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Doing Our Part: How Scientists Can Tackle the Unequal Impact of the COVID-19 Pandemic and Other Disparities in Our Profession

By Tricia Serio and Joya Misra

Science has risen to the challenge of the COVID-19 pandemic, identifying the SARS CoV-2 virus within a month and developing an effective vaccine within a year. While this pace of discovery, innovation, and collaboration is inspiring, the pandemic has jeopardized our entire research enterprise in ways that were unimaginable for most scientists. By mid-March of 2020, nearly 80% of onsite activity was halted, resulting in the loss of nearly \$10 billion in taxpayer-funded research from the National Institutes of Health (NIH) alone. Reopening plans have struggled under limitations on use of space, travel, and access to reagents and equipment. While early analyses indicated surging manuscript and steady grant submissions relative to 2019, scientists, especially women, mothers, and Black, Indigenous, and people of color (BIPOC) and early-career researchers, reported decreases in research time of up to 24%, likely amplifying existing disparities in workload and opportunities.¹⁻⁴ And the outcome of these disparities is already beginning to emerge: Women are underrepresented as authors on COVID-19 manuscripts, reporting research that necessarily began after the start of the pandemic.⁵ Together, these realities predict that the impact of SARS CoV-2 on research progress will extend well beyond the pandemic itself.

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Numerous published commentaries offer insightful suggestions and creative ideas on how to slow or reverse these impacts, but if scientists are to truly address the impacts of the pandemic and the structural inequities amplified by it, we must be willing to reexamine how our own actions limit the effectiveness of equity-based interventions and to instead actively promote different paths to success in science, technology,

engineering, mathematics, and medicine (STEMM).

We can all start by:

1. Accepting that there are limits on resources and helping to prioritize what is most important

Calls to spend more to extend training periods, provide bridge funds, and continue with new hiring and graduate admissions, while laudable, do not acknowledge the significant financial strain existing in the academic research enterprise. While federal stimulus packages are a welcome source of support for higher education, much of these funds are already earmarked for direct student support, public health protections necessary for operations during the pandemic, and support for employees to return to positions that were scaled back in the face of financial stress. As a result, recent financial ratings reports predict ongoing uncertainty

for higher education in 2021 and decreases in available research funding.

If we cannot make new investments, reprioritization of available resources will be necessary. Federal funding agencies are already beginning to articulate their plans. Scientists have an important role to play in these decisions, as each institution must identify its optimal balance of new recruitment and support for existing faculty and trainees. Each of us can be an advocate for science by sharing our perspectives with administrators, governmental representatives, and supporters to make the challenges that we are facing apparent and to identify multiple avenues through which potential solutions can be pursued. For example, we raised awareness of the pandemic-related challenges faced by graduate students on our campus through a fundraising campaign, prioritized those disproportionately affected by the pandemic for internal research funding, and served as a resource for congressional staffers to amplify the efforts of academic associations and congressional representatives to integrate these needs into economic relief packages.

2. Helping to create a culture where it is safe to report unique challenges

Numerous institutions have introduced “COVID-impact statements” to provide the context that supports more holistic reviews.⁶ However, research shows that faculty engage in “bias avoidance” behaviors to minimize or hide personal circumstances that might create blowback.⁷ This fear is not unwarranted, as engagement in flexible work practices has been linked to a perception of reduced career commitment and can result in negative impacts on career advancement.⁸ But the COVID-19 pandemic has laid bare the fact that mutually exclusive situations—such as caring for a child or writing a paper—are not “choices” at all.

