

Early and mid career researcher forum

A FORUM OF THE AUSTRALIAN ACADEMY OF SCIENCE

2012 McKeon Strategic Review of Health and Medical Research

Follow-up Submission, Australian Early-Mid Career Researcher Forum Australian Academy of Science

The Australian Early-Mid Career Researcher Forum (the Forum) is the national voice of Australia's future scientific leaders. The Forum examines critical issues including career structure, education, job security, funding, training and gender equity across multiple scientific disciplines. Operating under the auspices of the Australian Academy of Science, the Forum liaises with key national organisations, such as the Australian Society for Medical Research and Science & Technology Australia, to positively contribute to Australia's health and economy, and the future careers of our emerging scientific thought-leaders and experts.

The Strategic Review of Health and Medical Research (the McKeon Review) is an important opportunity to present positive recommendations to Government to not only secure Australia's future in health and medical research, but to also secure the future of its emerging scientific researchers. Several members of the Forum attended the different McKeon Review public consultations around Australia and three members also met with the McKeon Review panel in Melbourne. Our first submission and multiple slides presenting supporting data have been submitted to the McKeon Review Secretariat in April, 2012.

The Forum thanks the McKeon Review panel members for their considered deliberations and would like to reiterate **four key points** that require the most urgent attention (please refer to box below).

It is critical that we effectively train and ardently support early-mid career researchers (EMCRs) into the future. Strategies to achieve this include:

- (1)** Developing diverse PhD training programs that produce world-recognised and highly competitive PhD graduates who are job-ready for multiple career paths, including research;
- (2)** Providing significantly more early-mid career research fellowships to directly fund EMCRs as Chief Investigators, allowing them to establish a solid track record earlier and reduce competition with established senior researchers who have extensive track records;
- (3)** Developing a clearer, more secure and long-term career path structure to "box up the pyramid" and;
- (4)** Developing effective family-friendly policies which support the scientific careers of female researchers and providing them sufficient opportunities to reduce the loss of talent and maintain women in scientific careers.

The Forum reiterates that career establishment, development, progression, security and retention are all key issues that urgently need to be addressed.



In follow-up to the Forum's various discussions with the McKeon Review panel, this short submission aims to provide some practical suggestions for how the **NHMRC grant application and review process** could be modified. The Forum advocates one additional grant round per year since this increases the opportunities for EMCRs to apply and reduces the length of time required for bridging funds to be found when necessary. This would need to be accompanied by a reduction in the number of grants which could be submitted per round, to avoid administrative and time overload on the NHMRC, external assessors and grant review panel members.

We present several different scenarios for consideration (Appendix A) and also outline suggested changes and/or restrictions on funding by academic rank, career stage and/or funding type.

Define academic ranks more clearly for funding purposes:

- junior postdoctoral fellow (0-5 years post-PhD).
- senior postdoctoral fellow (>5 years post-PhD).
- Group Leader (Dr, Assoc. Prof. and Prof.; *at any stage* post-PhD, but once a fellow has achieved independent Group Leader status, they should no longer be eligible for funding intended for postdoctoral fellows. e.g. CDFs).

Award Project Grants by career stage:

Group Leader (Professor):

- in 2011, Professor-level CIAs received more than half of all project grant funding (**53%**).
- Professors have the strongest track record, the best grantsmanship skills and training, and greatest productivity and resources – typically with a team of personnel performing research and supervising students/staff.
- Professors are more likely to be successful with grants and spend the least time writing their applications.

Group Leader (Assoc. Prof. and Dr):

- in 2011, Dr and Assoc. Prof.-level CIAs *together* received less than half of all project grant funding (**47%**).
- Dr and Assoc. Prof. find it more challenging get grants since they are still developing their track records and grantsmanship skills.
- Dr and Assoc. Prof. are more likely to have smaller teams, fewer resources and are often still performing personnel training and experiments themselves.

