

Challenges and Opportunities in Peer Review

A Vision for Ensuring Its Strategic National Value

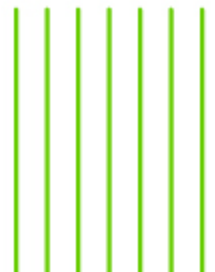
toni scarpa

scarpat@csr.nih.gov
301-435-1109



center for
scientific review

Council of Councils
Bethesda, MD
Nov. 20, 2008



National Institutes of Health
U.S. Department of Health and Human Services



NIH Peer Review

- **Peer Review at CSR**
- **The Drivers for Change**
- **CSR's Efforts to Enhance Peer Review**
- **The NIH Director's Peer Review Initiatives**



Peer Review at CSR



CSR Peer Review: 2008

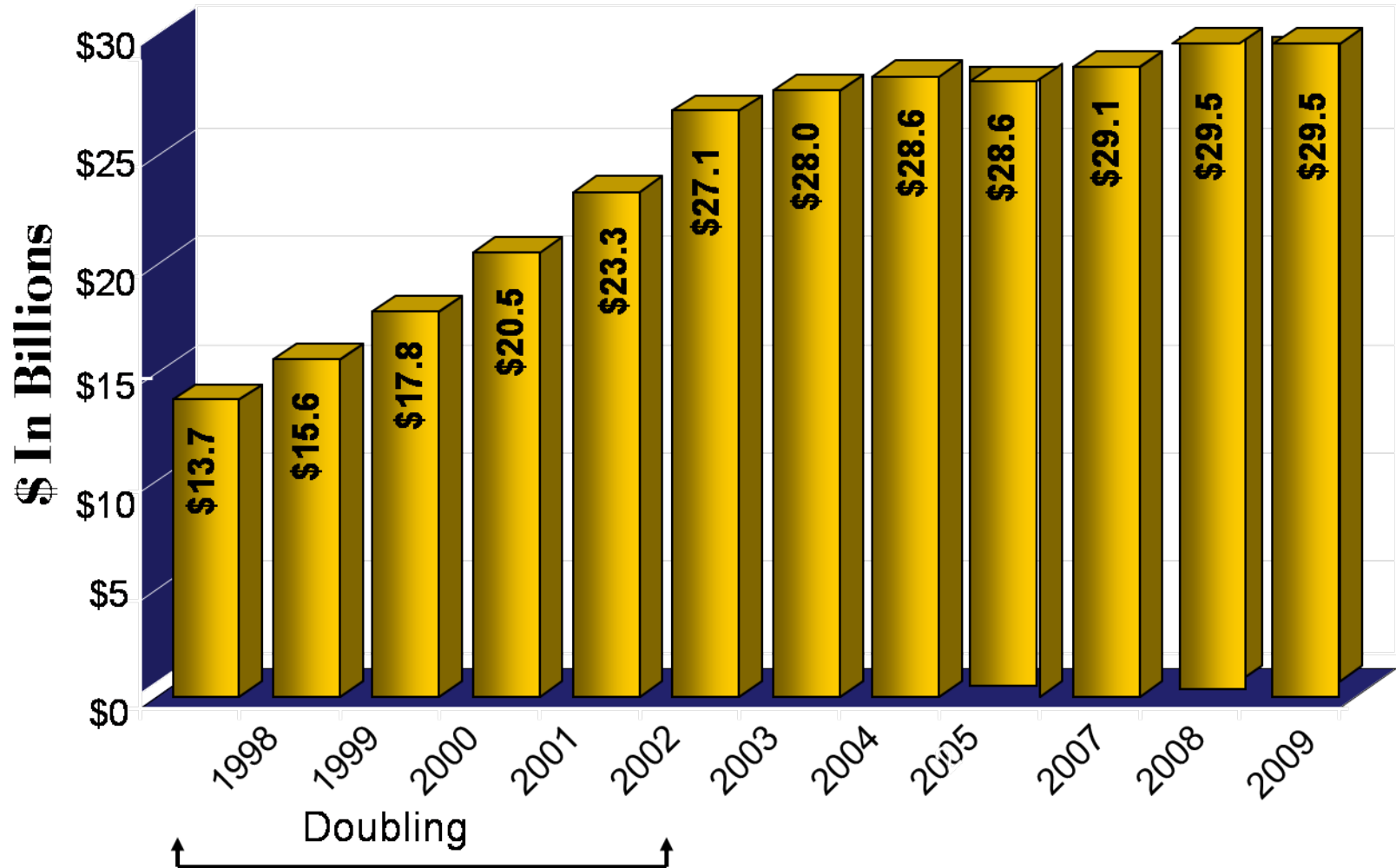
- **77,000 applications received**
- **56,000 applications reviewed**
- **16,000 reviewers**
- **240 Scientific Review Officers**
- **1,800 review meetings**



