

19. Nebe, C. & Jalloh, A.-B. *DW* <https://www.dw.com/en/coronavirus-pandemic-driving-tech-solutions-in-sub-saharan-africa/a-53175841> (2020).
20. Africa CDC. <https://africacdc.org/download/outbreak-brief-18-covid-19-pandemic-19-may-2020/> (2020).
21. Africa CDC. <https://africacdc.org/download/covid-19-scientific-and-public-health-policy-update-19-may-2020/> (2020).
22. Africa CDC. <https://africacdc.org/news-item/illumina-partners-with-africa-cdc-to-strengthen-sequencing-capacity-for-covid-19-surveillance-in-africa/> (2020).
23. United Nations Economic Commission for Africa. <https://www.uneca.org/publications/covid-19-africa-protecting-lives-and-economies> (2020).
24. World Bank. <https://data.worldbank.org/indicator/SH.MED.PHYS.ZS> (accessed 10 May 2020).
25. United Nations Economic Commission for Africa. <https://www.uneca.org/publications/covid-19-lockdown-exit-strategies-africa> (2020).
26. Africa CDC. <https://africacdc.org/news-item/new-report-provides-african-governments-real-time-information-and-guidance-to-find-the-balance-in-covid-19-response/> (2020).
27. World Health Organization Regional Office for Africa. <http://whotogo-whoafrocmaster.newsweaver.com/JournalEnglishNewsLetter/16d09hirbv7> (2020).
28. Verity, R. et al. *Lancet. Infect. Dis.* **20**, 669–677 (2020).
29. Africa CDC. <https://africacdc.org/download/protocol-for-enhanced-severe-acute-respiratory-illness-and-influenza-like-illness-surveillance-for-covid-19-in-africa/> (2020).
30. African Union. <https://au.int/en/pressreleases/20200430/african-union-covid-19-response-fund-board-trustees-holds-inaugural-meeting> (2020).
31. Cornish, L. *devex* <https://www.devex.com/news/interactive-who-s-funding-the-covid-19-response-and-what-are-the-priorities-96833> (2020).
32. *Financial Times* <https://www.ft.com/content/8f76a4c6-7d7a-11ea-82f6-150830b3b99a> (2020).

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Competing interests

The authors declare no competing interests.



Preserve junior faculty in biomedical sciences during and after the pandemic

COVID-19 has disrupted scientific productivity in unquantifiable ways. Unquestionably, the biggest disruption has been felt by junior faculty. However, these bright young minds do not have to be sacrificed.

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The COVID-19 pandemic hit as the interview season for postdoctoral researchers was reaching its apex. Universities, which have had to absorb the substantial financial losses caused by the strategies used to control the pandemic, such as lockdowns rolled out worldwide, are instituting mitigation mechanisms to retain and pay existing employees.

The ensuing cuts and hiring freezes have meant that the job market for prospective junior researchers is becoming even more competitive. For those who were in already in the interview process, ‘chalk talks’ were done virtually, making it harder to ‘read the room’. Second visits were put largely ‘on ice’. Many who have gone through the interview process are in a figurative purgatory, awaiting confirmation that they will be able to start their labs in the fall. Those unable to find a job this year will be rolling over into an even more crowded space next year as more enter the market. Many postdocs whose finite contracts are coming to an end may not have the financial means to try for academic jobs year after year, which will result in a permanent loss of this pool of talent.

For those who have managed to secure new employment, not only are job start times being delayed but also there is a risk that time-limited startup funds may be partially reclaimed or blocked from extensions. Because scientists are locked out of their labs, the collection of preliminary data is being delayed, so junior



Image credit: Brain light/Alamy Stock Photo.

researchers will have less time to generate preliminary data and less time available to transition to independence. Furthermore, time to publication is also being delayed, and independent publication is needed for early-career researchers to remain competitive in the search for external grants.

However, it is not just about the data-collection time. Starting a lab is a grueling and time-consuming process for a new principal investigator that requires a period of trial and error: acquiring equipment, consumables and a reliable library of cells, samples and cultures;

navigating a new administrative structure; recruiting and training personnel; and learning what kind of a leader the principal investigator wants to be and how to narrow a research focus effectively. All of these crucial stages of professional development that are paramount to the success of a new lab have been delayed. This puts an impossible squeeze on the incompressible time window junior faculty have to establish a sustainable lab.

To manage the impact on our new colleagues, we strongly encourage funding bodies in all countries, such as the US National Institutes of Health, to extend the pathway to independence grant transitions (for example, K99/R00 grants in the USA), perhaps with a no-cost extension period of 2 years instead of 1 year, and to continue providing at least a portion of salary support during that time. For early-stage investigators (who have just started their labs), these agencies could grant an automatic 1-year extension of early-stage investigator status to allow preferential treatment of their grants.