Postdoctoral Fellow (Dr – junior 0-5 years; senior >5 years):

- in 2011, postdoctoral fellows were included with those investigators who received less than half of all project grant funding (please see above).
- postdoctoral fellows find it much more challenging to get grants since they have emerging expertise and track records, with limited grantsmanship skills.
- postdoctoral fellows are unlikely to have a team of personnel, often working alone on a project, or with a student/research assistant.
- postdoctoral fellows are usually performing personnel training, student supervision and experiments.

Suggested immediate changes to ease the pressure:

- restrict the amount of funding per research group (e.g. NIH limit is US\$1.5M in any 1 year).
- reduce the number of project grants an investigator can hold. Under the current system, a senior investigator who has four postdoctoral fellows in their group could theoretically have 30 NHMRC Project Grants within the group (6 x 5 investigators), though we believe this is unlikely to occur in practice.

- assess grants alongside investigators at the same career stage (irrespective of the number of years post-PhD). If an investigator has passed rigorous assessment by the promotions committee and appointed at a certain rank e.g. Professor, then they should be evaluated alongside other Professors.
- restrict availability of New Investigator grants and CDFs to postdoctoral fellows only (junior or senior fellows), not established group leaders.
- fund new investigator grants from a dedicated pool of money and weighing the scores more heavily toward the project and the novelty of the idea, rather than the track record of the EMCR. Other projects grants (especially those awarded to senior investigators) should be heavily weighted on the track record, mentoring and demonstrated productivity.
- encourage institutes and universities to employ scientifically-trained staff for their research administration offices to assist with brain-storming and grant writing.

Create a new opportunity for mid-career researchers:

- Mentored Awards with EMCR as CIA, Senior Investigator as CIB
e.g. Two years as senior postdoctoral fellow and three years as a mentored Group Leader. This facilitates transition to an independent Group Leader position.

Should Project Grants be extended to 5 years?

This was proposed at the Melbourne public consultation:

- Project Grants scoring 7 or 6 – awarded 5 years funding
- Project Grants scoring 5 – divide the remainder of the funds to all these grants (likely 1-2 year grants which are smaller)

The Forum would like to highlight the advantages and disadvantages of this proposal:

Advantages:

- less grant-writing, saving time and administration.
- longer contracts for staff (including EMCRs), increasing short-term job security.

Disadvantages:

- even though track record is assessed relative to opportunity, the vast majority of postdoctoral fellows and junior investigators are much less likely to achieve a score of 6 or 7 for their project grant applications since they do not have the fitting track record, compounding the situation for mid-career scientists who are struggling to get established as independent investigators.
- an extensive amount of funding is already awarded to senior investigators (Prof. and Assoc. Prof. levels) through Program Grants, Project Grants and Fellowship programs. Extending grants to 5 years will compound this situation since they will receive even more of the funding.
- some excellent grants that score 6 or 7 may in fact be better-suited to a 3 year timeline with more immediate outcomes.
- 5 year grants employing EMCRs for longer periods within a senior investigator's group does not actively advance EMCRs careers and increase their longer-term job security.
- this also reduces the actual number of thought-leaders in Australian research – effectively making Australian science 'smaller' – is this good for our nation?

Other countries:

USA – many universities have now extended the time available to reach tenure (6-9 years); 5 year mentored awards and "Pathway to Independence Awards" are each successfully moving EMCRs into independent careers at an earlier stage of their career.

UK – new 10 year Young Investigator awards to transition EMCRs to independence. This funding includes an EMCR's salary and a Research Assistant salary. Funding is awarded to the EMCR for 5 years with possible renewal for 3 years and an additional 2 years if needed.

Key abbreviations:

ARC – Australian Research Council; CIA – Chief Investigator A; CIB – Chief Investigator B; CDF – Career Development Fellowship; EMCRs – Early-Mid Career Researchers; NHMRC – National Health & Medical Research Council; NIH – National Institutes of Health.

Declaration: Some members of the Forum are, or have been, recipients of funding from Government, including the NHMRC and ARC.