The Drivers for Change

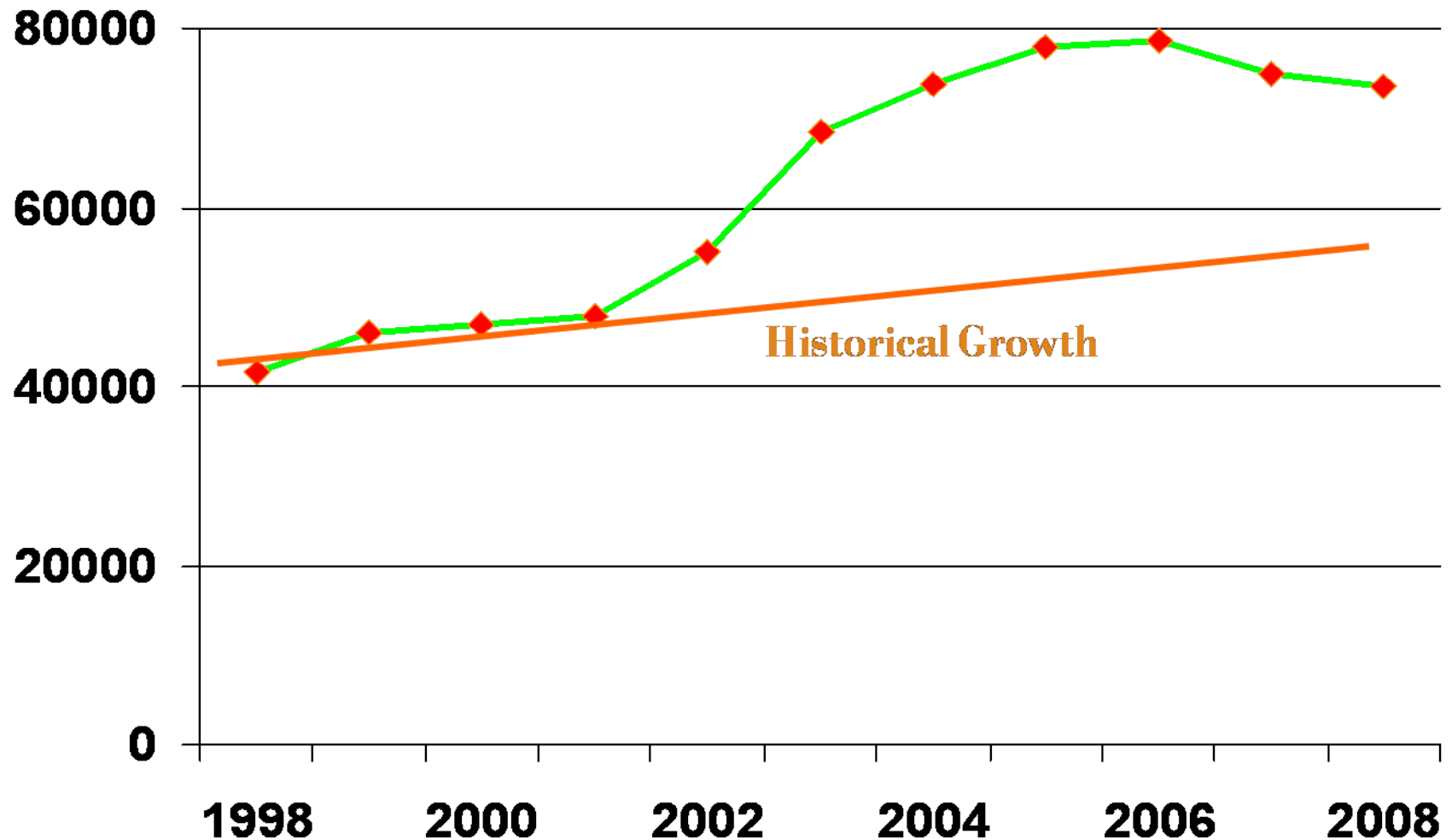


1st Driver: The NIH Budget





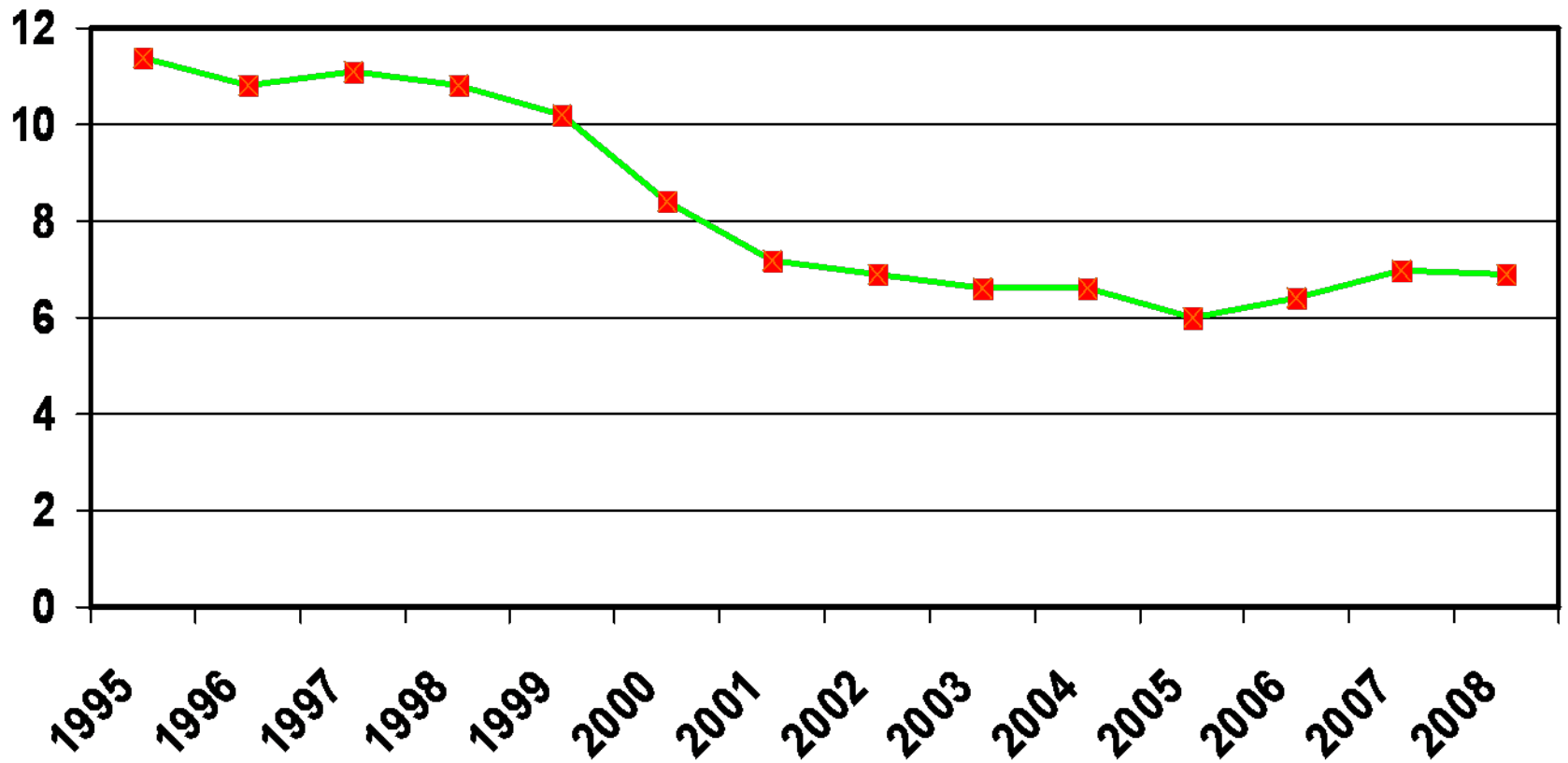
2nd Driver: Number of Applications Submitted





