UNIVERSITY OF AUCKLAND
FACULTY OF MEDICAL AND HEALTH SCIENCES
POSTDOCTORAL SOCIETY

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CONTEXT

We are responding on behalf of the University of Auckland, Faculty of Medical and Health Sciences (FMHS) Postdoctoral Society. We represent a large body of PhD-qualified emerging researchers in New Zealand, specifically involved in a wide range of health-related research spanning clinical, translational and biomedical specialities. We recently completed a survey of our members (May - October 2021) where we asked various questions about work conditions related to contracts and FTE of our members. A total of 177 participants responded, mainly from our faculty, however survey circulation also included some members of the Science and Engineering faculties. While we will primarily discuss statistics from our faculty (including the Liggins Institute) we note that the key trends are consistent in the full dataset. We received 122 responses from our faculty, plus 10 from the Liggins Institute which is co-located and included in our society. These data inform the responses we have formulated to the Future Pathways process.

Being a predominately early- to mid-career workforce, we have significant concerns for the mid- to long-term future of research opportunities in Aotearoa. The majority of our members are directly affected by the proposals outlined in Te Ara Paerangi Future Pathways green paper, and we thank you for the opportunity to respond. Our perspective for this submission is briefly described in the Background section, followed by our thoughts to proposed changes in (1) TE TUKU PŪTEA | FUNDING, (2) TE HUNGA MAHI RANGAHAU| RESEARCH WORKFORCE, and (3) NGĀ WHAKAAROTAU RANGAHAU | RESEARCH PRIORITIES.

Background to our Society Membership

Firstly, to provide context to this submission, we wish to highlight key findings from our 2021 FMHS Postdoctoral Society survey, which provides a snapshot of the early-mid career academy in our faculty. Our membership is open to all FMHS staff who are post-PhD qualification and below Associate Professor. While a significant proportion of our members are in the first few years of their postdoctoral career, over half of our respondents were awarded their PhDs more than 4 years ago, and 46% have more than 4 years of postdoctoral research experience. Almost one in three have worked at the University for more than 5 years, and half of this group have been at the University for more than 10 years. Despite being an incredibly experienced, highly skilled and specialised workforce, precarious employment is the norm. More than half of all respondents had been employed on 3 or more contracts, or post-hoc extensions of fixed-term contracts at the University of Auckland. The majority of our members are employed as Research Fellows (RF), a role that is purely research based and funded, although the University of Auckland academic

standards for promotion require a degree of service and teaching. Overall, the picture of our typical member is a highly skilled researcher who brings their expertise to bleeding-edge biomedical, and medical research but struggles to access stable employment in the university research sector, despite in many cases a relatively long precarious tenure. RFs and Senior RFs (SRF) have very few opportunities to become permanently employed, even if they stay long term in the same research group. The few permanent respondents were predominantly associated with Lecturer or Senior Lecturer roles, which are predominantly teaching based and as such typically draw funding from non-contested sources. Although our survey respondents have the potential to be key players in the future of academic research in Aotearoa New Zealand, their experience with current research funding and institutional structures is likely to lead to attrition and concomitant loss of their specialised expertise and contributions to advancing scientific knowledge in health-related fields. Beyond the loss of technical expertise, we should also consider the implications that precarious employment has for individuals at a time in their lives when they are often starting families and buying houses, or seeking more permanent immigration status in Aotearoa New Zealand. The barrier of precarity is a well-documented force preventing engagement with research roles that removes the richness these people would otherwise add to our academy.

Our members reflect a somewhat diverse ethnic cohort, although Māori and Pacific peoples are poorly represented. Our results align with those from other University of Auckland demographic surveys, (Pākehā/NZ European (44.5%), other European (20.2%), Chinese (8.7%), Indian (6.4%), and Other Asian (11%).