APPENDIX A

NHMRC Project Grants – Scenario #1 (no change, one round, end of year)

JAN

FEB

MAR Round 1 submissions (e.g. 15/3)

APR

MAY Round 1 reviews (expert assessors – 2 weeks)
Round 1 assessors' scores received

JUN --- *end of fiscal year*

JUL Round 1 reviewer responses received (7 days to rebut)

AUG Round 1 GRP meetings

SEPT Round 1 NHMRC Res Comm meeting

OCT Round 1 announced <i>funds begin Jan 1</i> (7, 6, 5 – funded 3 years; simple reports)

NOV

DEC --- *end of calendar year*

Six Project Grant limit per investigator at any time:

- Can be on up to six Project Grants (CIA or otherwise)

Advantages

- Syncs with calendar year (better for budgeting?/contracts)
- Grants announced well-ahead of end-of calendar year
- Rebuttal (opportunity to convince reviewers)
- No change in admin/time burdens on NHMRC or reviewers

Disadvantages

- Only one opportunity per year to apply
- Bridging funds required for 12 months if not funded

APPENDIX A

NHMRC Project Grants – Scenario #2 (one round, end of fiscal year)

JAN Round 1 reviewer responses received (7 days to rebut)

FEB Round 1 GRP meetings

MAR Round 1 NHMRC Res Comm meeting

APR Round 1 announced <i>funds begin Jan 1</i> (7, 6, 5 – funded 3 years; simple reports)

MAY

JUN --- *end of fiscal year*

JUL

AUG

SEPT Round 1 submissions (e.g. 15/10)

OCT

NOV Round 1 reviews (expert assessors – 2 weeks)
Round 1 assessors' scores received

DEC

Six Project Grant limit per investigator at any time:

- Can be on up to six Project Grants (CIA or otherwise)

Advantages

- Syncs with fiscal year (better for budgeting/contracts)
- Grants announced well-ahead of end-of fiscal/calendar years
- Rebuttal (opportunity to convince reviewers)
- No change in admin/time burdens on NHMRC or reviewers
- Everyone gets to spend a more relaxed Holiday Season with their families (instead of thinking about writing, reviewing and/or administering grants)

Disadvantages

- Only one opportunity per year to apply
- Bridging funds required for 12 months if not funded

APPENDIX A

NHMRC Project Grants – Scenario #3 (two rounds per year, reduced grant no.)

JAN Round 2 assessors' scores received

FEB Round 2 GRP meetings (e.g. 1-15/2)

MAR Round 2 NHMRC Res Comm meeting (e.g. 1/3)

APR Round 2 announced (e.g. 15/4) *funds begin Jul 1*
(7, 6, 5 – funded 3 years; non-funded grants receive report/feedback and invited to resubmit)

6 weeks to polish non-funded grants for resubmission

MAY Round 1 submissions (e.g. 31/5)

JUN Round 1 out to review (expert assessors – 2 weeks)
--- end of fiscal year

JUL Round 1 assessors' scores received

AUG Round 1 GRP meetings (e.g. 1-15/8)

SEPT Round 1 NHMRC Res Comm meeting (e.g. 1/9)

OCT Round 1 announced (e.g. 15/10) *funds begin Jan 1*
(7/6/5/NI – funded 3 yrs; non-funded grants receive report/feedback and invited to resubmit)

6 weeks to polish grants for resubmission

NOV Round 2 submissions (e.g. 30/11)

DEC Round 2 out to review (expert assessors – 2 weeks)
--- end of calendar year

Four Project Grant limit per investigator at any time:

- Two CIA Project Grants
- Two non-CIA Project Grants

Advantages

- No rebuttal writing
- Faster turnaround
- Syncs with fiscal and calendar years (better for budgeting/contracts)
- Grants announced ahead of end-of fiscal and calendar years
- Bridging funds only required for 6 months if not funded (instead of 12 months)
- Increased opportunity to apply

Disadvantages

- Increased administrative burden on NHMRC, though reduction of grant no. from 6 to 4 should help this
- Increased time required by reviewers, though reduction of grant no. and no rebuttal should help this
- Not enough reviewers to cover the increased reviewing, though again reduced no. of grants should help

NB: The two rounds could also be 'linked', providing the opportunity to rebut and resubmit. This is based on an excellent working model in the USA (Muscular Dystrophy Association).