3rd Driver: Reviewer's Load

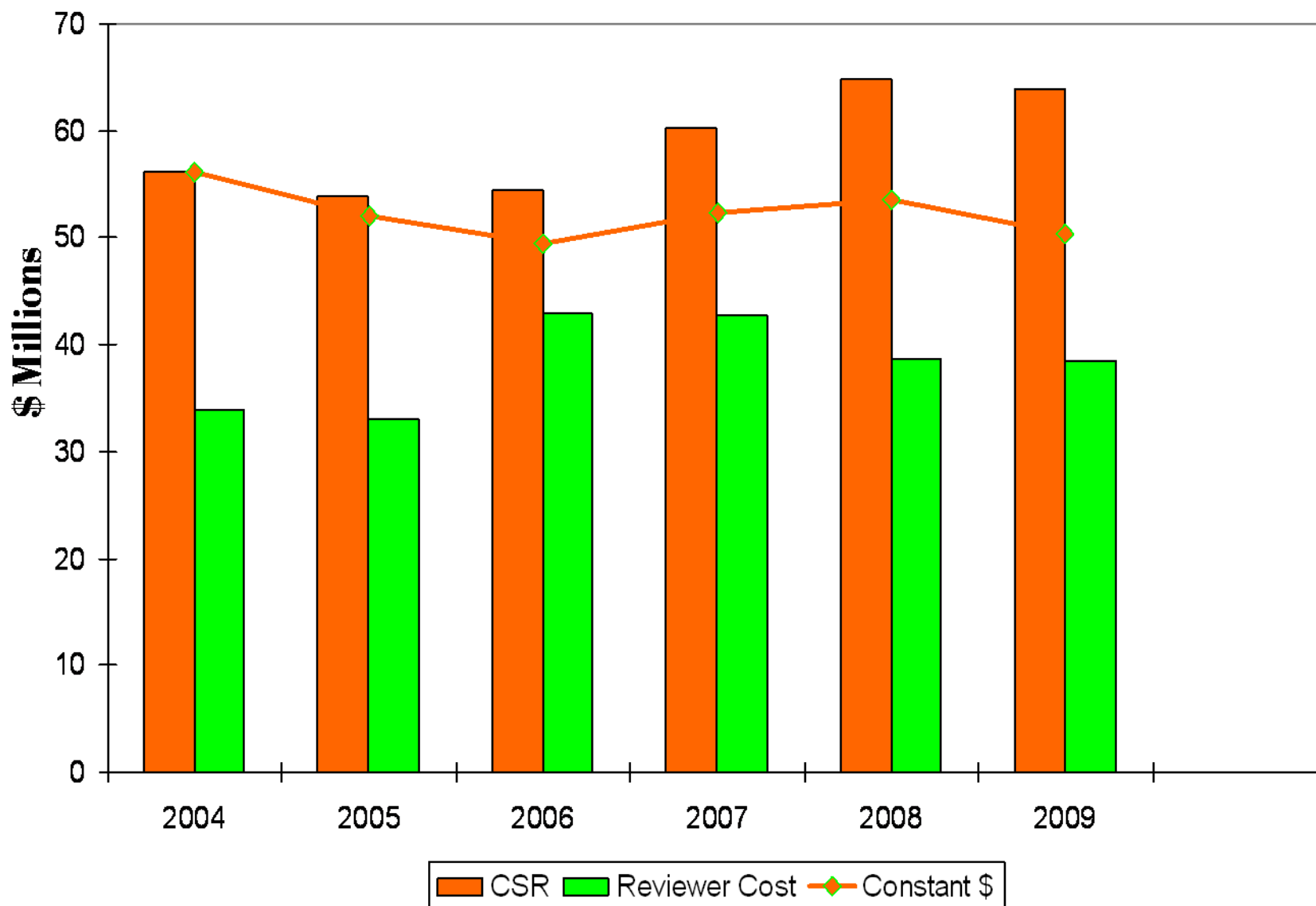
Applications
Per Reviewer



October Council Rounds



4th Driver: CSR Budget





Annual Savings in Reviewers' Expenses

- **Non-refundable tickets with one possible change**
 - **\$15 million**
- **3,000 fewer reviewers**
 - **\$3 million**
- **15% of reviews using electronic platforms**
 - **\$5 million**
- **One meeting a year on the West Coast**
 - **\$1.8 million**



