THIS WEEK

EDITORIALS

Research for all

Numbers on racial bias in research grants awarded by the US National Institutes of Health show that science has more to learn about inclusiveness.

Data released this week paint a long-term picture of the racial disparity in grants funded by the US National Institutes of Health (NIH), and show that for nearly 30 years, applicants from minorities have been less successful than white and mixed-race applicants in receiving funding (see page 286). The data, obtained by researchers through a Freedom of Information Act (FOIA) request to the agency, extend previous findings that showed racial disparities in NIH grants between 2000 and 2006. Those results had already led the agency to dedicate hundreds of millions of dollars' worth of grants and programmes to try to rectify funding disparities.

These disparities are not only unjust; they harm scientific and medical progress by shutting off funding to deserving scientists, and ultimately harm society and patients who would otherwise benefit from these scientists' ideas.

The big task now is to determine why racial funding disparities arise, and how to erase them. Researchers who have studied such disparities in science say that bias probably plays out in subtle and unsubtle ways in the grant-review process itself.

In 2011, a team led by Raynard Kington, president of Grinnell College in Iowa, published a landmark paper reporting that black grant applicants were about two-thirds as likely as whites to be funded during 2000–06, even once factors such as publication history and training were taken into account (D. K. Ginther *et al. Science* **333,** 1015–1019; 2011).

Initially, the same study also found funding disparities between Asians and whites. But when the authors controlled for nativity — that is, when they attempted to distinguish Asians who were born and educated in the United States from those who had immigrated after receiving some or all of their scientific training — they found that there was no disparity in funding between whites and Asians who were US citizens when they received their PhDs.

Kington says that this finding shows that bias can work in more complex ways than along strict racial lines: for instance, in favour of native-born and against foreign-born grant applicants. Countering this effect requires changes to the peer-review process, but also action throughout scientists' education, training and career trajectories.

That will need measures to counter negative bias — the tendency to have stereotyped or unfavourable opinions about people belonging to particular groups — but it will also require strategies that take into account positive bias, which is the tendency to support, like and believe in people who are similar to, or have similar experiences to, oneself. Much of the disparity among funded researchers is thought to involve factors such as whether grant applicants trained at or work at the same institutions, study the same research questions and have published as much or in the same journals as peer reviewers.

> ***"Bias can work in more complex ways than along strict racial lines."***

The NIH is working on some aspects of the issue — for instance, its National Research Mentoring Network aims to foster diversity through mentoring. Pulmonologist Esteban Burchard and epidemiologist Sam Oh at the University of California, San Francisco, who requested the NIH FOIA data, support ideas that would require NIH grant reviewers to score grant applications on factors such as how the researchers plan to recruit diverse populations and how well the applications reflect the racial and ethnic make-up of the country. Another idea is to provide an administrative supplement to funded grants for the discovery of racial and ethnic differences in medicine.

Attacking such disparities — both in the ranks of science itself and at the level of the type of science funded — is a powerful idea. It deserves serious consideration as the NIH works to make sure that the research it funds is truly representative of the medical needs of the United States. ■

Defensive drives

Researchers exploring ways to genetically alter wild populations are wise to air their plans.

Often, scientists in a fast-moving field try to keep a tight lid on their work until it is published. But the authors of a paper published in *Nature Biotechnology* this week have been unusually chatty about their work, broadcasting their results over the past year and airing their plans for further research.

Because the work would make it possible to modify the genetics of entire populations of organisms, it raises a host of ethical and safety questions. The researchers consider it wise to prepare their colleagues and the public for the results to come, and to solicit suggestions from the community about how to execute such experiments safely. The technique in question is an engineered 'gene drive' — a system that can spread a mutation through a population much faster than normal. The practice could wipe out some insect-borne diseases, including malaria. But an accidental release could trigger unintended, ecosystem-wide consequences. As such, research that involves gene drives must be handled with utmost care.

The paper, published on 16 November, could ease concerns about accidental releases (J. E. DiCarlo *et al. Nature Biotechnol.* http://doi.org/89h; 2015). A team of researchers from Harvard Medical School in Boston, Massachusetts, has demonstrated that gene drives can be engineered that will work in laboratory strains of yeast (*Saccharomyces cerevisiae*), but that are unlikely to function in wild populations. And