

NIH at the Crossroads: Strategies for the Future

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NIH Budget Facing a “Perfect Storm” in 2006



- Federal & Trade Deficits
- Defense and Homeland Security needs
- Katrina
- Pandemic flu
- Post- Doubling effects
- Physical Sciences focus
- Biomedical research inflation- 3 to 5%

Competition for funds from the NIH and other sponsors, intensifying year by year, now stands at an unprecedented level, and shows no sign of abating. Never before have so many established investigators faced so much uncertainty about their longevity as active scientists. Never before have so many novices faced so many disincentives to entering or continuing a research career.

Dr. William F. Raub, NIH Associate Director for Research and Training, strategy paper, **1982**





What Is Really Happening?

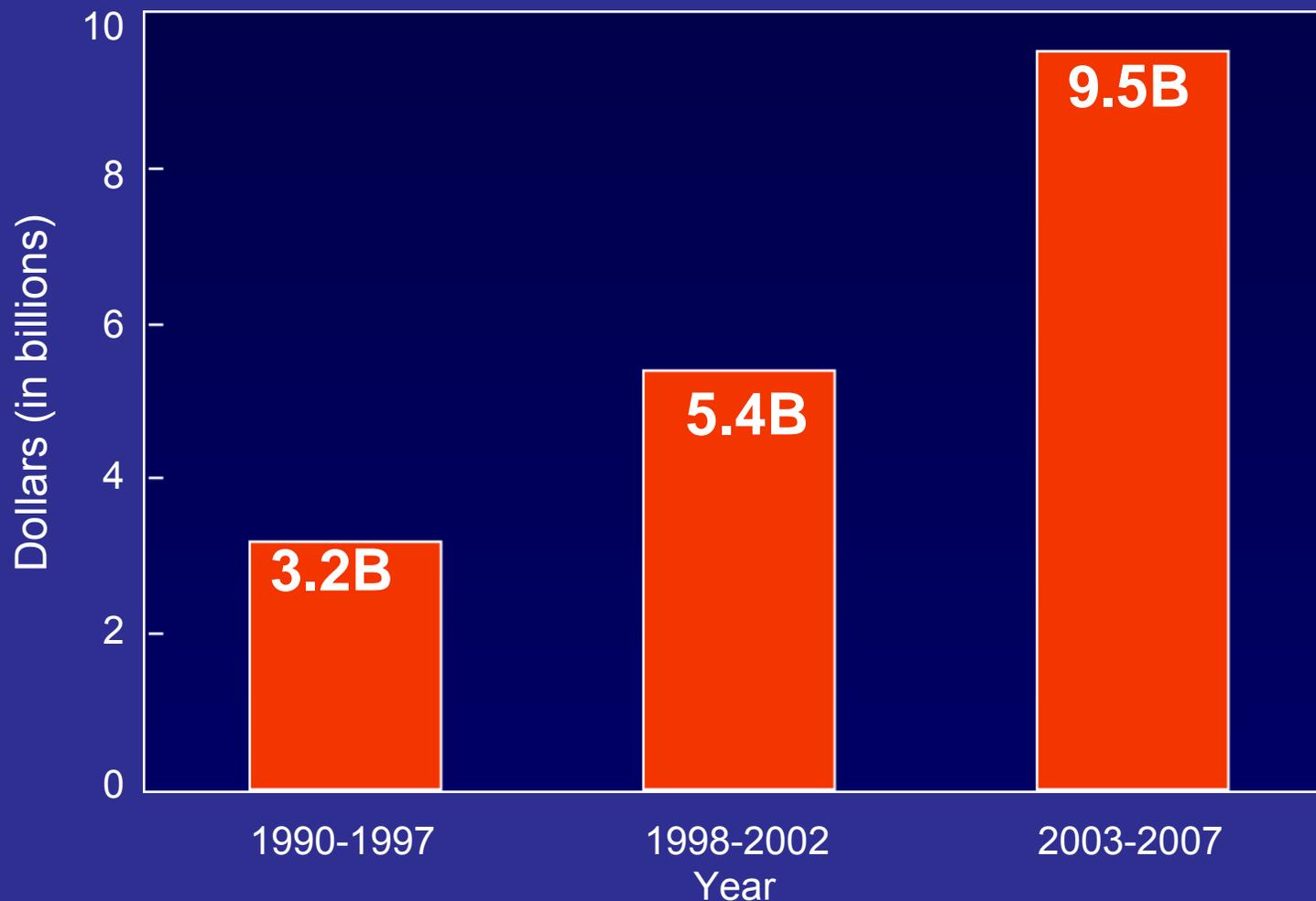
3 Fundamental Drivers

- Large capacity building throughout U.S. research institutions and increase in number of new faculty
- Appropriations below inflation after 2003
 - Increases of 3 % in '04, 2% in '05 and 0% in 06
 - Biomedical Inflation in 2004 was ~ 5%
- Budget cycling phenomenon





Investment in Research Facilities at U.S. Medical Schools



AAMC – Survey of Research Facility Investments (99 of 125 AAMC Member Schools)