CSR's Efforts to Enhance Peer Review

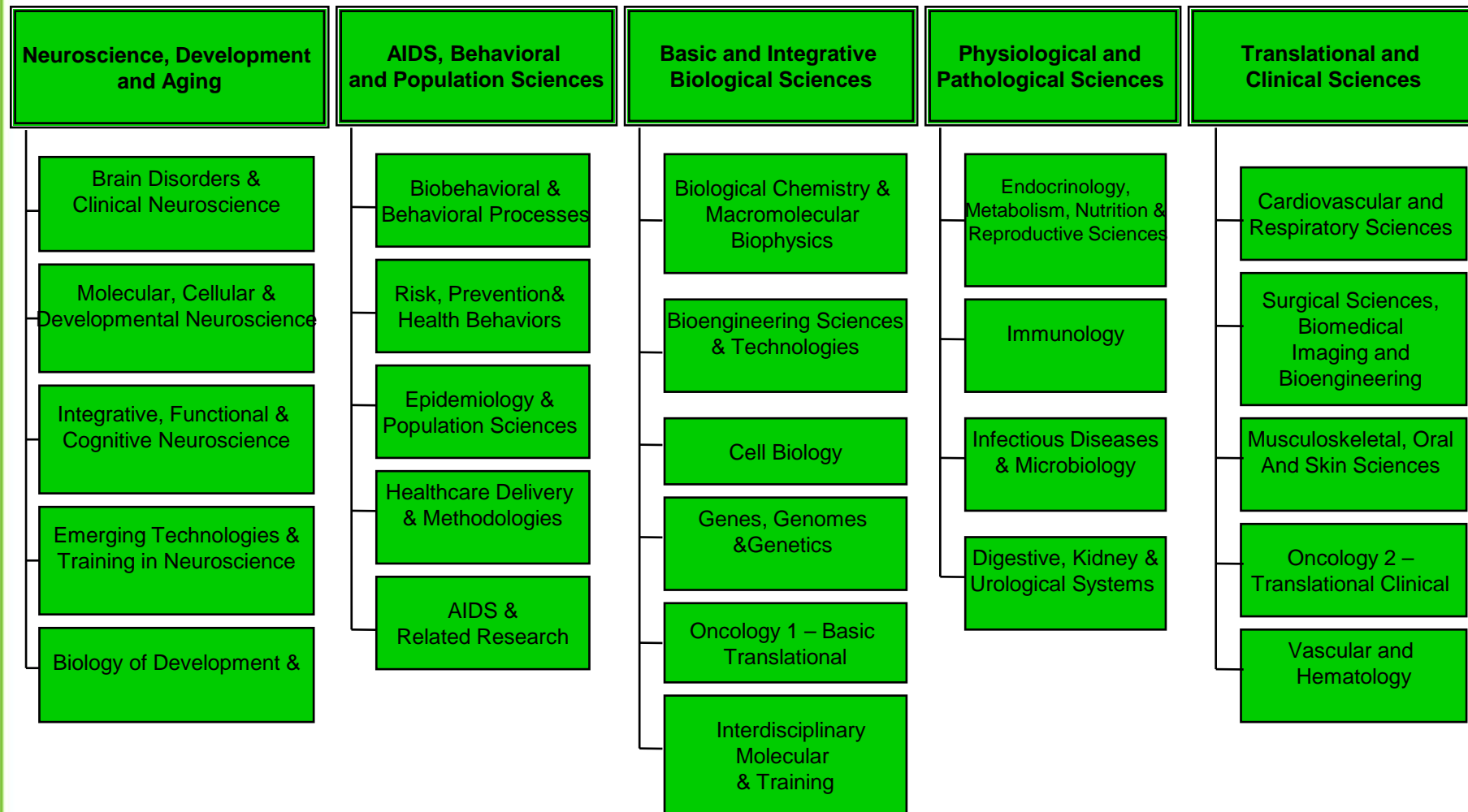


CSR's Efforts to Enhance Peer Review

- 1. CSR Reorganization**
- 2. Recruiting CSR Staff**
- 3. Revising of Study Section Guidelines**
- 4. Improving Study Section Alignment and Performance**
- 5. Shortening the Review Cycle**
- 6. Advancing Additional Review Platforms and Processes**
- 7. Recruiting the Best Reviewers**



1. CSR Reorganization





2. Recruiting of Scientific Staff

- 0 3 Division Directors**
- 0 6 Integrated Review Chiefs**
- 0 20 Scientific Review Officers**



3. Revising Study Section Guidelines

- Cellular Signaling and Regulatory Systems
- [Roster]
- The Cellular Signaling and Regulatory Systems (CSRS) study section reviews applications that focus on the initiation and execution of programs that control cellular homeostasis and physiology. A distinguishing characteristic of these applications is an emphasis on signaling networks and the coordination of processes related to cell proliferation, survival, and growth.
- Cell cycle regulation, mitosis, meiosis, checkpoint controls and regulation by ubiquitination
- Proteolytic mechanisms associated with cell cycle, senescence and death
- Programmed cell death and apoptosis, particularly their regulation in the context of stress, growth, and transformation.
- Proliferation and growth control by the nucleus; signaling pathways regulating transcription
- Integrative cell physiology, e.g., stress, clocks, cellular modeling; cell differentiation and transformation
- Basic studies of cytokine signaling
- Application of state-of-the-art technologies such as imaging and computational modeling of cellular signaling networks
- Study sections with most closely related areas of similar science listed in rank order are:
 - Molecular and Integrative Signal Transduction
 - Intercellular Interactions
 - Membrane Biology and Protein Processing
 - Molecular Genetics A
 - Molecular Genetics B