Notably, only 4% of respondents identified as Māori, and 2.3% as Pacific peoples. The team authoring this submission does not have representation for these groups and thus we will not directly address the aspects of this process relating to equity, Te Tiriti and Mātauranga Māori, except to note that we believe they and their cultural knowledge are of great value to our research community. While we could have approached Māori of Pacific colleagues for contribution to this submission, we are acutely aware of recent reports referring to ‘Aronga Takirua’, or the uncompensated second shift that Māori researchers are often expected to participate in. We see the burden this places on our colleagues and the inequitable workload it creates. As we are aware of submissions under development from groups with the expertise to directly speak to the experience of Māori and Pacific peoples in the academy and broader research sector, we instead prefer to tautoko these works and strongly back calls to better support these colleagues. We hope that our suggestions in this feedback may help in addressing the insecurities currently associated in pursuing research careers, and that Te Ara Paerangi can lead to more equitable outcomes, and better representation in our research workforce.

NGĀ HINONGA | INSTITUTIONS

KEY QUESTION 9 & 10: How do we design collaborative, adaptive and agile research institutions that will serve our current and future needs? How can institutions be designed or incentivised to better support capability, skills and workforce development?

From the perspective of ECRs, there are both negative and positive incentives to drive better support of capability, skills and workforce development. The obvious negative incentive is to penalise base grant funding or reduce overhead rates paid to institutions that fail to provide tangible evidence of improving the capabilities of, or providing training to, an early-mid career research workforce. Eschewing institutional financial risk is a common rationale for maintaining precarity, thus it follows that threats to institutional finance form a good lever to reform bad actors. We acknowledge that this is a crude tool, however we believe that the entrenched nature of attitudes towards precarity, particularly in the senior ranks of academia, require significant course correction.

More positive levers for workforce development could be to increase the number of CoREs or development of core infrastructure and centralised resources. Centralised resources and infrastructure can provide open access to skills and equipment which in the current research environment is inaccessible, not widely known-of, or duplicated. This centralised resource and infrastructure model can enhance collaboration across institutions, thereby increasing overall capability across institutions, and can open up more specialised technical jobs such as a Postdoctoral Technical Specialist for PhD qualified researchers. Researchers in these roles should have the opportunity for continual education/training to ensure that they are up to date with the most cutting-edge research techniques to support the introduction of new skills in the NZ research workforce. In essence, through a more centralised focus on developing research infrastructure, more stable career pathways could be developed providing options decoupled from institutional funding. While a simplistic view of this concept might rightly provide the criticism that deduplicating resources or infrastructure actually shrinks the job market, we believe that properly managed this should not be an issue. Cost reallocations may allow for salary support for the Technical Specialist type roles to share workload between a greater number of staff while using partial FTE to pursue personal research interests. As this idea would in effect create hubs of technical expertise, there is the potential that this model could drive technical innovation.

Furthering the concept of a centralised resource model, a more invested approach could be to investigate co-location of Crown Research Institutes (CRIs) on university campuses. This concept often draws strong responses based on historic precedent, but we note that it might not be limited to existing CRIs. Through centralisation of resources as described earlier we might find scope for development of novel CRIs that are more naturally hosted within a university environment. Co-location could create a ‘leaner’ approach to the CRI model that can reduce inefficiencies in a system that might currently maintain similar facilities at multiple locations and thus free up funding to invest directly into training and support of researchers (rather than more infrastructure). More

importantly, as above, this ensures more equitable access to resources, equipment, and reduces the geographical barriers to collaborative research by also centralising research talent.

TE HUNGA MAHI RANGAHAU| RESEARCH WORKFORCE

KEY QUESTION 15: What impact would a base grant have on the research workforce?

In the current situation different institutional overheads applied to grant funding create an uneven playing field as salary related costs place different restrictions on the bounds of a research proposal depending on where the research will be hosted. While at first glance it could be argued that this should be counterbalanced by greater core resource provision at institutions with higher-overheads (and thus research should be achievable at a lower cost point), free access to these resources isn't necessarily a reality for early-career staff. Indeed, it is not-uncommon for fixed-term researchers to be denied access to institutional resources purely because of the fixed-term nature of their contract.

