at approximately 17,600 full-time training positions. Stipends for predoctoral and postdoctoral trainees would increase slightly, though at far less than expected inflation.

A new program to encourage new investigators, launched last year, would expand in FY 2009. Pathways to Independence, started with \$15 million last year and increasing to \$71 million in 2009, 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. In FY 2009, some of the first cohort of these investigators should graduate to being funded by RPG's. Within OD, there would also be \$91 million (up slightly from \$90 million) for the NIH Director's Bridge Award, which provides 'bridge' funding to investigators without other support who may be between grants.

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 Common Fund, also known as the Roadmap for**

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Biomedical Research. Total roadmap funding increased from \$483 million in 2007 to \$496 million in 2008 and would increase a further \$38 million or 7.7 percent to \$534 million in 2009 (see Table II-10). The Roadmap started out with funding from all of NIH's IC's, but since 2007 funding has been centralized in the Office of the Director under the Common Fund.

Within the Roadmap, funding for Research Teams of the Future would fall again, by \$9 million down to \$142 million because of cuts in interdisciplinary training. Funding for the Director's Pioneer Awards, which are five-year awards to individual investigators to encourage high-risk basic research, would remain steady at \$36 million. The Director's New Innovator Awards, similar to the Pathway to Independence program in that it supports new investigators, would receive a flat \$56 million in 2009. The goal of Re-engineering the Clinical Research Enterprise, focused on enhancing clinical research training and clinical research networks, would decline \$13 million to \$103 million, mostly because total awards for Clinical and Translational Science would fall from \$90 million down to \$83 million, although similar funding in NCCR would increase. The New Pathways to Discovery theme would increase 5.6 percent to \$242 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. The big increases in 2009 would go genomics-related activities. There would also be \$47 million in new money for new Roadmap initiatives in new focus areas that have yet to be finalized.

Among other research areas, an area small in funding but large in policy interest is embryonic stem cell research. Since President Bush's announcement in August 2001 that NIH would fund human embryonic stem cell research only on stem cell lines that were created before that date and approved by NIH, there has been ongoing controversy over how the policy might limit progress on stem cell research. A bill to greatly expand stem cell lines eligible for federal funding has been vetoed twice by President Bush. In the meantime, NIH reports that its funding of human embryonic stem cell research using the pre-August 2001 approved stem cell lines is \$42 million this year.

R&D IN OTHER HHS AGENCIES

Total R&D in the Department of Health and Human Services (HHS) would be \$29.9 billion in FY 2009, a 0.5 percent increase (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 2009, an increase of \$167 million or 15 percent because of a substantial increase from \$102 million to \$250 million for biodefense countermeasures R&D funded by the relatively new Biomedical Advanced Research Development Authority (BARDA) in the Office of the Secretary. BARDA, which was officially created a little more than a year ago, works with the more research-oriented biodefense efforts in NIH to develop countermeasures against bioterror threats that could potentially be added to the Strategic National Stockpile for mass distribution in the event of a terrorist attack.

OUTLOOK FOR THE NIH BUDGET

As physical sciences research continues to be a focus in the 2009 budget through the American Competitiveness Initiative, biomedical research continues to be in the same boat as other domestic programs in tight budgetary conditions. Five years of falling budgets are a sharp contrast from the 15 percent annual increases during the NIH doubling period of 1998 to 2003. As the 2009 budget goes to Congress, the biomedical research community can take some comfort in the fact that the 110th Congress has given unexpected \$600 million boosts to NIH for two appropriations seasons in a row when wrapping up 2007 and 2008 appropriations. But in an overall domestic budget that is tightly constrained, Congress has been unable to offer more when faced with President Bush's resistance to higher domestic spending and his budget requests for HHS that routinely propose eliminations or deep cuts in other health care programs. Although Congress will try again to add billions in domestic spending to the 2009 appropriations bills, the President has promised to veto bills if they exceed his request, so unless Congress is more successful than the past two years in getting President Bush to accept more spending or unless Congress waits until January 2009 for a new president who may be more amenable to higher appropriations, NIH may once again find its budget falling further and further behind the increasing challenges and costs of biomedical research.