4. Improving Study Section Alignment & Performance

- Input from the community
- Internal IRG reviews
- Open Houses
- PRAC



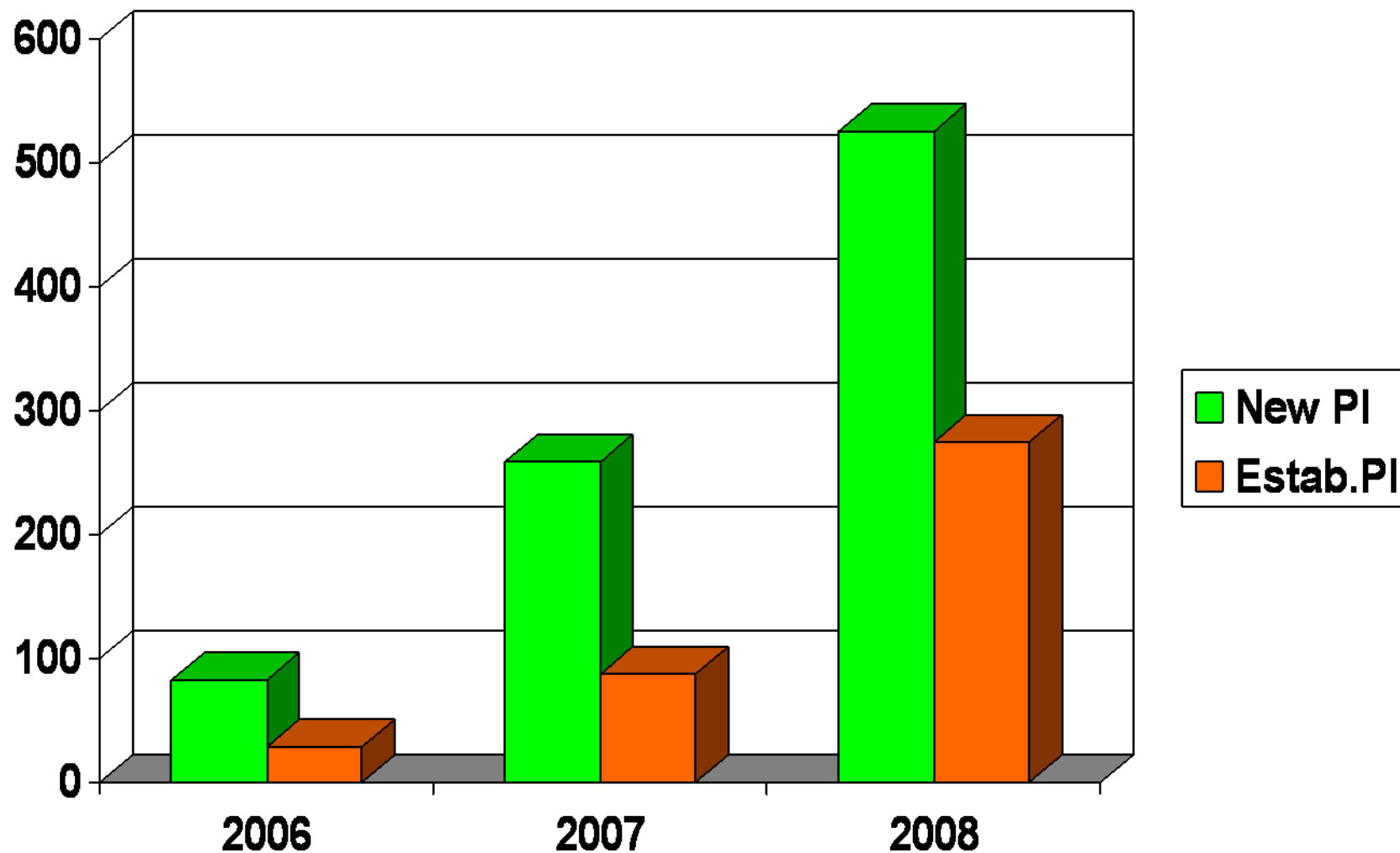
5. Shortening the Review Cycle

The Goal

- **To provide applicants a review and score within 3 months of application submission. This will permit resubmission of applications (when doable and desirable) 4 months earlier than in the past.**