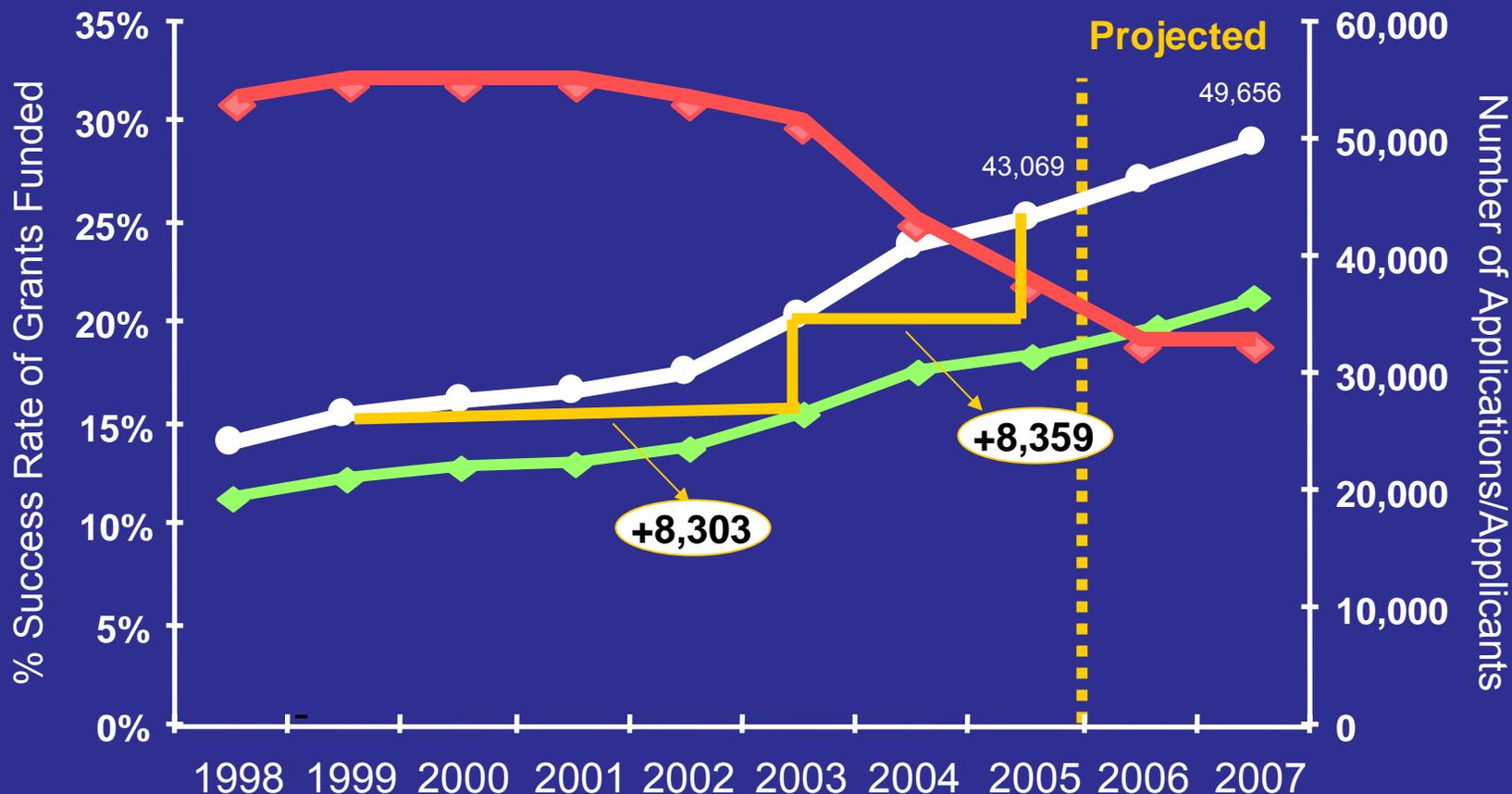
* Data Based on AAMC Faculty Roster





New Grant Applications, Applicants and Success Rates

During and After Doubling Period



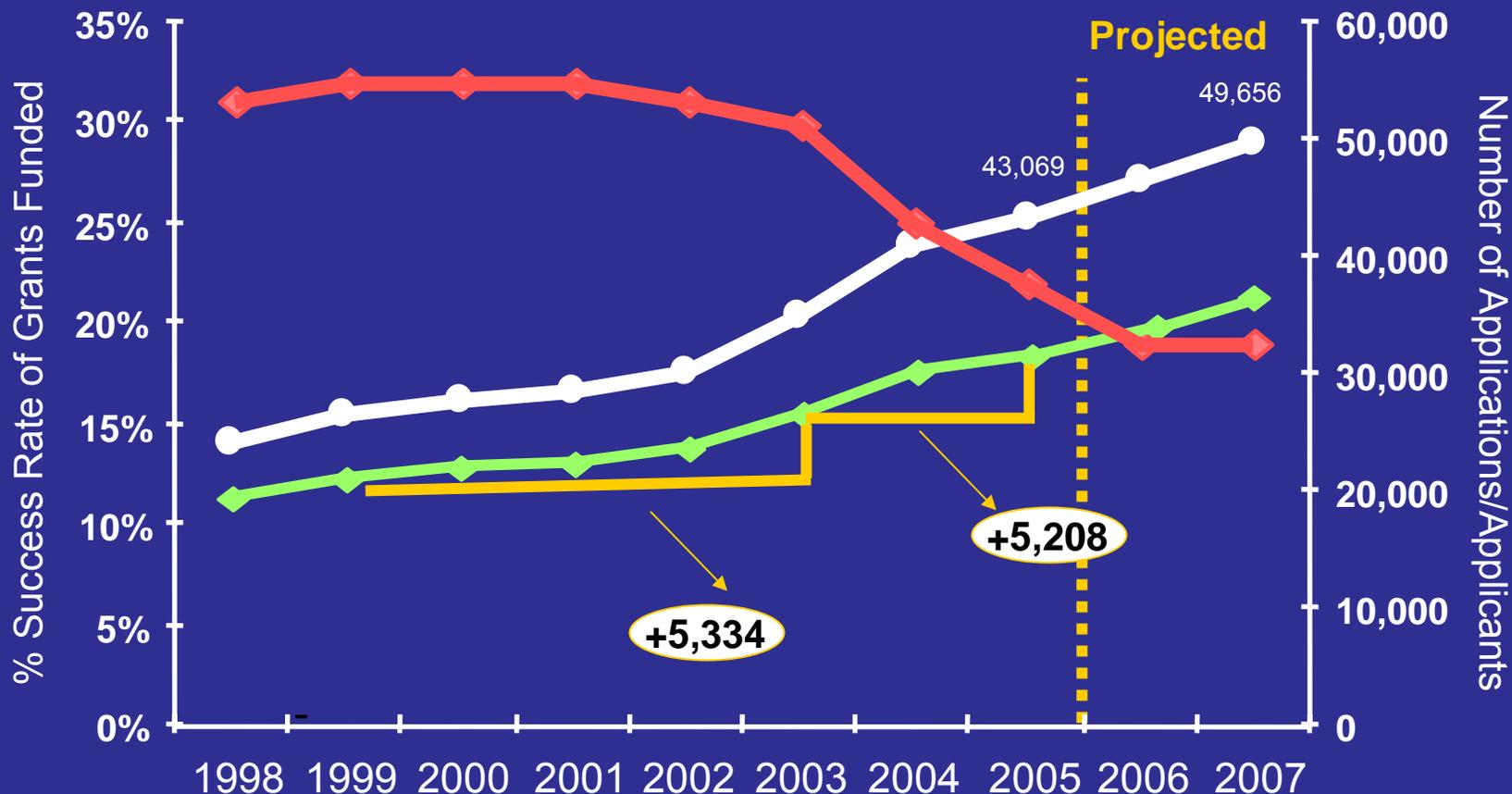
—◆— Success Rates —●— Applications —◆— Applicants





