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Diversity efforts demand resolve

Initiatives to measure the scale of equality gaps through extensive data collection are important — but so is acting on the results.

When it comes to diversity in science, the data paint a consistently depressing picture. A 2018 survey and report from the UK Royal Society of Chemistry showed that 44% of undergraduates beginning chemistry degrees are women, compared with only 9% of chemistry professors (see go.nature.com/2v7mdfv). But there is at least a growing recognition that we need data to document the issues and work out how best to address them.

With this in mind, two articles, published this week in *Nature Reviews Chemistry* and *Nature Reviews Physics*, collate statistics on women in the academic chemistry and physics communities around the world, and look at how these data can guide interventions (M. Peplow *Nature Rev. Chem.* https://doi.org/10.1038/s41570-019-0098-y (2019) and R. Skibba *Nature Rev. Phys.* https://doi.org/10.1038/s42254-019-0059-x; 2019).

The barriers start young. Teenage girls in developed countries, for example, are less likely than boys with similar academic marks to aspire to a job that involves using mathematics, according to a survey of students in 32 countries (M. Charles *Socius* http://doi.org/c5cm; 2017) — and if they do choose to pursue such a career path, they encounter obstacles at every step. The result? Yawning inequalities at the most senior levels of academia.

Although both chemistry and physics have a major leaky-pipeline problem, in physics, girls and women are also much less likely to study the subject at all, according to the *Nature Reviews Physics* article. And yet reliable data on gender and other metrics of diversity are patchy. The 2018 Royal Society of Chemistry survey, and data collected by learned societies around the world — such as the Max Planck Society and the US National Science Foundation — are valuable starts. Such surveys need to be updated regularly and, ideally, standardized to allow for comparison. There is also a pressing need to explore how the numbers differ in various regions and cultures of the world, and how best to address them within their respective contexts.

But data alone are not going to deliver change. What matters more is to act on them. STEP UP 4 Women, run by the American Physical Society, is just one example of a programme that produces material for high-school teachers to help inspire young women to pursue undergraduate degrees in physics. Many would argue that we need to start such efforts well before this age, to avoid stereotypes that become engrained early on.

Addressing diversity requires a suite of solutions, and a firm resolve. Better mentoring and support of those from under-represented groups could prevent talented researchers from being driven out of academia (A. M. Kloxin *Nature Rev. Mater.* http://doi.org/c5ck; 2019).

Some scientists leave research because of the challenge of squaring academic demands with other responsibilities, such as caring for an elderly relative or raising a family. One essential step is the development of better policies for promoting work–life balance — from simple department-wide initiatives, such as scheduling meetings at family-friendly times, through research-community initiatives (for example, conference scheduling and providing childcare at conferences), right up to nationwide policies that offer generous, and preferably equally shared, parental leave.

It is encouraging to see more policies and initiatives emerging to promote women and other under-represented groups in research. Collecting data to assess their impact and show what works is also important. But real improvements to diversity will be achieved only through widespread resolve and action on every front. ■

Support the Jasons

The elite science-advisory panel that guides the US government needs more-secure backing.

If there is one thing that President Donald Trump's administration sorely needs, it is rational, independent science-based advice on crucial issues. Which is why it was so concerning when the US Department of Defense (DOD) abruptly decided in March to end its long relationship with a science-advisory panel known as JASON.

For nearly 60 years, the illustrious scientists on the panel — the Jasons — have provided the US government with unvarnished, independent advice on matters ranging from classified military developments and nuclear weapons to artificial intelligence and global warming. The Pentagon said it was cancelling all but one study, on electronic warfare, and it made no financial sense to renew the full contract.

This decision would have effectively ended the group's work — but then, on 25 April, it received a last-minute reprieve. The National Nuclear Security Administration (NNSA) — a branch of the energy department that maintains the country's nuclear-weapons arsenal — offered new funding for the Jasons. But the contract runs only until 31 January 2020; previous DOD contracts lasted for five years.

The NNSA says it will explore longer-term funding. That's important: lurching from one short-term contract to the next is no way to run an advisory group essential for navigating some of the most delicate, complex and long-standing national issues. And this isn't the first scare: in 2002, the Defense Advanced Research Projects Agency controversially walked away from supporting the group, only to have a different branch of the defence department step in.

The latest decision sadly reflects the blasé attitude of the Trump administration towards science advice. Yet in legislation passed last year, Congress required the NNSA to work with the Jasons on research into the longevity of the plutonium pits at the core of thermonuclear weapons — important because the NNSA plans to restart a costly pit-manufacturing programme. Only the Jasons have the security clearance needed to provide a detailed assessment. That's one of the many compelling reasons why the US government must provide reliable, long-term support to ensure that the Jasons can do their job. ■