But moves are afoot to stamp out this new form of discrimination. A draft version of a treaty released in June by the 32-nation Council of Europe proposes banning gene testing for insurance and employment purposes (*Science*, 8 July, p. 175). A National Academy of Sciences report called "Assessing Genetic Risks: Implications for Health and Social Policy," released in November, recommends a legal ban on discrimination based on genetic risks; that option is being pursued by some states.

It seems clear that, at the moment, the dangers of genetic testing are substantial, and the benefits, though they may one day be much larger, are small for some who test positive. Yet public demand is likely to lead to widespread testing long before all the glitches have been ironed out. *Time*/CNN pollsters recently asked 500 Americans whether they would take an imaginary genetic test that would tell them which diseases they would suffer later in life; half said yes.

Since Myers started offering his Huntington's gene testing service, he's had two inquiries a day, which he calls an "unbelievable number" for a rare disease. One breast-cancer activist says she understands that response. Patients at risk of inheriting an incurable disease want every weapon they can get. And for many patients, in the absence of a cure or an effective form of preventive therapy, all that's available is a mental weapon: the knowledge offered by testing.

–Rachel Nowak

NIH GRANTS

Peer Review Reforms Get Good Review

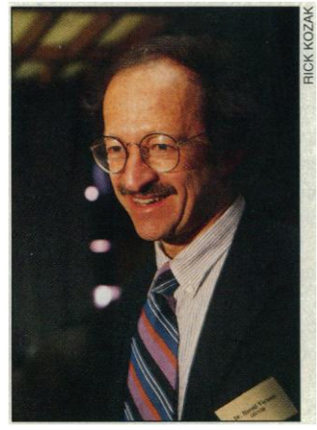
One of the biggest experiments going on right now at the National Institutes of Health (NIH) doesn't involve rats, mice, cell cultures, or viruses. Instead, the research subjects are biomedical scientists, and the research focuses on how they wriggle through a maze of reviews each year to obtain $8 billion in federal funds. The experiment is designed to see whether NIH's peer review system—which sorts these 38,000 grant seekers into winners and losers—can be made simpler, fairer, and more efficient.

NIH began testing new approaches to peer review shortly after Harold Varmus became NIH director in 1993, in response to suggestions that the venerable system is in need of a tuneup. Last week, Varmus and his deputies met with scientists from around the country at a "round table" to discuss how the experiments are going. Varmus came away so encouraged by the response, he says, that he wants to start implementing some reforms and expand the testing of others.

In a telephone interview, Varmus said he and his assistant director for extramural research, Wendy Baldwin, want to make wider use of the "triage" approach to sorting grant applications, tested this year by 12 review panels. This technique is designed to eliminate 30% to 50% of the submissions off the top as "noncompetitive" before they're sent to a panel for full review. Varmus adds, however, that "we may change the terminology," because noncompetitive is "a pretty rough term" to use in rejecting first-time applicants.

Baldwin said NIH also intends to implement a "just-in-time" rule for providing data, so that only those who make it through the first cut would be required to submit detailed budgetary and administrative data. And to make it easier to submit such data, NIH plans to increase the use of electronic networks, giving researchers a personal identification number (PIN) so that they can access government computers to send or retrieve information. NIH managers also aim to broaden the scope of some peer review groups (study sections) and test a system of "chunk grants," allowing applicants to apply for small but fixed amounts of cash and thereby minimize the need for detailed budget estimates. Finally, Varmus wants to find new ways of rewarding innovative ideas. He says "a lot of people are concerned that study sections have become too conservative," nitpicking at flaws rather than concentrating on scientific merit. There ought to be a way of giving an advantage to risk-taking applicants, he says.

Most of these ideas are now being tested on a small scale, and most received warm support from the several dozen attendees at the round table. One idea, however, sank like a lead weight: a suggestion that NIH switch from evaluating grant proposals prospectively to a retrospective evaluation of the applicant's previous research. The goal of such an experiment, advocated by Nelson Kiang, director of the Eaton-Peabody Laboratory for eye and ear research in Boston, would be to drastically simplify the review process.



RICK KOZAK

Peer pressure. NIH director Harold Varmus.

Kiang said that anyone seeking a grant should be asked to provide detailed information about previous accomplishments, but only a brief sketch of the research for which they seek funding. Postdocs, for example, could be reviewed on the basis of their theses. He notes that the current system requires pages of detailed descriptions of future work, along with precise data on staff and equipment costs in each future phase of study. Such details, David Botstein of Stanford University said, are mere "bureaucratic fantasies," created to satisfy the review process but rarely followed. But when an NIH staffer presented this idea to the round table, several speakers—particularly women and others who spoke for minority or young scientists—objected that retrospective review would favor the "old boys" who are already well established.

Varmus noted that NIH already uses retrospective review in some ways—openly in judging the work of intramural staffers and implicitly in awarding extramural grants. "It would be naïve," he told *Science*, "to think that when we review applicants we are just looking at the proposal." Reviewers also take into account an individual's experience, track record, and his or her sources of funding. Varmus said he recognizes that "people are concerned about squeezing the new blood out of the system." However, it might be possible to use retrospective review more often for scientists seeking grant renewals.

While this idea got a mixed response, the related proposal for "chunk grants," put forward by David Boettiger of the University of Pennsylvania, got a warmer reception. "I was a little surprised by the enthusiasm" for the concept, says Varmus, who likes it himself. The idea is to set aside a pool of money for research projects costing, say, $50,000 to $200,000 a year, and to award a specified number of small, fixed-price grants each year. The goal would be to have applicants and reviewers spend less time on budgets and focus almost exclusively on science. Varmus says it "is definitely going to warrant more attention" and will be tested first by the National Heart, Lung and Blood Institute.

Varmus predicts there will be "more pilot studies" and "more discussions" before NIH endorses any of these concepts for use across the board. Some people, he adds, "have criticized me for paying attention to peer review as though I'm considering it a substitute for getting more money," but, he argues, this is not the case. Varmus says he is "just facing reality" in recognizing that NIH isn't likely to get a big budget increase. Meanwhile, he does want to "instill confidence" in the system and persuade researchers that "we're doing things as fairly as we can."

–Eliot Marshall