New Grant Applications, Applicants and Success Rates

During and After Doubling Period



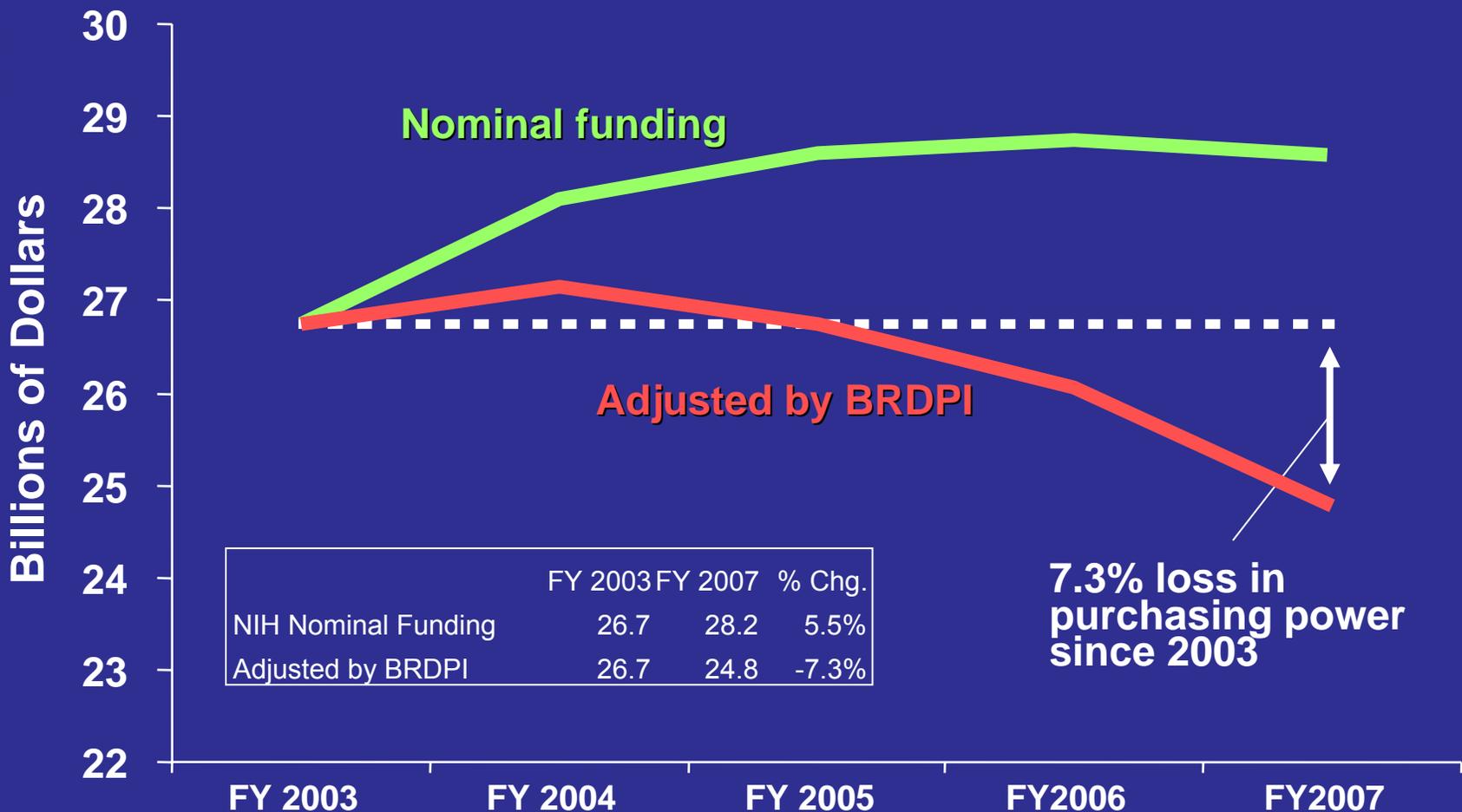
—◆— Success Rates —●— Applications —◆— Applicants