Further, it must be considered that the net monetary value of a grant (e.g. a Marsden Fast-Start or Rutherford Discovery Fellowship) is at times less significant compared to the prestige of winning that grant and the long-term downstream effects on career trajectory. The net effect of the current overheaded grant system is that many ECRs can only allocate a very small portion of their FTE to a research project funded by the most prestigious grants they can apply for, and must walk a fine line between what body of work can credibly be proposed, and realistically achieved. Obviously, researchers who have baseline salary coverage from non-soft money feel this pressure less acutely. We believe that this is one compelling argument for transitioning to a base grant concept. In effect, the playing field would be levelled as variable institutional salary costs become decoupled from the research budget.

Furthermore, overheads play into the well documented trend of principal investigators preferring a PhD student on a project, as opposed to a postdoctoral fellow or technician. As PhD stipends are not overheaded their labour has a lesser impact on the research budget, in contrast, postdoctoral or technical staff are disproportionately more expensive. While it is uncomfortable to suggest that we should decrease PhD training opportunities, the lack of career stability post-PhD also doesn't suggest we should be ever increasing the pool of PhD qualified individuals competing for positions. Establishment of a base grant does not necessarily input more funding into the system, so it would be disingenuous to suggest that a base grant will always directly influence the desirability of a PhD student versus a postdoctoral fellow or technician. However, as with above, the removal of overheads removes some of the direct impact of staff on research budgets and may lead to a shift in attitude.

Recent changes at the University of Auckland are also relevant to the question of a base grant. The University has recently released a policy providing an avenue to permanence through maintenance of a high-level of personal salary support (80% as PI) over a five-year period. It is simple to see how high overheads and static grant values are inputs in the difficulty of achieving this, forming a barrier to job stability. While the direct implications of this policy are not clear at the moment, any change to the research system that increases funding stability will be positive for staff under this policy. Depending on the nature of base grant implementation this could be a factor in access to stable employment, although the reality is that we hope changes to the overall system will lead to this policy becoming irrelevant.

KEY QUESTION 16: How do we design new funding mechanisms that strongly focus on workforce outcomes?

As ECRs, it would seem beneficial for us to create a scenario where prosperity in the institution is linked with prosperity of the individual. Whilst the base funding model appears to be an attractive alternative to the status quo, we believe that whatever the changes are that get applied to the funding model there must be a number of carefully constructed checkpoints that ensure funding does not unintentionally disadvantage the existing precariat in the current research environment. Further we would like to see the funding system actively reward development and retention of early-career researchers.

We have compiled six suggestions that we would like to urge that the MBIE considers when designing new funding mechanisms.

ONE: A substantive portion of any base grant funding iteration is proportionally linked to the size of the precarious research workforce at an institution - this incentivizes the inclusion of these populations in the research workforce.

TWO: Test for precarity – the new system should address precarity in ECR employment and be an improvement on the current system. Keeping the status quo would be a regression. Currently, we theoretically mirror international models where ECRs are on fixed-term contracts until they transition into a permanent position. However, in practical terms, the second half of this model is missing as there are very few permanent positions available at the end. To recap, data from our recent FMHS Postdoc Survey notes only 3/122 respondents were on permanent research contracts; the other 11 permanent respondents were in teaching roles and on average, our research workforce has been employed within the faculty for 4 - 6 years continuously. In some overseas universities, there are a maximum number of postdoc positions one can be employed in before being offered a tenured position. For example, in the USA, temporary postdoctoral appointments are limited to 5 years in NIH-funded extramural or intramural programs, in a context where there is much greater scope for non-postdoctoral research positions (e.g. Staff Scientists). There is no safeguard here for ECRs to prevent perpetual employment on fixed-term contracts. Indeed, research-support staff who are often funded through the overheads on research grants often enjoy better contract-stability than the researchers they support. In reality, many researchers progress their careers well into the mid-career stage on fixed-term soft funding, or leave the field seeking stability. We believe this is our opportunity to change the system to ensure that New Zealand is a world leader in progressive hiring practices where ECRs have a defined career trajectory, akin to that afforded to other university qualified professionals.

