

Urgent government funding is needed for effective, diverse and equitable medical research

by *Women's Agenda*

COVID-19 has identified the chronic flaws of how medical research and tertiary education have been chronically underfunded for years in Australia, with [massive job losses](#) recorded in 2020.

Three immunologists, Dr Jessica Borger, Dr Kate Lawlor and Dr Kylie Quinn share this piece.

As they write, Australia needs a diverse and equitable research and innovation landscape to remain competitive internationally. But this imbalance has been exacerbated by the loss of university revenue, with [early-mid career researchers \(EMCRs\)](#) and females being disproportionately affected.

Government support of research has been waning

A researcher's career success depends on key indicators including publication of their research, conference presentations and successful award of grants. The impact of COVID-19, including forced lab closures and banned travel, has disrupted attaining these goals, significantly impacting a researcher's chances of future funding. In particular ECRs trying to establish their independent careers and those with carer responsibilities who were burdened with remote learning, will be the greatest impacted.

Government administered grants, successfully awarded to only 11-15% of applicants, cover about 80% of the total costs of a project that include the costs of hiring EMCRs undertaking postdoctoral studies to become our next generation of innovators. Universities have traditionally covered this gap using international student fees, but this revenue is now unavailable. Universities, and many underfunded not-for-profit and charitable Medical Research Institutes (MRIs), are also struggling in the aftermath of the [collapse of a National Tertiary Education Union pay cut deal to save up to 12,000 jobs](#), the loss of casual positions, and [exclusion of all staff from access to a federal government COVID-19 wage support](#) JobKeeper, including [not-for-profit and charitable MRIs](#). On top of chronic underfunding of the entire sector this lack of support is now placing future innovation in Australia at risk.

The impact of COVID-19 on research is inequitably distributed

The impact of the [government's failure to support the sector](#) unfairly impacts those on short-term or part-time contracts, teaching staff and early career staff, which are filled largely by women and primary caregivers.

In fact, [many gendered impacts of COVID-19](#) have already become apparent since the global crisis began. A recent COVID-19 impact survey by the [Australian Academy of Science's Early and Mid-Career Researcher \(EMCR\) Forum](#) illustrated that female EMCRS with carer responsibilities report the highest level of detrimental career impacts and mental stress. This is a consequence of the juggling act created by home-schooling, extended work hours, disturbed worktime, and job/financial insecurity. We must act now to preserve this valuable demographic in Australia's scientific workforce.

Australia lags behind the global response

Prior to COVID-19, a number of research funding agencies around the world had practicable approaches to research funding. [For example, government funding agencies in Europe and the US covered all direct costs plus an additional 80% for indirect costs.](#)

In response to COVID-19, a number of research funding agencies have taken concrete steps to support their workforce. The German Research Foundation (DFG), the European Union research program [Horizon 2020](#), and the American National Science Foundation (NSF) and National Institutes of Health (NIH) have provided '[administrative relief](#)' for their grants. This includes extending the duration of funded projects, providing extra funds to cover salaries for delayed projects and allowing researchers to reallocate budgeted funds to enable working remotely. A major funder in the UK, UK Research and Innovation (UKRI), also announced a £180 million [COVID-19 Grant Extension Allocation](#) to retain UK's research talent.

Australia, on the other hand, is lagging behind. Our local funding agency, the National Health and Medical Research Council (NHMRC), [has acknowledged the impact of COVID-19 disruptions on particular groups](#). However, the NHMRC has articulated that similar grant extension and potential reallocation of money would disadvantage researchers with no current funding, including disproportionately EMCRs and women (Figure 1). As a measure to prevent EMCR losses, the [Association of Australian Medical Research Institutes \(AAMRI\) has called for 300 new fellowships each year for the next 3 years from that would equate to a \\$543 million dollar investment](#), yet this mechanism does not address gender mitigation.

Women and EMCRs receive less funding support

In an attempt to tackle unconscious bias, a lack of role models and the long-term unequal funding of female researchers, the NHMRC has created an initiative that uses residual allocated money to fund competitive female-led grants. Superficially, this initiative appears to be working; with almost equivalent NHMRC funding rates in 2019-20 (Figure 1). Nevertheless, women are still only awarded ~40% of the total budget, and removing priority funding reveals that funding rates for women are still ~2-4% lower than men (Figure 1).

Regardless of funding rates and equity initiatives, the number of grant applications from women at mid-career levels onwards shrinks dramatically (Figure 1). This decline in female researchers starts at a stage when EMCR's would be juggling their independent research programs with maternity leave and carer responsibilities. Without additional government funding, undoubtedly, these statistics will only worsen with the impact of COVID.

How do we mitigate a loss of women from research?

Long-term, funding bodies like the NHMRC need to attain equal quotas and funding amounts across gender and career stage. To mediate this short term, priority funding needs to be considered for EMCRs to support the establishment of their careers, as well as for senior level women scientists to maintain a generation of mentors for future innovators.

Now, given the funding void, the government should not only provide Universities and MRI's with enough financial aid to secure jobs during COVID-19 through the immediate extension of Jobkeeper but also provide realistic future medical research budgets. Ultimately, this approach would: 1) prevent the predicted loss of 7,000 research and 20,000 academic jobs, 2) preserve our innovation capacity and aid in Australia's economic recovery and 3) be the most direct and equitable mechanism to support vulnerable researchers.

The impact of losing a generation of young Australian researchers would be catastrophic, particularly a generation that has seen advances in diversity and inclusion. Tackling our current

and future global health challenges requires diverse research teams to deliver outcomes for research, patients and communities, so we must act now to preserve this capacity.

Figure 1: Gendered trends in application and funding rates for two major Australian NHMRC schemes, Ideas and Investigator grants, for 2020. A) The number of applications from females are consistently lower for both schemes, B) the proportion of applications from females at each stage for the Investigator grants drops substantially from mid-career onwards and C) the proportion of applications deemed fundable after removal of the structural priority (SP) scheme is markedly lower for female as compared to male applicants in both schemes.

Dr Jessica Borger is an immunologist at Monash University with diverse research interests in both cancer immunotherapy and chronic lung disease. She is also a passionate science communicator and advocate for gender equality in STEM.

Dr Kate Lawlor is an immunologist at the Hudson Institute of Medical Research, Monash University, whose research focuses on how cell death contributes to inflammatory and infectious disease. She is co-chair of the Equity and Diversity Committee at Hudson Institute and an advocate for gender equality in STEM.

Dr Kylie Quinn is an immunologist at RMIT University, whose research focuses on the impact of ageing on immune-based therapies such as vaccines and chimeric antigen receptor T cell therapy. She is a keen science communicator and current Women's Initiative Coordinator for the Australia and New Zealand Society of Immunology.