Inflation Eroded Gains in NIH Funding

Real and Nominal NIH Funding Levels Since 2003

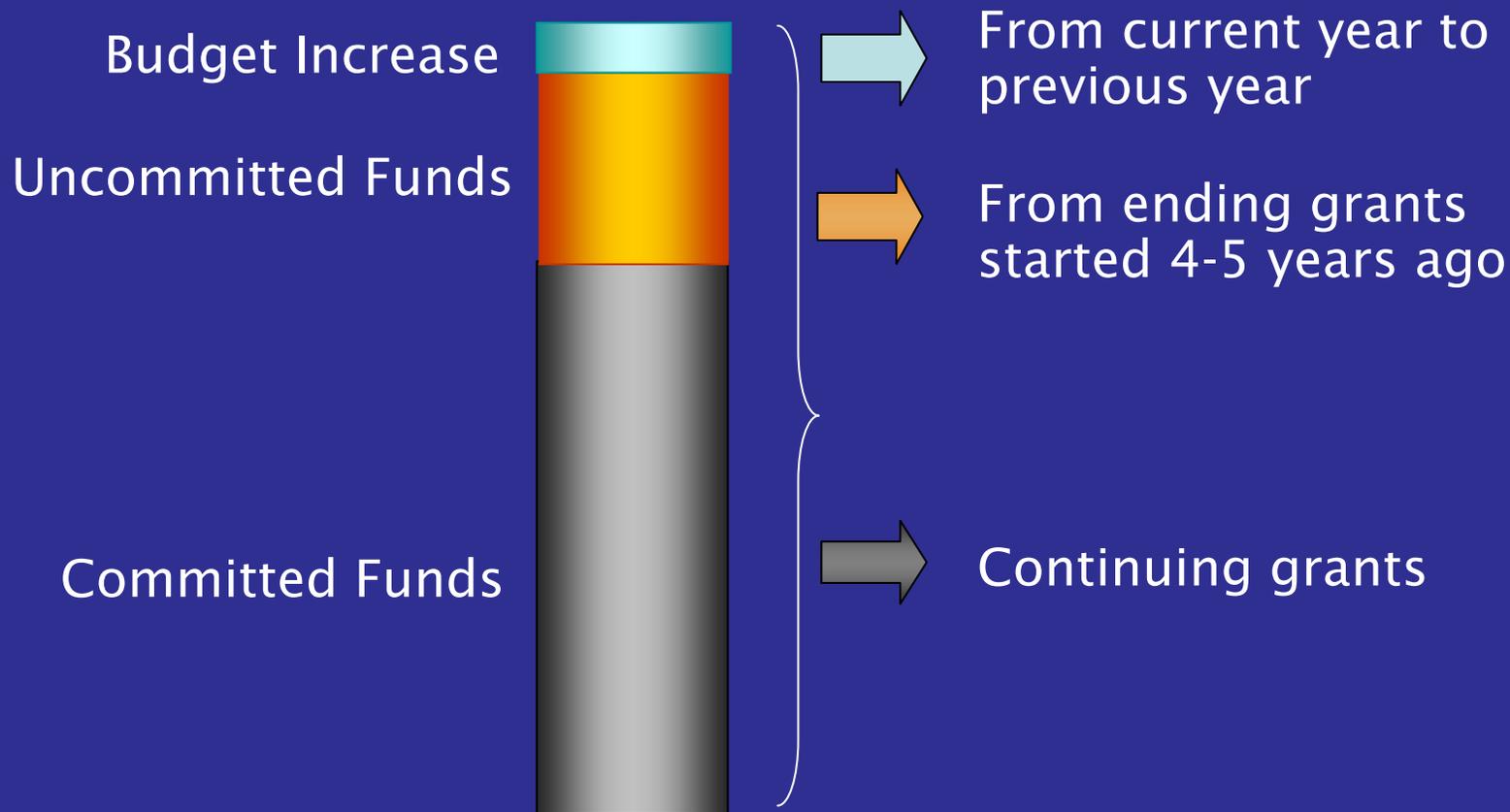


Note: BRDPI is the Biomedical Research and Development Price Index





The Budget Cycling Phenomenon: *What Funds are Available in any One Year?*



NIH Appropriations





NIH Congressional Appropriations

Billions of Dollars



DOUBLING





The Bottom Line:

Demand for Grants “Took Off” Just as NIH Budget Was “Landing!”

Applications



Budget



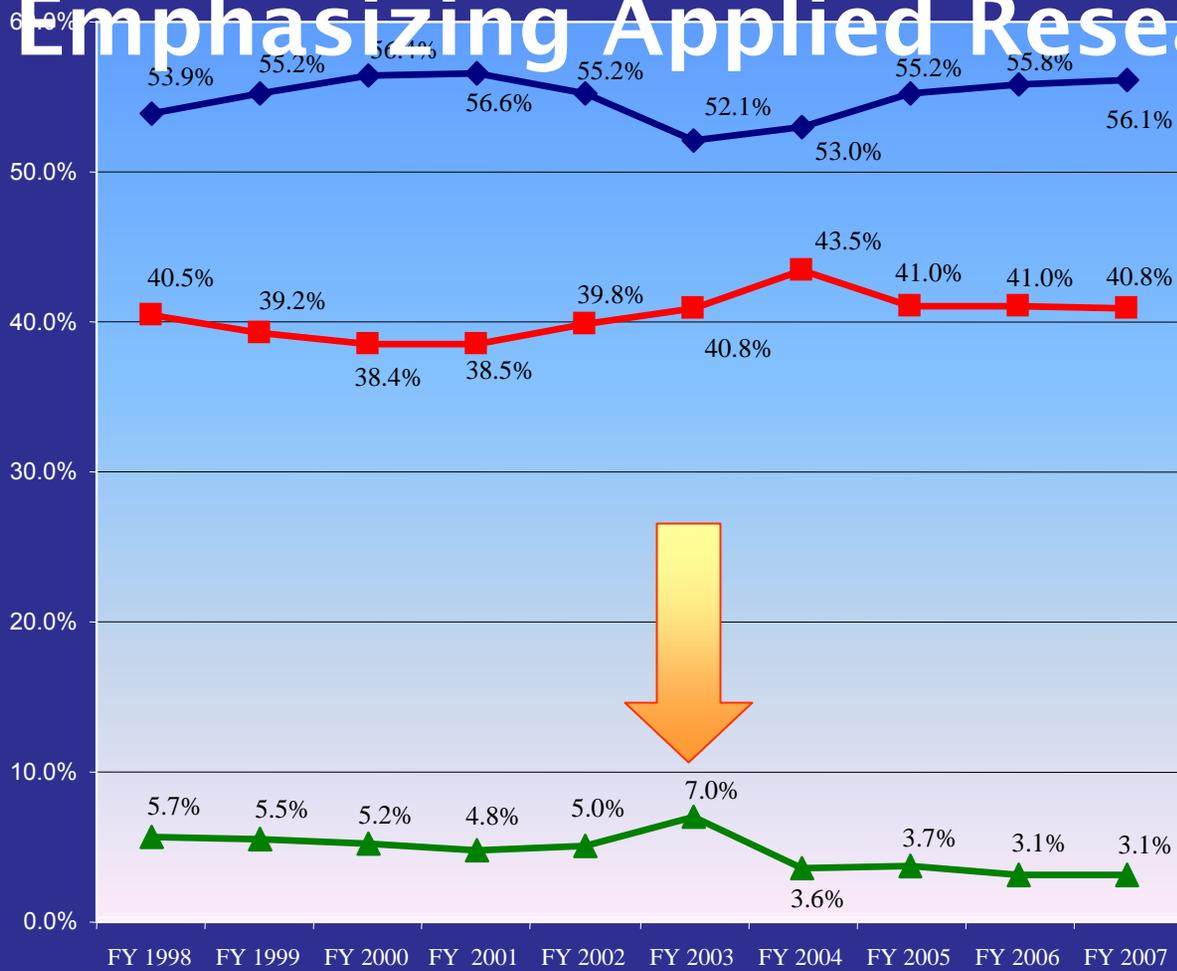
- Post doubling “boom” in applications has led to demand/supply imbalance
- NIH managed well despite small increases in 2004 (2.9%) and 2005 (2%) but flat 2006 made it difficult to adjust
- ~80% of success rate drop is due to increased demand for grants
- ~20% of drop is due to increased costs of grant and inflation effects.
- Budget cycling effect will improve demand vs supply of

