Peer Review under Review within NIH

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BioTechniques readers respond to National Institutes of Health proposals for revamping the peer-review process.

The National Institutes of Health is reviewing peer review, hoping to reduce random fluctuations in the process and ensure that the very best science and the very best scientists receive the support they need. The NIH's newly released *2007–2008 Peer Review Self-Study* (1) addresses seven principle challenges: reducing administrative burdens on applicants, reviewers, and NIH staff alike; improving the proposal rating system; increasing the quality of reviewers and reviews; supporting researchers in different career stages; supporting a wider variety of approaches to science; reducing stress on NIH resources; and institutionalizing a continuous review of peer review.

We don't have space to review (as it were), or even list, all of the recommendations in the panel's Feb. 29 draft report, but here is a selection:

Most proposals are currently submitted three times before a final decision is delivered. Let's reduce this number by establishing a new category of decision, "not recommended for resubmission." And we should treat every application as "new," eliminating the special status of amended applications, along with embedded interchange of criticism and response.

To compress review cycles and the reviews themselves, let's shorten the applications, and in particular condense summary statements so that they focus solely on the merit of the science presented, not on methodological details. Let's streamline the process by identifying applications that can be corrected, and possibly accepted, without re-review by the full study section. And let's experiment with "prebuttals," short back-and-forth exchanges to clarify and amend applications without full resubmission.

The draft suggests a few steps for getting better reviewers to give better reviews: increase the number of reviewers for each application; try a two-stage process that would include outside technical review; use electronic reviewing tools; try double-blind reviews; give reviewers incentives to participate in study sections; and improve training for reviewers, study-section chairs, and scientific review officers.

And, finally, let's increase opportunity for early-career investigators by allocating some funds for tomorrow's leaders, ranking their proposals against one another rather than against more established labs.

In our *BioTechniques Weekly* newsletters of March 6 and 13, we asked readers to rate some of these solutions. Asked which proposal would do the most to reduce administrative overheads, 35.9% of our 120 respondents supported "shorter applications that focus on impact and innovation," while 25.6% voted for the "not recommended for resubmission" option. Least popular (with 7.7% of the vote) was the suggestion that each application be treated as "new." All told, 76% of respondents agreed that "the ratings system should focus on impact and innovation rather than on standard methodological details and nonessential preliminary data."

When we asked readers which recommendations would do the most to enhance review quality, 32.8% opted for four or more reviewers per application. Some 29% favored reviewer-training programs, and 21% voted for "prebuttals." Blind reviews (11%) and electronic review assistance (under 7%) fared less well.

There was strong sentiment favoring funding for newer researchers: 43% of respondents felt that reviewing early-career scientists separately was the way to go. And 29% favored more R01 grants specifically for junior researchers.

Though the late-ninth-century Syrian physician Ishaq bin Ali al-Rahawi was the first to recommend scientific peer review, the NIH draft report notes, the practice didn't flower in the West until the rise of the *Philosophical Transactions* and the Royal Society eight hundred years later. And it wasn't until the 1940s that NIH adapted the model to review funding proposals.

So, after more than a thousand years, we're still trying to get peer review right. In 2005, the editors of *Obstetrics & Gynecology* studied reviews of 964 manuscripts submitted to their journal. They found that expert reviewers agreed with one another about 37% of the time, and that the journal's editors agreed with their reviewers about 47% of the time (2).

Winston Churchill famously said, "Democracy is the worst form of government, except for all those other forms that have been tried from time to time." The same might be said of peer review.

References

1. <http://enhancing-peer-review.nih.gov/meetings/NIHPeerReviewReportFINALDRAFT.pdf>. Accessed March 27, 2008.
2. James R. Scott, Sheryl Martin, and Leon Burmeister, 2005. Consistency between reviewers and editors about which papers should be published. Paper presented at the Fifth International Congress on Peer Review and Biomedical Publication, Chicago, IL, Sept. 16–18, 2005.