THREE: A portion of the funding should be allocated as a career development fund – new initiatives to develop researcher skills, including hard skills and soft skills required to work in industry, CRIs, as well as academia. This should also support career advancement, through mentoring programmes, yearly ECR conferences (cf. He Pito Mata) and other opportunity-creating initiatives. We believe the allocation of this funding will build a more adaptive, resilient and productive (through industry, CRI & academic collaboration) workforce to maximise the benefit our future leaders can bring to the New Zealand research space.

FOUR: Development of a research career pathway in academic institutions – for those who do not want or cannot access a primarily teaching position (i.e., the 40:40:20 model, currently the predominant way to get a permanent 1.0 FTE at an academic institution). There needs to be a defined, accessible and accepted pathway to securing a permanent research position which allows NZ researchers to focus solely on maximising research productivity.
One option could potentially be the funding of Staff Scientist positions. We envisage that a successful Staff Scientist would partially be funded as a permanent service role, offering expert advice and technical services, whilst maintaining a portion of their FTE allocated to managing their own research projects. We believe that this is a win-win scenario as it allows certainty for part of their FTE, while maintaining a research portfolio to ensure that they remain up to date, relevant and competitive in the latest research and research practices thereby increasing the quality of service they provide.

FIVE: Increasing people-centred funding. One suggestion is to increase funding of researchers (e.g. through fellowships) as opposed to funding of projects. This allows for flexible funding where the research direction of the individual is not tied to projects or specific project outcomes. Some PIs are unsupportive of their postdocs expanding research in multiple avenues whilst being on their research grants as this is seen as using 'company time' for other activities. For some ECRs remaining focused on the tasks described in the funding that employs them is the only path to re-employment, while simultaneously a career and progression limiting move. There is also an argument that PIs are incentivised to prevent these career-building activities as it may result in loss of personnel who move on to other positions, or increased cost through promotions. Funding individuals allows flexibility in both projects, and choice of institution. If the funding follows the researcher this allows one to transition between universities, CRIs and industry maximising the value provided by harnessing the environment that best allows the research to be conducted, while exposing and upskilling the researcher for future positions.

Flexible funding should also be flexible in terms of timelines. The early-mid career represents the time in life where researchers build families and have caregiver obligations. A more flexible timeline should allow for pausing of funding for parental leave as well as partial funding via other sources.

SIX: Funding distribution should be transparent. In the current system there is very little transparency within the institution about where the research funding obtained via overheads to academic institutions is spent.
We believe that there needs to be transparency and accountability on how the institutions are to spend the overhead research funding to ensure that this scarce resource is maximised to support research activities, especially where financial stability is used to justify researcher precarity.

In summary, we have included suggestions which we believe highlight the core features any funding model must contain to protect against future workforce instability through precarious employment. The concept of base-funding contains many attractive features; however we realise that implementation may be contentious. We believe many of these suggestions can be implemented independent of the overarching base-funded or overheaded model, and provide the best avenue to a stable early-mid career research workforce.

NGĀ WHAKAAROTAU RANGAHAU | RESEARCH PRIORITIES.

KEY QUESTIONS 1, 2 & 14: What principles could be used to determine the scope and focus of research Priorities? What principles should guide a national research Priority-setting process? How should we include workforce considerations in the design of research Priorities?

We believe that the scope and focus of research priorities should take into account the research workforce. As such we are unable to separate the principles used for guiding scope and focus of research Priorities, from workforce considerations in their design and will address both herein.

Research Priorities are a significant investment to address pressing current concerns. As part of this investment, researchers, particularly ECRs, are trained in key specialities. With the current level of precarity in employment of early-mid career researchers, we believe that workforce issues fundamentally affect the design of a Priority-setting process. In the status quo, competitive research funding, or institutional priorities dictate training of researchers, who may then leave research due to the lack of employment and employment precarity. This creates a futile cycle where short-term funding decisions dictate the retention of highly skilled researchers after a huge investment in their training. Building a national research career strategy for researchers will enable workforce planning, and in turn generate strength and stability in desired areas, facilitating long term retention of the skills the country has invested in through priority research funding.