Common Misperceptions





Common Misperception: NIH is Over-Emphasizing Applied Research

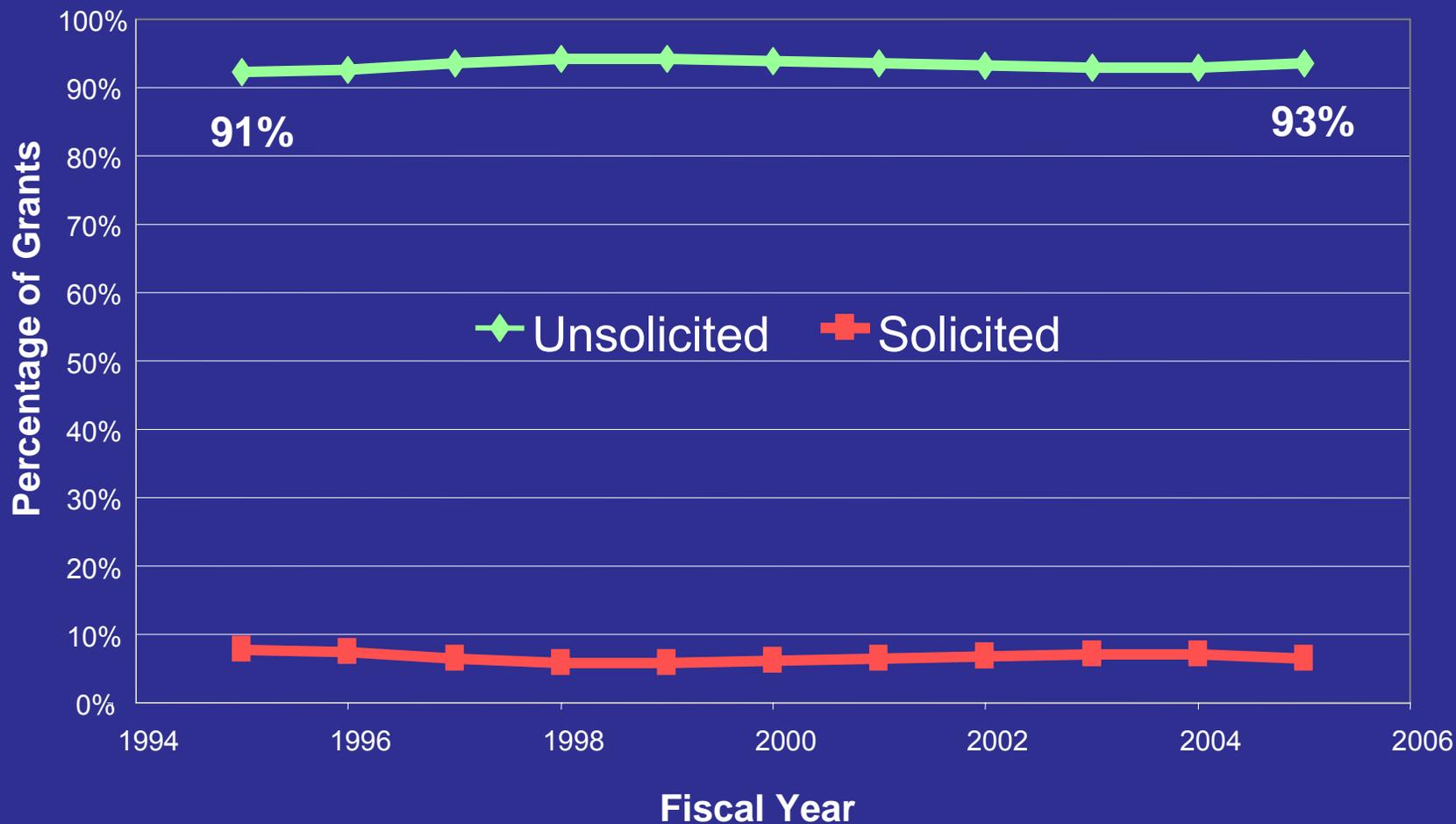


◆ Basic Research ■ Applied Research ▲ Other



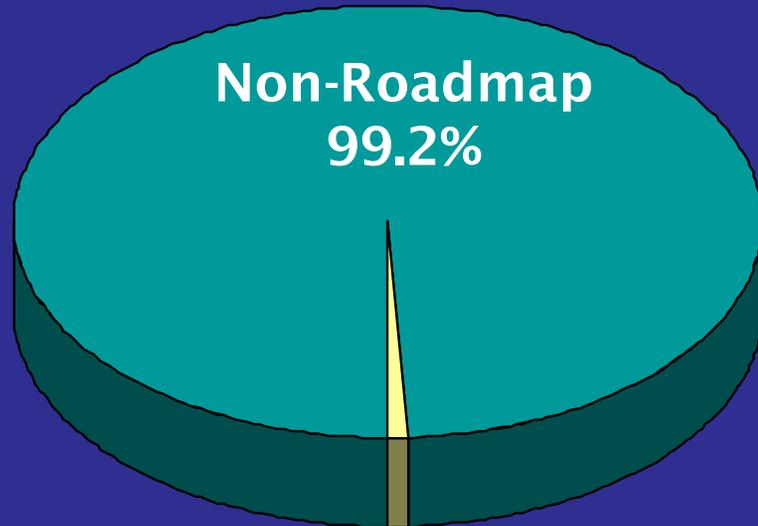


Common Misperception: NIH Shifting Towards Solicited Research with too many RFAs



Common Misperception: NIH Roadmap is Shifting Major Funds Away from Grant Pool

FY2005 Request = \$28.757B



Roadmap
0.8%

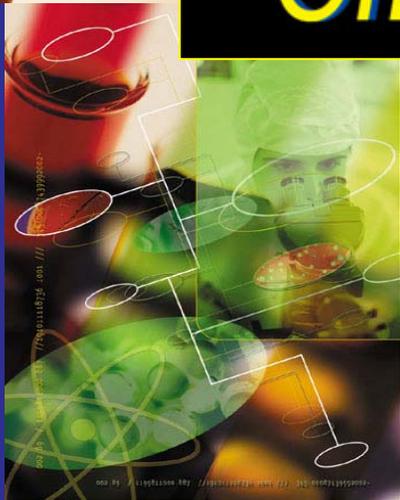


- Developed to increase synergy across NIH