RO1 A1 Resubmission Within 4 Months of Original Application



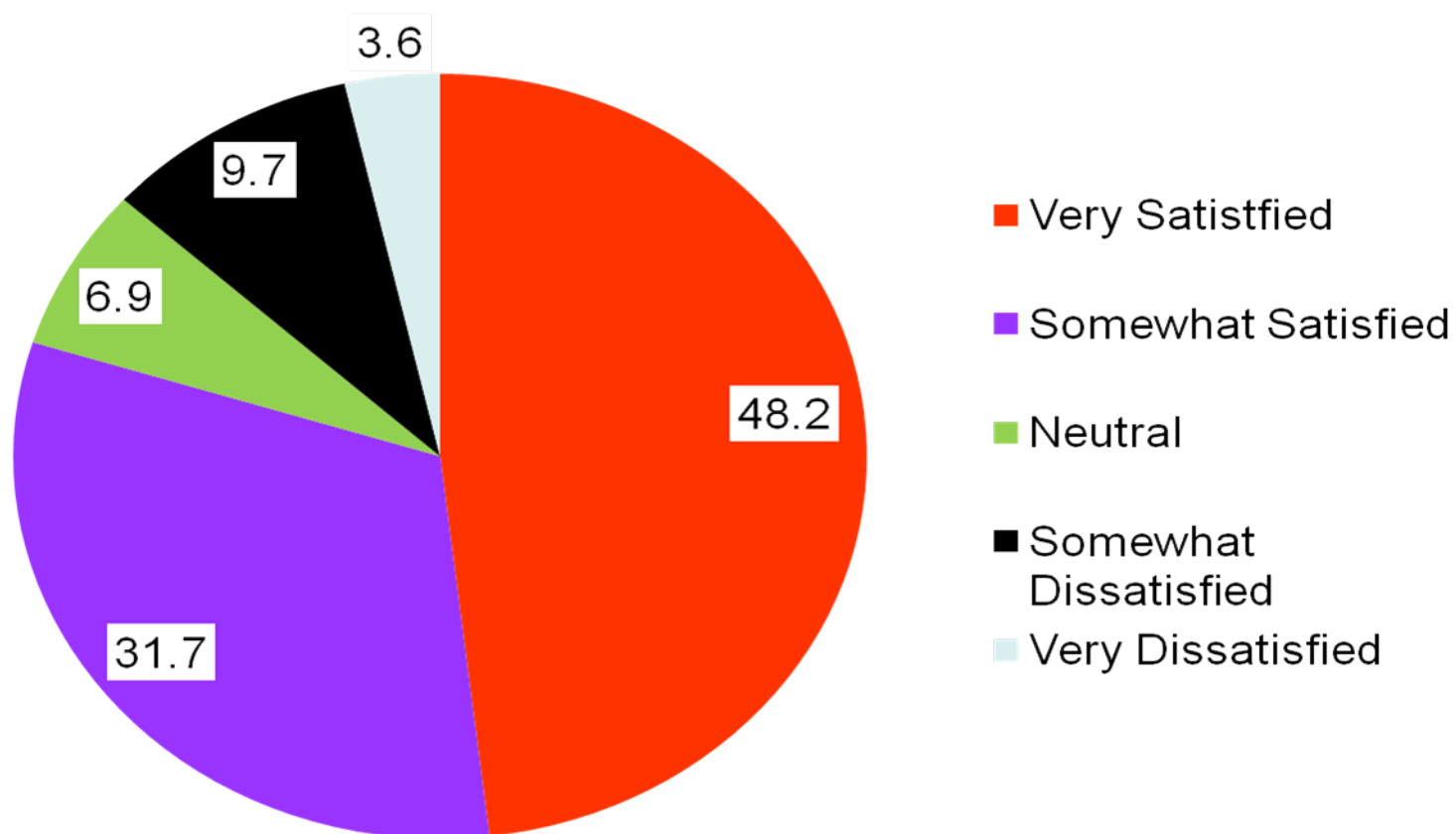


6. Advancing Additional Review Platforms and Processes

- **Electronic review modes reduce travel**
- **Electronic Reviews**
 - **Telephone Enhanced Discussions**
 - **Video Enhanced Discussions**
 - **Asynchronous Electronic Discussions**

