From the Desk of the NIH Director

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Investing in NIH is Ensuring a Healthier Future. Thank you for your comments to me and to the NIH staff after the first desk-to-desk this spring. As I have gone out to many of our constituency organizations, our advisory councils, and in talking to the public and the press over the past two months, I have felt that it is very important to share progress with you on a regular basis. Here are a just a few data-driven examples of return on investment in medical research:

- **What has an investment of only $2.60 per year for each American yielded?** This investment through the National Institute of Neurological Disorders and Stroke has seen **the death rates from stroke decline by over 70% in the last thirty years.**

- For an investment of approximately $3.70 per year in the National Heart, Lung, and Blood Institute research, **we have experienced a 63% decrease in mortality for coronary disease and, over thirty years, a $2.6 trillion** return.

- And for cancer research, the average investment in federal research per American has been approximately $8.60 per year over the past 30 years. The results?

- **For the first time in recorded history, annual cancer deaths in the United States have fallen.** And there are 10 million survivors, due, in part, to improved effectiveness of early detection and screening. Thanks to the doubling, new targeted, minimally invasive treatments for cancer multiplied, and new drugs were developed for cancer prevention.

- For the public investment in the research supported by the National Institute of Child Health and Human Development of $2.20 each year, the U.S. rate of mother-to-child transmission of HIV reduced from 27% to just above 1%, and there has been elimination of or reduction of several causes of mental retardation; **SIDS deaths reduced by more than 50% in 10 years** are among examples of progress from the NIH investment.

- Due to HIV/AIDS research, 30,000 U.S. deaths have been prevented each year since 1996 through an annual investment per American of $5 per year.

As I have gone out to talk with various groups, I have noticed that there are some myths which persist in the community. So, I want to describe to you the realities of the funding situation and discuss with you our

strategies to respond to challenging times.

Although, we flourished during the historic doubling between 1998 and 2003, now NIH has entered into what some are calling a “perfect storm.” Nationally, we have deep federal and trade deficits, rising expenditures for homeland security, unexpected economic and physical devastation from natural disasters like Hurricane Katrina, and, in order to protect the nation, preparations for pandemic flu. All of this has occurred in a time where the scientific community had ramped up its efforts to answer emerging needs, poised with talented teams and committing resources to continuing discovery. Understandably, many are deeply concerned about the implications of these trends.

The NIH budget growth has now decelerated to below inflation and in 2006 the NIH budget decreased slightly compared to 2005. Understandably, many are deeply concerned about the implications of these trends at a time when opportunities have never been better for progress on a broad front, and when so many scientific programs have positioned themselves to make extraordinary contributions, bringing together talented teams and committing resources to continuing discovery.

Across the board scientists are worried about their chances of being funded. We share these concerns. In these times of stress, it is critical to avoid myths and focus on realities so as to develop well informed adaptive strategies.

Myths vs. Realities

Some scientists believe that falling success rates for investigator initiated research project grants (RPGs) are due to a shift of resources away from basic science and towards large initiatives such as clinical trials or the NIH roadmap or a larger proportion of agency-driven requests for applications (RFAs).

The Realities.

Fact: The percentage of applied science was the same — in 1998 and in 2005 and basic science grew from 53.9 to 55.8%.

Fact: A temporary dip in relative basic science funding occurred in 2003 due to the large biodefense commitment for BSL 3 and 4 laboratory construction occurring that year and in 2004. In 2007, basic science grow to a level of 56.1% and applied science (which includes clinical trials) to a level of 40.8%.

Fact: In terms of dollars, there has not been a shift away from R01s and RPGs.

Fact: The proportion of R01s and RPGs issued through RFAs has not dramatically changed from 1995 to 2005. Both R01s and RPGs more than doubled in funding during this time period, and the RFA for these mechanisms grew at the same rate.

Fact: Investigator-initiated proposals remain the mainstay of RPGs. They represent 93% of all R01s and 84.4% of all RPGs as compared to 91% for R01s in 1995.

Fact: Because of the doubling of the budgets, more RFAs and PAs were launched, but as a proportion of the budget they have not increased but decreased since 1999.

Another Myth: Impact of Roadmap

The NIH Roadmap for Medical Research has also been implicated by some as draining resources from investigator-initiated research. The Roadmap is not a single large project but is both a framework and a dynamic process that was designed through extensive consultations with the scientific community. It enables the NIH to be more proactive and synergistic in addressing areas of emerging scientific needs that no single institute can provide but that benefit all of NIH.

Fact. The Roadmap consists of a multiplicity of **peer-reviewed projects led by over 308 individual investigators with 345 grants at 133 institutions in 33 states in 2005**. The science within the

Roadmap is very competitive with success rates below those of NIH as a whole.

Fact. The Roadmap portfolio is balanced with 40% of its funding going to basic research, 40% to clinical and translational research and 20% for interdisciplinary and high risk research that would be difficult to support otherwise.

Fact. The Roadmap currently represents about 1.2% of the NIH budget and will grow progressively to no more than 1.7% of the budget by 2009 and for the forseeable future.

Fact: In an era of rapid convergence in science, the Roadmap process has allowed NIH to support innovative, high risk research; incubate new ideas; stimulate transformative strategies in interdisciplinary research with the basic science of complex biological systems, and translational science.

Fact: The Roadmap responds to the need for NIH to develop better mechanisms of coordination and collaboration across institutes and their specific missions through a bottom up, regular, consultative process of evaluation of shared needs supported through shared resources that engages the entire research community. It has been very well received and supported by Congress as a clear demonstration of stewardship by all institutes and centers.

What Did the Doubling Get Us Anyway?

We made significant progress in aging, asthma, cancer, congenital heart defects, diabetes, genes/environment and disease, health information, reduction of infant deaths, modeling influenza, expanded capacity to address international health, treatment for mental disorders, new genetic techniques to address neurological disease, development of non-invasive diagnostics, new steps in protein structure for drug development, and improved prevention and treatment of stroke, just to name a few.

The progress is too vast to include in this kind of forum, but you can read about these developments and others at a new site I have asked to be created — “Research Results for the Public” http://www.nih.gov/about/researchresultsforthepublic/index.htm. This site will continue to grow as each institute and center adds examples from its portfolio in order to help the public and our advocacy and constituency organizations have access to the facts about progress and the facts about funding. Our new site also gives access to additional resources. We hope you will bookmark it for new stories of discovery and updated information about NIH-supported research.

Again, I invite you to share any comments you have with me, directly, at zerhounidirect@nih.gov.

Thank you for your interest in NIH and our more than 200,000 NIH-supported individuals working to improve the health of our nation at more than 3,000 institutions across all 50 states.

Our next issue will be dedicated to peer review.

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For information about NIH programs, useful health information, and additional resources, see the NIH web site at www.nih.gov. An archive of the Director's Newsletter is available at http://www.nih.gov/about/director/newsletter/archive.htm.

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