Consideration must also be given to the current strengths of our research workforce. While the specialty makeup of our current workforce may not align to future priorities, there is huge risk to throwing today's workforce under the bus in an effort to build one that will address Research Priorities. There should be an emphasis on enhancing the strengths of our research workforce while modulating the direction incoming trainees take, as part of designing Research Priorities.

We propose that a viable approach would be to consider Priority setting from two sides. Firstly, what are the key areas where we need to build expertise for the future? Secondly, where does our current expertise sit? Priorities should then be set so as to maximise use of our current workforce, while also building the future workforce. Flexibility must be a feature of Priority setting. As the current workforce, shaped by ad hoc funding preferences ages out, priorities that were determined by past workforce makeup may be set aside. Priorities set for future needs will take their place using a workforce that has been shaped, by design, to address them.

This dictates that research Priorities must be both long term and short term, although this may not be delineated at their advent. The setting of a research Priority means that additional funding available during a period, results in more ECRs being trained into a certain area of research. In effect there are more ECRs trained to work in a very niche area and gain expertise and knowledge within this niche that may not be translatable to other areas. When research Priorities change, we must not pull the rug out from under these researchers. Essentially, the process described in the previous paragraph is likely to form a perpetual cycle of gradual attrition and renewal alongside the waxing and waning of Priorities.

A danger in setting high level research Priorities is that they address key 'impactful' outcomes, which may lead to neglect of the basic research that underpins eventual impact. There needs to

be a balance in funding allocation for research Priorities and for fundamental research. Alternatively, there could be two separate pools of funding for research Priorities and for fundamental research to ensure that there is equitable distribution. The separation of funding between research Priorities and fundamental research is critical to ensure that 1) researchers still have funding opportunities the day after the current research Priority has expired, 2) that basic background research can still occur to form the basis of research for the next Priority, and 3) that we don't lose the innovation that results from unknowns becoming known. A route to a research Priority we have not conceived of cannot be mapped without the existence of its fundamental underpinnings.

The advantages of ensuring adequate funding for fundamental research are clearly highlighted in the pace of the development of the COVID-19 vaccine, which was built on the backbone of research into mRNA vaccines and a SARS-CoV-1 vaccine. Ensuring that fundamental research continues to be funded, and is adequately funded, allows continuation of research that does not meet a current Priority, alongside informing new research Priorities to be kick started with a strong foundation built from fundamental research funding.

SUMMARY

The Te Ara Paerangi Future Pathways green paper has provided early-mid career researchers an unprecedented opportunity to provide input into the future shape of our research system. For many of us, the scope of this paper combined with the generational complexity of our current research environment is simply overwhelming, yet we feel a deep need to contribute our reality and ideas to this process. On behalf of early-mid career researchers at the Faculty of Medical and Health Sciences, University of Auckland our Postdoctoral Society committee have collaborated to prepare this submission. Our submission does not address the green paper in a comprehensive manner, because to do so is simply beyond us. The very issues of precarity and overwork we seek to address through this submission dictate that we have only limited time to invest in a process that is likely to result in changes coming too late for us. Despite this, we have put our best foot forward. Although much of our feedback is in the form of concrete suggestions, we hope that the principles and values that underpin these suggestions are clear and can be applied beyond the areas we have fed back on.

To summarise; Aotearoa New Zealand's research system currently incentivises employment of early-mid career researchers in fixed-term, precarious positions until they determine it is no longer tenable, or funding runs out. Every year, we take institutional knowledge, specialist subject knowledge and the good-will of invested, well-meaning researchers and throw it away. The equity implications, in a system that is well documented to favour Pākehā men are stark. We believe that our future research system can alleviate these issues through a focus on supporting qualified people during their early career and that this investment will be returned through development of an equitable, imaginative, dedicated and happy workforce.