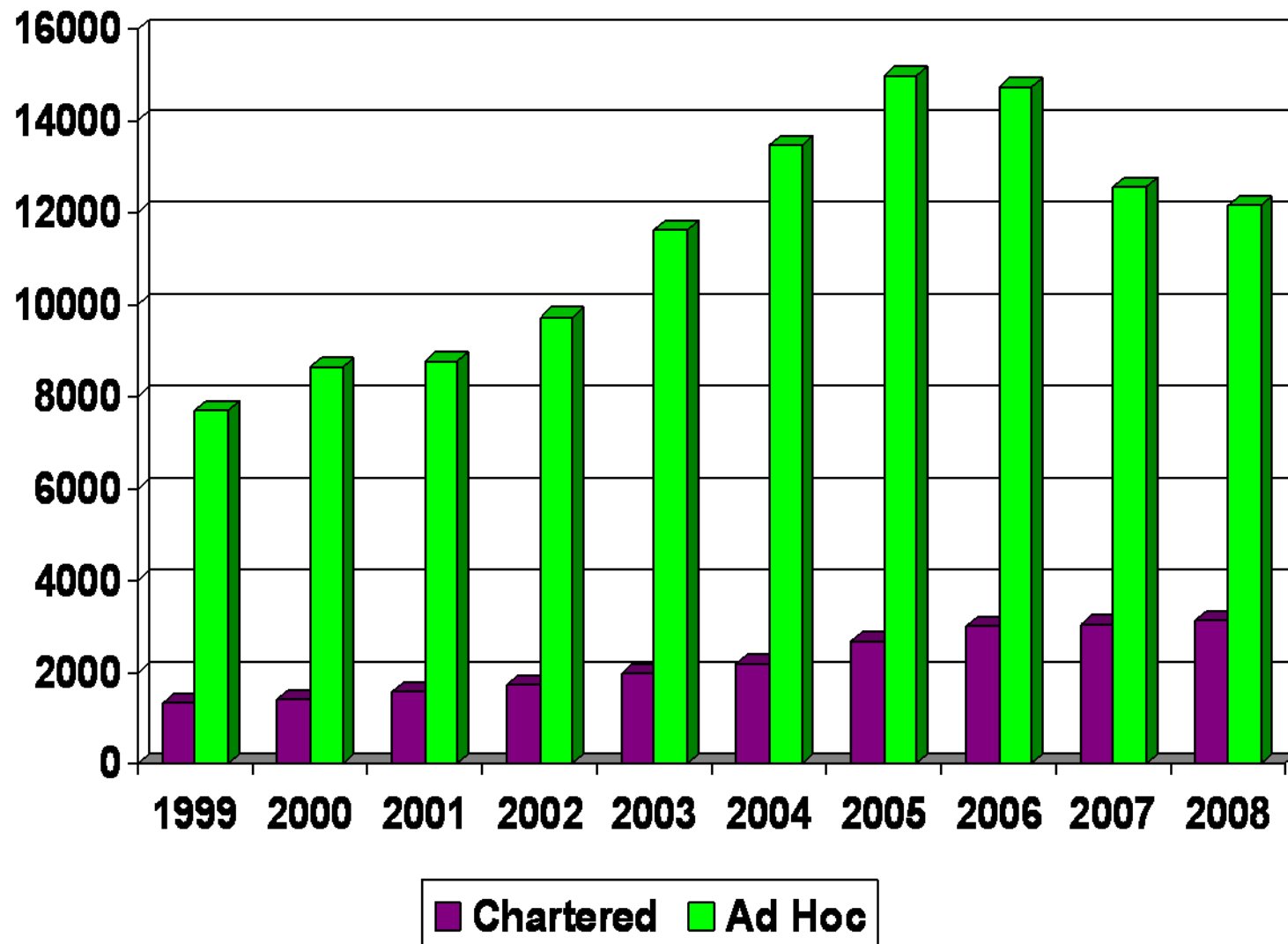


Reviewer Satisfaction with AED Technology





7. Recruiting the Best Reviewers





7. Recruiting the Best Reviewers

- ✓ **Move a meeting a year to the West Coast**
- ✓ **Additional review platforms**
- ✓ **Develop a national registry of volunteer reviewers**
 - ✓ Searchable database with 3,500 reviewers
- ✓ **Provide tangible rewards for reviewers**
 - ✓ No submission deadlines for chartered members of study sections (effective February 2008).
 - ✓ 1574 chartered members used flexible deadlines during the last 6 months
- 0 **Provide flexible time for reviewers**
 - ✓ Choice of 3 times/year for 4 years or 2 times/year for 6 years



The NIH Director's Peer Review Initiatives



More Changes?

Two advisory committees to the NIH Director

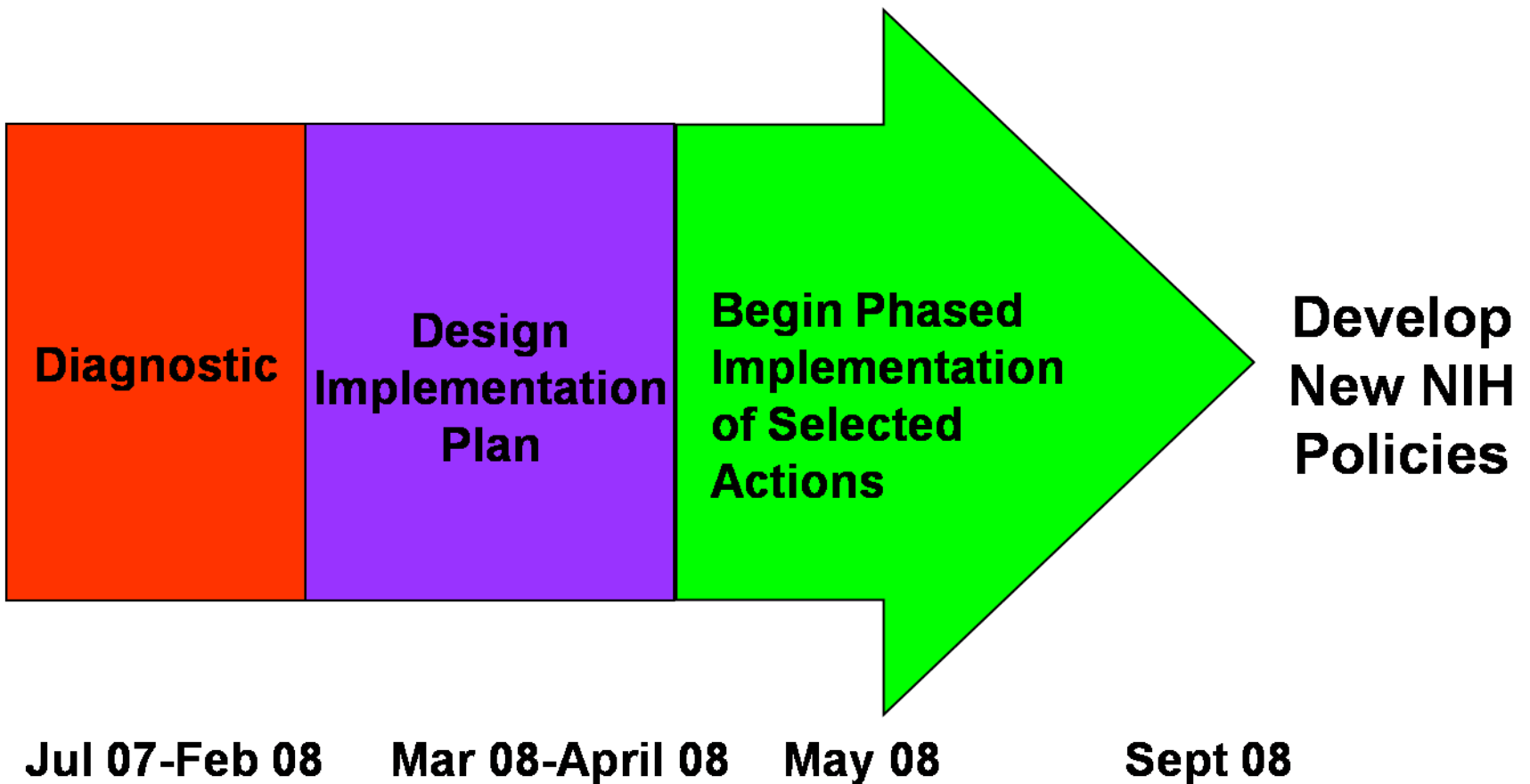
- The Charge from Dr. Zerhouni:

