nature neuroscience

Affirmative action at the NIH

The US National Institutes of Health (NIH) have funded an increasing number of grants from young investigators with merit scores below the payline. This policy is critical for retaining and encouraging our future scientific base.

This September, the US Government Accountability Office released a report evaluating the grant awarding process at the NIH (http://www.gao.gov/new.items/d09687.pdf). The report concluded that about 18.5% of the NIH's funded R01 grants had scientific merit scores that were below the payline and were funded on factors other than their scientific merit scores. The report found that the number of such exceptions had increased substantially in the last few years. Interestingly, however, half of these grants were awarded to young investigators, reflecting an initiative (now a formal policy) of former NIH director Elias Zerhouni to guarantee that the success rate for early-stage investigators matches that of established investigators. In the current funding climate, where many excellent grants are simply not getting funded, this policy may seem unfair to established investigators. However, early-stage investigators are especially vulnerable to funding crisis and are often at a disproportionate disadvantage when competing with more established laboratories for R01 grants. Such actions that protect some of these young investigators are critical if we are to retain young scientists and encourage our future research base.

Nearly all senior faculty have war stories to tell about the difficulties of getting that first R01 grant funded, and these anecdotes are supported by longitudinal data that suggest that the success rate of first R01 grants has generally been about 5–10% lower than that of all other R01 grants (http://www.report.nih.gov/nihdatabook/Charts/SlideGen.aspx?chartId=136&catId=13). This makes some sense: grant writing is a skill that generally improves with experience. However, other factors also figure into grant peer review scores and all of them favor established investigators. In deciding how likely the proposal is to successfully yield data, reviewers are liable to consider the prior track record of the investigator, preliminary data, which is much more difficult to obtain when starting a new lab, and personal connections, which established investigators have had more time to build. In the golden days of the NIH doubling, these informal advantages were less critical, but with only about 10–15% of proposals currently being funded overall, the differential would be detrimental for early-stage investigators.

The traditional difficulties of grant getting for early-stage investigators may also be compounded by unintended effects of recent changes in the NIH policies that are meant to streamline the peer-review process. The new, shorter application could theoretically even the playing field, as all investigators now have to adapt to the new format, but with less information included to form a judgment, information outside of the proposal, such as an investigator's previous track record, is likely to exert a stronger influence. The elimination of the second resubmission could also aid everyone, as it might prevent awards from being postponed to allow older proposals to be funded, saving time that could be particularly beneficial for young investigators. However, for an investigator that needs an additional round of review to improve a proposal, this would eliminate an extra chance. Finally, the new scoring system lends an air of uncertainty to the proceedings. As reviewers get their bearings, there may be proposals that get scored inappropriately on the first round, but get corrected as everyone gets used to the new system. For more established investigators, an extra round of review may be painful, but for a new investigator on the verge of running out of start-up funds, it could mean shutting down projects, firing personnel or, ultimately, the loss of one's job.

Although the system may be biased against young investigators, the bigger question is whether it is truly necessary to remedy this inequality. Historically, funding has always been more difficult for young investigators to acquire and it could be argued that there is no special need to intervene now. However, historical comparisons may not necessarily be fair. Funding levels have always been cyclical, but the current drop has been quite sharp, leaving investigators of all ages scrambling. In 2006 (the last year before the policy was implemented), the funding rate for new investigators was dismal, at about 15%. It is hard to imagine how the current generation of scientists can be sustained without substantial improvement in the funding outlook.

Support for young scientists has been a central mission for the NIH since the Zerhouni years and, in some ways, this new measure to equalize the playing field is not a dramatic departure from current NIH policy. Previous efforts to improve funding for young investigators included several targeted funding mechanisms such as the Pathway to Independence award. Although helpful, these awards were insufficient to provide systemic change for young investigators. Establishing a lab requires getting that first R01 grant funded, as it is both a substantial amount of money and, just as important, renewable.

Formalizing the NIH's discretion to fund R01s from young investigators has been criticized on the grounds that it circumvents the current peer review system, subverting the NIH mission to fund 'the best science'. Seen superficially, it can appear unfair; for every grant awarded to an early-stage investigator below the payline, another grant with a better score remains unfunded. However, these assertions rest on the assumption that the scores accurately reflect the quality of all proposals. This seems an unrealistic notion, given the known limitations of the current system. Moreover, administrators from program officers on up have always had the discretion to fund proposals below the payline to diversify the range of funded proposals. This affirmative action only helps to level the playing field for young investigators, who, thanks to the current initiatives, are just beginning to see success rates similar to those of more established investigators (http://www.report.nih.gov/nihdatabook/Charts/SlideGen.aspx?chartId=136&catId=13). Given the dismal projections for NIH budget growth, a step of this magnitude is necessary to support young investigators and to preserve the future of the scientific community as a whole. ■