- Not a single initiative but over 345 individual awards in FY 2005, 133 institutions, 33 states:
 - 40% basic
 - 40% translational
 - 20% high risk





NIAAA and Trans-NIH Initiatives



- NIH Roadmap:
 - Metabolomics Technology Development
 - Standards in Proteomics
- NIH Neuroscience Blueprint
- Center for Inherited Disease Research
- Genes and Environment Initiative



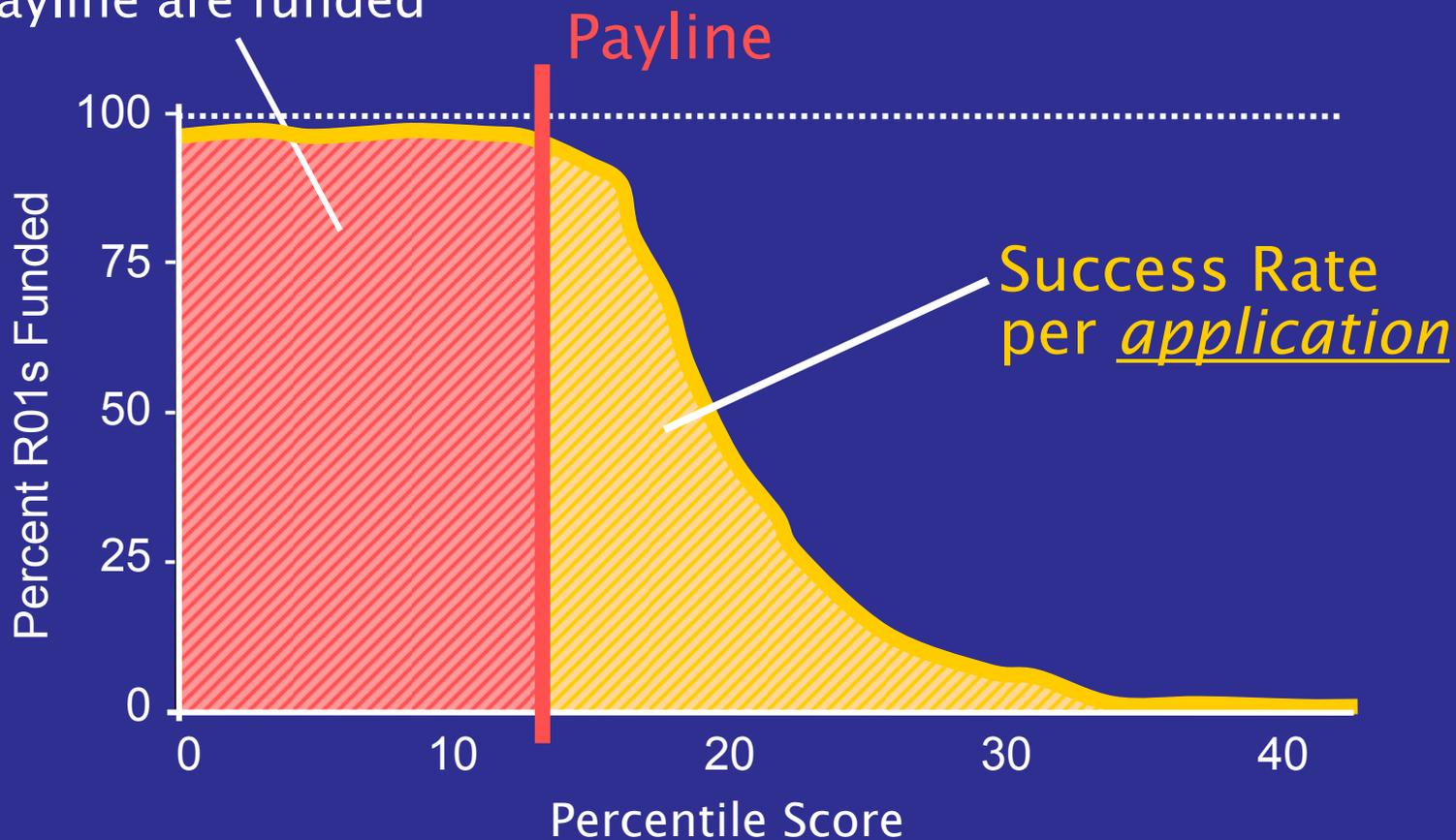
The Question on Everyone's Mind:
*What are MY chances
of being funded?*