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Without question, creating the psychological safety necessary to reverse both the avoidance and consequences of acknowledging the realities of life requires a long-term, sustained, and holistic effort. Senior scientists can help to normalize work-life integration, reveal that many challenges are universal, and eliminate unnecessary roadblocks for those facing them by sharing our own experiences. For example, modifying our CVs and biosketches to report major life events and discussing our own circumstances at conferences, in faculty meetings, on grant review panels, and in other settings can raise awareness for all. And senior scientists can also actively advocate for equity by speaking explicitly about valuing diverse faculty to ensure that the pandemic does not “sweep away” those with caregiving responsibilities and other challenges that have been amplified by this crisis. On our campus, the ADVANCE program organized a panel discussion between top leaders and faculty on COVID-19 impacts that visibly promoted understanding and acknowledgment of faculty challenges, resulting in the development of guidelines for and implementation of COVID impact statements.

3. Becoming comfortable with equitable rather than absolute standards

Many institutions, including our own, offer tenure delays to promote research progress, but time alone may not erase structural inequities and may unexpectedly exacerbate them. For example, following a tenure delay for the birth of a child in economics departments, tenure rates rose for men but dropped for women. These differences corresponded to publication rates that increased for men but stayed the same for women, likely reflecting differences in caregiving responsibilities.⁸ Academic science is replete with such “absolute” productivity bars, including expected standards for

dissertation defenses, hiring, manuscript acceptances, and grant awards, that will be similarly affected by disparities in work-life integration. Despite the ease of implementation, equal treatment is simply not “fair” on an unequal playing field.

To promote different paths to success in STEM, scientists can advocate for flexible individualized and easily accessible workload adjustments and assessments of achievement relative to opportunity.⁹ For example, bench scientists and those studying human subjects, using animal models, conducting longitudinal studies, and depending on seasonal data collection have been disproportionately impacted by COVID-19 restrictions. Moreover, women with children and BIPOC scientists report the most severe reductions in available research time.⁴ For COVID-19 impacts, we can all advocate for the delay of

projects that are not time sensitive, be willing to shift assignments to account for personal scheduling challenges, adjust performance goals to account for changes in work requirements, and proactively champion delays in the timing of reviews that reflect actual impact for individuals who may not be comfortable stepping forward themselves.

Beyond COVID-19, we can all advocate for an open and honest assessment of workload distribution relative to our expectations. For example, women are asked to spend more time on service despite the known negative impact on research time,¹⁰ which is normally paramount in hiring, tenure, and promotion decisions; equity in this landscape means increasing the value placed on non-research components of faculty work or reducing its disparate assignment. On our own campus, many departments participated in the National Science Foundation ADVANCE-funded Faculty Workload and Rewards project, which identified that greater transparency and clarity in workload assignments have positive impacts on perceptions of workload equity.¹¹

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4. Holding ourselves accountable for changing the culture of science to ensure that diverse voices thrive

Decisions in academic science—hiring, annual performance, tenure, promotion, manuscript acceptances, grant reviews—are driven by peer review. Transparent accountability is an important step in overcoming implicit biases, which impact our assessments. In one striking missed opportunity, instructions for the NIH biosketch invite applicants to “explain factors that might have affected past productivity, such as family care responsibilities, illness, military service, etc.,” yet

colleagues serving on six separate study sections told one of us that when they asked about this point in relation to COVID-19, they were told by their scientific review officers not to consider these impacts in their reviews. We all can and must do better.

When asked to assess one another in these contexts, scientists balance the potential and achievements of our colleagues and project the future from a narrow window of time. Openly discussing this continuum between potential and achievement, as we did with a workshop on our campus, can help to highlight that the pandemic has changed the evaluation window but not the person being evaluated, and thereby promote equity. Scientists can hold ourselves accountable to this viewpoint by being willing to recalibrate our own expectations and by requiring one another to explicitly detail how disclosed pandemic impacts are reflected in our assessments. We can all advocate for NIH and other funding agencies to revise their grant review templates to require these explanations to promote transparency and discussion. And we can promote diverse representation on committees to provide different points of view in assessments.

Previous experience tells us that new policies can only take us as far as we will allow ourselves to go. This crisis is an opportunity to learn from our mistakes to create a better future for ourselves.

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