Foundations could play an equally immense role by instituting creative disbursement of funds; for example, funds could be used to buttress startup packages that funding bodies may not be able to provide. Switching funds—even if only on a time-limited basis—away from awards and grants awarded to already well-funded established investigators toward junior faculty-focused funds would be of great impact. Foundations with substantial endowments could also consider using their ‘rainy-day’ funds, or funds earmarked for conferences that are now cancelled, to support junior faculty colleagues and senior trainees.

Universities can also take a leadership role at this crucial time in a junior researcher’s development. Time limits for startup funds, which are typically limited to 3 years, promotion and tenure clocks should be expanded by at least a year. This would go a long way toward alleviating the anxiety due to reduced productivity during this time and would reduce the risk of losing scientists in whom institutions have already invested so heavily. Importantly, in retrospective conversations assessing the quality of junior researchers, no figurative asterisk should be added indicating that it took them longer to reach an expected milestone.

Leadership should increase virtual supports related to professional development. For example, virtual writing accountability groups are a great way to help junior faculty build sustainable writing habits. Leadership can organize these groups to meet at times that will make it easier for faculty who are now juggling caregiving and homeschooling roles to participate. Chairs

and associate or vice deans for faculty can regularly check in with junior faculty. They can also host virtual coffee chats and happy hours to promote connections and reduce isolation. Importantly, university leadership should change the narrative from one of ‘business as usual’ to one that embraces grace and physical, emotional, mental and spiritual well-being during this difficult and uncertain time.

Fellow faculty have the most crucial role in supporting junior colleagues. In these troubled times, measures of productivity and bars set for tenure need to be shifted, with help from those who know the constraints of building a lab best. For example, in this pandemic, younger faculty are even more likely to have childcare issues that bedevil productivity. This issue disproportionately affects female faculty, as shown by observable disparity in manuscript submission by women versus by men during this time. Senior colleagues can help by proactively introducing rotation students and potential post-doctoral fellows to their junior colleagues and by protecting junior faculty’s time (alleviating them from committee work and teaching, for example) to allow them to concentrate on building their labs. More-established researchers should advocate for funding to be directed toward those in need at the early stages of their career, and chairs and senior members of a department should call for younger principal investigators to be prioritized in space, title and resource allocations.

One of the challenges social distancing has created is the abolition of conferences. Conference-based networking is essential for junior faculty and those entering the job market. Seminars and conferences allow a junior colleague’s work to be showcased such that the community is aware of accomplishments that can be drawn on when called upon to write external letters for tenure packages. As scientists are moving to virtual platforms to share their work, so should proactive showcasing of their work. Social-media platforms such as Twitter and online platforms for peer networks or society platforms allow a scientist to highlight the backstory and key data from recently published journal articles or preprints. These are often widely shared within the scientific community and allow younger faculty to maintain connections with colleagues. Peer networks can provide important opportunities for virtual seminar invitations, collaborative opportunities and more. Senior colleagues should amplify junior faculty’s effort in this space and should showcase the achievements of junior faculty as well as trainees (such as fellowships, PhD qualification, dissertation

defenses and virtual presentations). This has the benefit of advertising labs and improving career placement for trainees, as well as helping junior faculty recruit to their labs by endorsing them.

Finally, and importantly, our physician-scientist colleagues, many of whom have traded their lab coats for scrubs, have been isolated from their families and have headed into the clinics to help take care of patients with COVID-19, deserve a special mention. Those who are bravely leading the response to the pandemic on the front lines are reporting the traumatic nature of this particular pandemic. For them, there is no time to think about science, let alone try to be productive in their research fields in any shape or form. The research community needs to support them, academically, personally and financially, perhaps again through special grants targeted to physician-scientists. Their immense sacrifice should not go unnoticed or unrewarded.

In summary, this is a time like no other in recent history. Scientists have had to cull animal colonies and halt critical experiments and clinical trials, and physicians have had to make an abrupt switch to telemedicine. Gearing back up to full capacity will take several months while the world awaits a vaccine. In turn, this delay will cause setbacks to junior faculty that may take several years to reverse. To overcome these, in addition to proposed financial measures and re-designing of traditional awards, the research community can also be impactful collectively by revising the hallmarks for judging success over the next 5 years, by providing virtual means of support and, most importantly, by preserving a pipeline for new talent. The overriding message needs to be one of care, of altruism and of togetherness. We can and we will get through this as one community. ▣

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