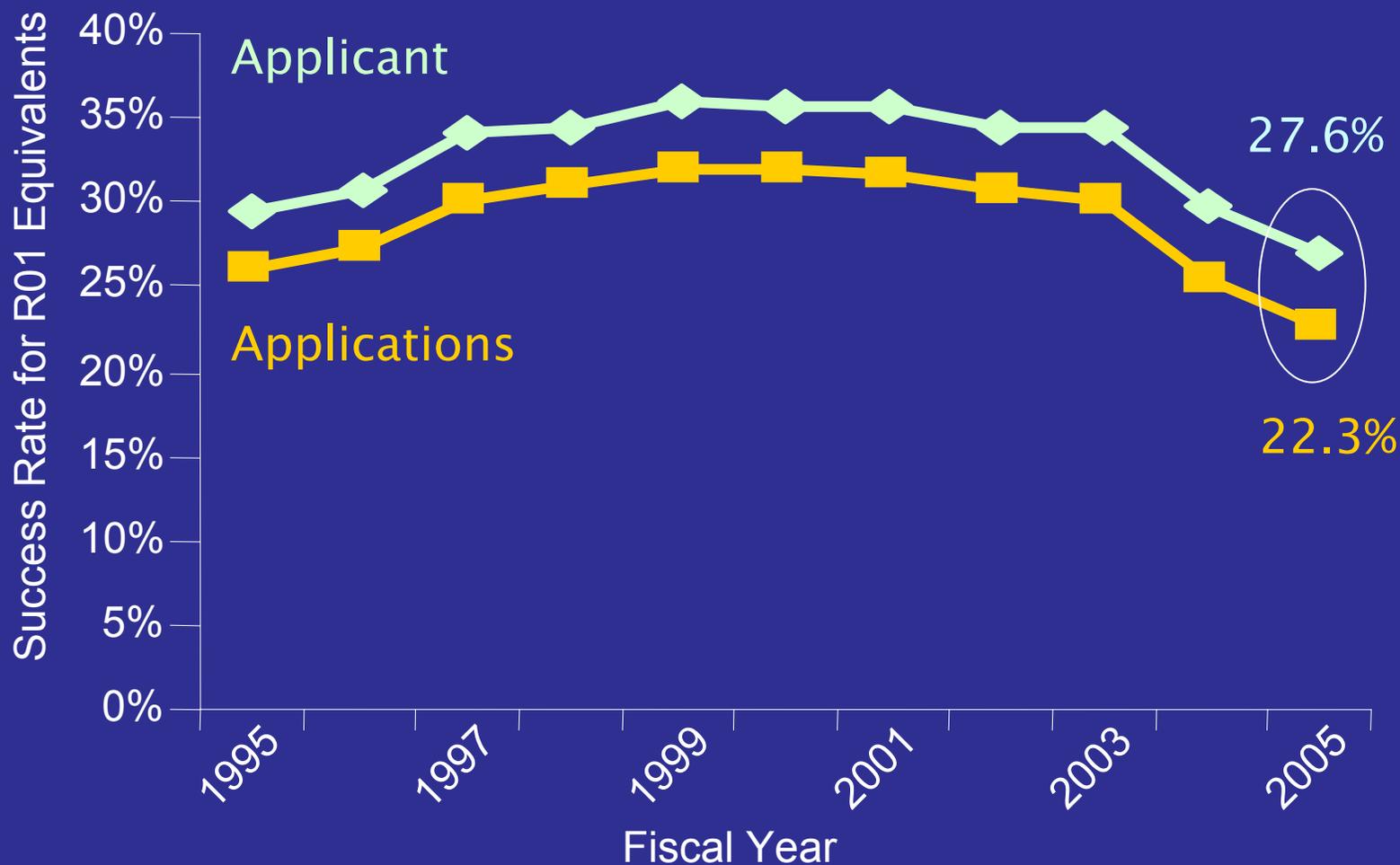
Payline Is Not Funding Cut-off Line

>99% of grants under the payline are funded





Success Rate per Application Understates Funding Rate per Applicant





Where Do We Go From Here?





NIH Must Develop Adaptive Strategies:

Key Principles

- Protect core values and mission: *Discovery and New Knowledge*
- Protect the future: New Investigators
 - Pathway to Independence Program
 - Institutes and Centers efforts to assist new investigators
- Manage the key drivers
 - Supply/demand of grants
- Proactive communications
 - A unified message about value of NIH's investment and need for sustainability
- Promote NIH's vision for the future





Impact of NIAAA Research



Average NIAAA investment per American ~\$1.07 per year

14-year NIAAA investment per American: ~\$14.95 Total

- Prevention Research:
 - NIAAA research established the effectiveness of underage drinking laws

- These laws led to a reduction in drinking and alcohol-related crashes among people under 21

Genes Confirmed for Alcoholism, a Complex Disorder (replicated)

- **Protection**
 - Aldehyde Dehydrogenase (ALDH2)
 - Alcohol Dehydrogenase (ADH2; adh4)
- **Risk**
 - GABRA2** AD/eeg-beta
 - SERT** AD/withdrawal type II, depression, anxiety, binge drinking, suicidality, OCD
 - CHRM2** AD/Bipolar
 - OPMR1** naltrexone responsiveness/reinforcement response
 - NPY** AD/stress response, withdrawal, heavy drinking, depression