*“Fund the best science, by the best scientists,
with the least administrative burden...”*

<http://enhancing-peer-review.nih.gov>



Timelines





Improving Peer Review

- A. Reviewing highly transformative research**
- B. Funding the best research earlier and reducing the burden**
- C. Improving quality and transparency of peer review**
- D. Recruiting and retaining the best reviewers**
- E. Orienting/Training Study Section Chairs**



A. Reviewing highly transformative research

- **Transformative RO1 (T-RO1)**
 - ◻ Notice just posted, deadline January 29, 2009
 - ◻ 8-page application
 - ◻ **Editorial Board Review**
 - Heavy triage based on innovation and potential science transformation by a small study section of distinguished, broad-science reviewers (**the editors**)
 - Specific science reviewed by appropriate reviewers (**the editorial board**)
 - Final ranking by the editors



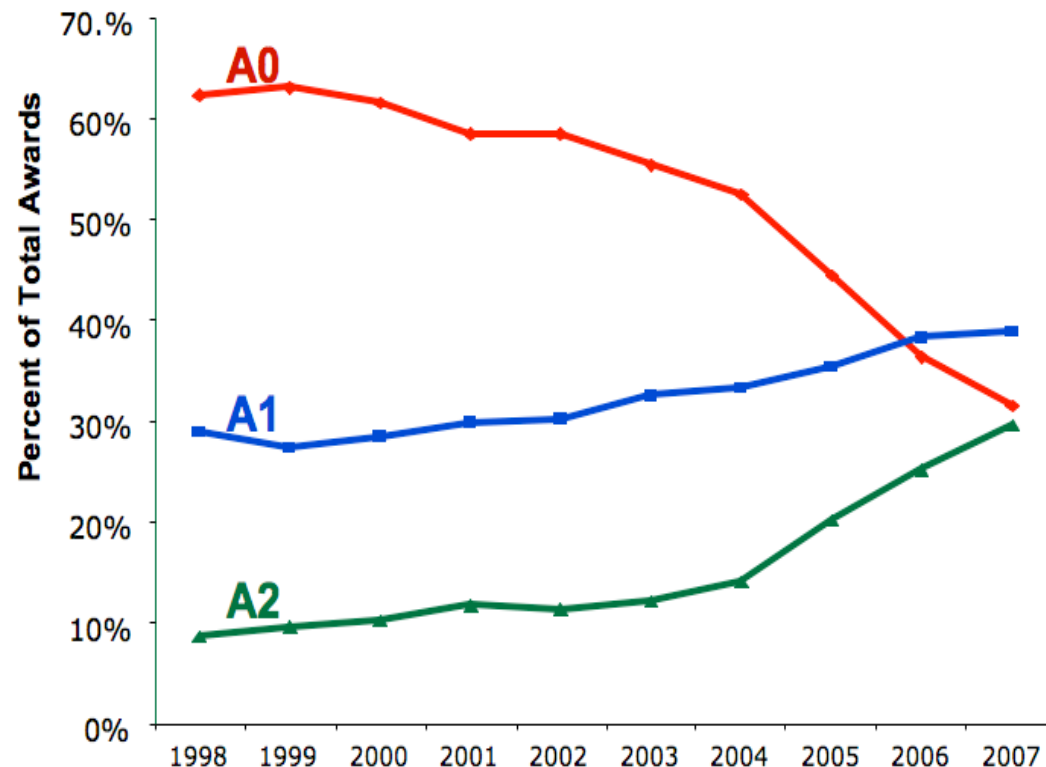
T RO1 “Editors”

- **Keith Yamamoto, UCSF (co-chair)**
- **David Botstein, Princeton (co-chair)**
- **John Cacioppo, Chicago**
- **Aravinda Chakravarti, Hopkins**
- **Al Gilman, UTSW**
- **Nola Hylton, UCSF**
- **Jennifer Lippincott Schwartz, NIH**
- **Cecil Picket, Biogen**
- **Susan Taylor, UCSD**
- **Michael Welsh, Iowa**



B. Funding the best research earlier & reducing the burden on applicants, reviewers, institutions & NIH.

- More flexible deadlines
- Abolish A2 applications





C. Improving the quality and transparency of the peer review process

February 2009

- **Shorten summary statements, follow template for each criteria**
- **Change the rating system**
 - Use 1-9 integers
 - Score each criteria
 - Provide score for all applications (even those not discussed)

February 2010

- **Shorten applications, aligning with review criteria**
 - Impact, investigator, innovation (if applicable), research strategy, facilities



D. Recruiting and retaining the best reviewers

- Flexibility to serve: decrease the commitment to twice yearly over 4-6 years
- Tangible rewards for reviewer service
- Improve quality with training



E. Orienting/Training Study Section Chairs

Scope and Schedule

- 150 newly appointed chairs: 5 meetings in January 2009
- 5 meetings in July 2009 for 150 chairs appointed next June

Training Program

- Share data
- Explain the new changes and the significance
- Share the best practice (ours and theirs)
- Answer questions and address concerns
- Make chairs more effective stakeholders