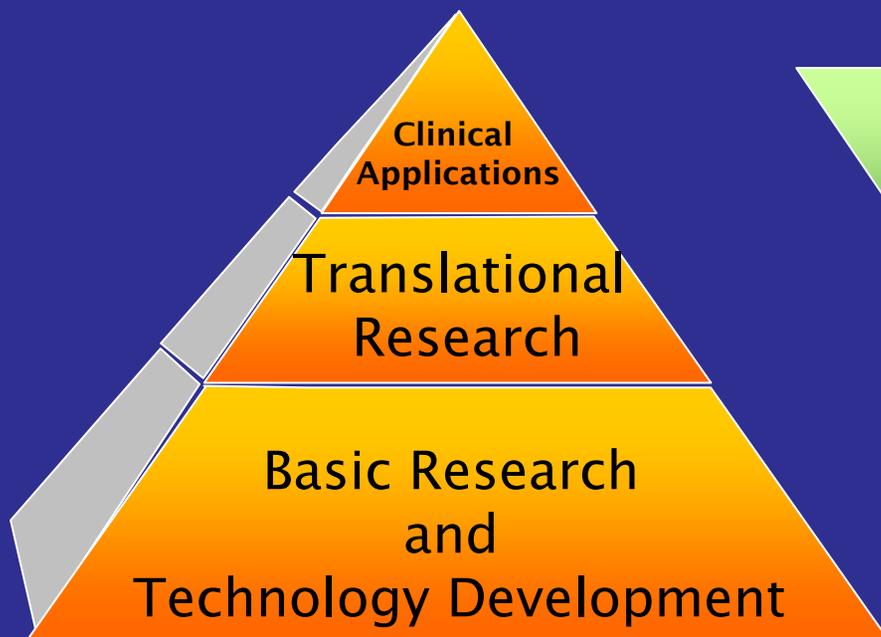
Identified Environmental Risk Factors

- Identified Genes Involved in Protection and Risk

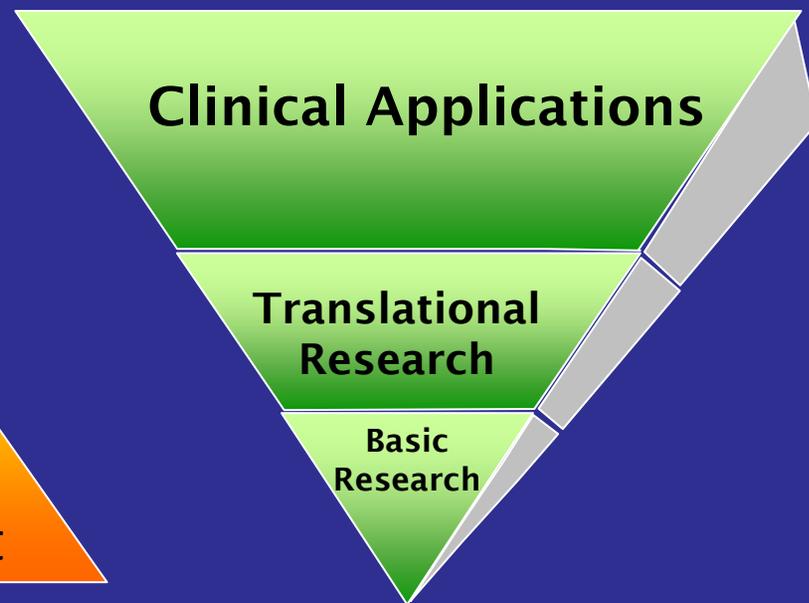




Balanced National Biomedical Research Portfolio



NIH

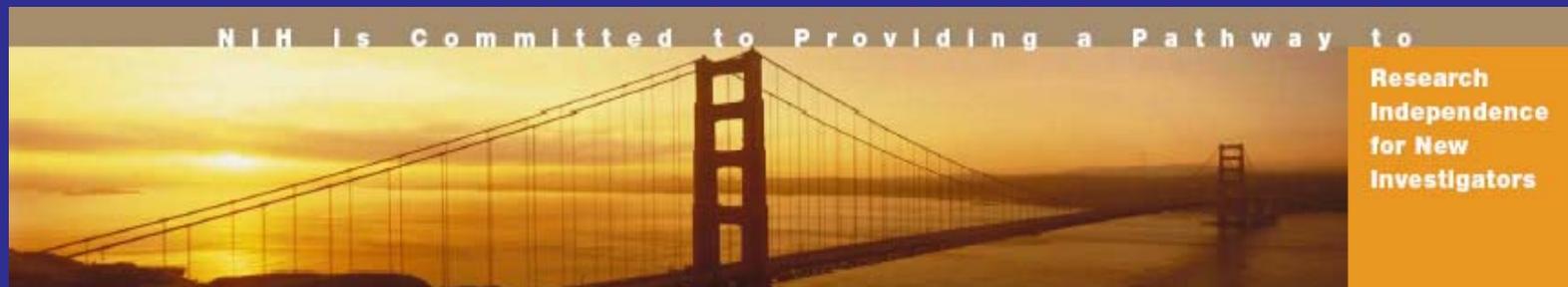


Private Sector





Protecting the Future: Pathway to Independence Award



Enhanced Support for New Investigators- PATHWAY TO INDEPENDENCE AWARD

- Five years of support consisting of two phases
- Phase I provides 1-2 years of mentored support for advanced post doctoral fellows- 90k per year
- Phase II provides up to 3 years of independent RO1 equivalent research support- 250k per year



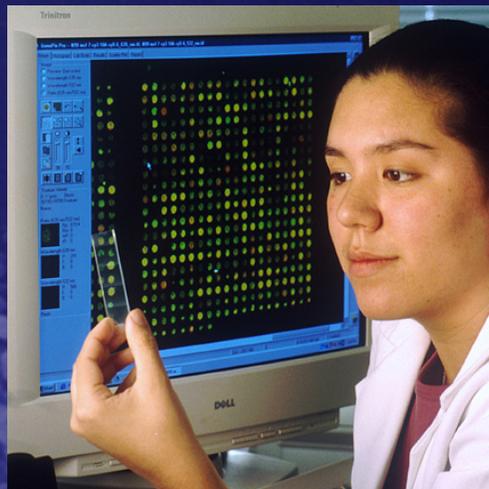


Central Themes in NIH Communications: *A Vision for the Future*





The Future Paradigm: *Transform Medicine from Curative to Preemptive*

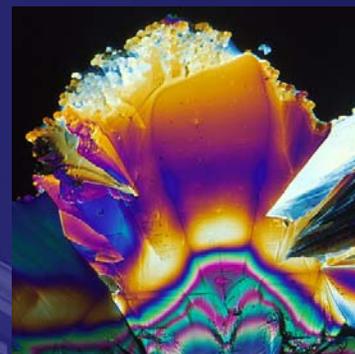


Predictive ↔ Personalized ↔ Preemptive



Participatory





NIH *Transforming medicine and health through discovery*

