

# Structural Review of NHMRC's Grant Program

## Public consultation

### Australian Academy of Science National Committee for Cellular and Developmental Biology

The NHMRC will consider submissions that address the consultation questions and use the template provided. The consultation questions are listed below for each of the three models canvassed in the discussion paper, with a general question at the end of this template. You may answer as many of the questions as you wish. The questions can also be found on page 22 of the consultation paper.

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### Alternative model 1

Refer to information about alternative model 1 in the consultation paper and respond to the consultation questions below.

#### Question 1.1:

How effectively would the model optimise NHMRC's public investment in health and medical research by meeting the aims of this Review, including the major objectives of NHMRC's grant program found on page 12 of the consultation paper? (500 words max)

We were of the view that Model 1, as proposed, is not the ideal structure to maximize return for investment for the NHMRC. While we felt that collaboration to achieve the highest quality research outcomes is an ideal aspiration, the enforcement of a set and inflexible collaborative team for periods of 5 years-is undesirable. Model 1 lacks flexibility and may inadvertently disadvantage certain groups of researchers.

#### Question 1.2:

What advantages and disadvantages of this model do you see for you or your organisation if the model was introduced? (For example, what impact would it have on a researcher at your stage of experience? Would it support research in your research area?) (500 words max)

1. While we strongly support the idea of collaboration, it was felt that the implementation of Model 1, which is prescriptive for team composition, may inadvertently impose restrictions on the inclusion of critical research expertise. Such restrictions would become apparent as the research activity evolves during the life of the program - team membership may need to change to 'follow the science' or as opportunity arises to move the research into a different phase of the discovery to translation pipeline.
2. While the specific inclusion of early- and mid-career researchers is a positive step, the strict application of a five-year period may inadvertently limit research scope and career progression for such researchers. Similarly, it would lock others out. A five-year set team would for example, likely discourage the inclusion of junior CIs, whose CVs may not be strong at the time of application, but are on a rising trajectory. A set and inflexible time frame will certainly impact on the mobility of ECRs and their ability to seize opportunities for career development. As such, an exit strategy for investigator should be in place to manage the impact on the remaining team, and their ability to deliver the project, while allowing the relocation of individual investigators. Similarly, the possibility to recruit

additional investigators into a team should be available so as they as not 'left waiting' for their natural team to go up for review. This is particularly true for newly recruited foreign investigators, or Australian researchers returning from overseas, or those who have experienced career disruptions.

3. While we endorse the idea of all CIs being equal under Model 1, the absence of detail as to how funding would be allocated makes it difficult to envisage how this will be achieved in reality e.g. will funding allocations be revealed and set by the NHMRC for individual researchers, or will all researchers receive the same amount of funding? If the later, what measures will be put in place to ensure the inclusion of junior / mid-career researcher and those who have experienced career disruptions?
4. Similarly, the lack of detail as to how funds will be distributed may lead some organizations to discourage the inclusion of researchers from other institutions into teams.
5. In Model 1, it is also unclear what will happen to researchers who apply for a Fellowship in combination with a 'Team' grant, but fail to win the former. Will they be locked out of applying for a Fellowship until the next 5-year term? If so, this would have potentially serious implications for researchers at all levels of their career, the viability of the team and in extreme cases may risk the financial viability of the home institution.
6. The committee also recognized that not all researchers thrive in a large consortium. Rather some are more productive working in a more independent environment. Any proposed changes should be able to accommodate multiple working styles.
7. As with all of the proposed models, the scope of the Fellowship scheme is poorly defined. It is unclear if security and career progression can be accommodated under this model.

**Question 1.3:**

Can you identify negative consequences for Australia's health and medical research system if the model was introduced and how might these be mitigated? (500 words max)

As indicated above, the implementation of Model 1 as written has the potential to:

1. Discourage the pursuit of adventurous research wherein results stray outside of the stated area of focus in the original Team application.
2. Restrict the evolution of researchers and their research area.
3. Restrict the options for career progression and decreased job security, which while relevant to researchers at all stages of their careers, will disproportionately affect emerging researchers and those who experience a career break.
4. Place an unsustainable financial burden on organizations – this burden could be particularly acute for the smaller MRIs.
5. Result in the establishment of teams based on institution rather than optimal productivity.

In order to avoid these problems, we propose a modified version of Model 2 as the solution to these problems listed above.

**Question 1.4:**

Could the model be adjusted to optimise its impact? If so, how? (500 words max)

As indicated below, our committee favours the development of a hybrid model based on Model 2, but with enough flexibility to encourage the formation and evolution of the 'best team' to answer the research question at hand.

**Question 1.5:**

Do you have other comments about the model? (500 words max)

None

## Alternative model 2

Refer to information about alternative model 2 in the consultation paper and respond to the consultation questions below.

### Question 2.1:

How effectively would the model optimise NHMRC's public investment in health and medical research by meeting the aims of this Review, including the major objectives of NHMRC's grant program found on page 12 of the consultation paper? (500 words max)

Our committee is of the view that a modified version of Model 2, which incorporates certain elements of Model 1 and 3, will be most productive and cost-effective model to implement. It is critical that funding is flexible enough to accommodate the full range of multiple-investigator teams or individuals, at different career stages, and with differing expertise. It would also be highly advantageous if the model could cover the full spectrum of research activity i.e. discovery science to the translation of clinical practice and commercial delivery, as outlined in Model 3.

With regard to the version of Model 2 proposed in the Consultation Paper, the idea of a collaborative bonus to reward groups of individual researchers who coalesce into a 'team' to address big research questions is interesting, but in the absence of any detail on how this could be implemented, it is hard to gauge its merit.

Additional modifications that we believe would make Model 2 the preferred model:

1. The budget allocated to investigators in an Investigator grant must be compatible with the scope of work required to definitively answer the research question at hand – including funding an appropriately sized research group. Any arbitrary cap for "standard" funding (e.g. 2.5 million for 5 years) is counterproductive and likely too restrictive. This conclusion is based on the reality that \$500k per year is only sufficient to meet salaries of two level-A staff (early post-doctoral fellows or research assistants) plus an established Investigator, leaving a modest research budget. If there has to be a cap for standard applications under the Investigator scheme, we strongly suggest that it is increased to \$1 million per year (\$5 million total). We appreciate grants of >\$2.5M are accommodated in the current model for 'big science', however, based on the reality of what it actually costs to do research, we feel they would become the default type of application, rather than the exception if a \$2.5M limit remains in place. This inevitability would severely impact on the desired administrative efficiencies implicit in this review.  
Alternatively, having no cap on the budget would allow for a more flexible funding model, where funding that could depend on, for example, whether the team assembled under the Investigator included more senior researchers, including those referred to as Honorary Fellows in the Consultation Paper, who may appropriately require a full or part time salary. We are cognisant of the fact that the Investigator grant scheme will be highly competitive, and more flexibility in the budget will allow the inclusion, in a team setting, of highly worthy investigators who prefer not to hold or are unable to hold sole investigator grants.
2. If the above changes were implemented, we feel it would also be appropriate to allow researchers outside of the 'Investigator' scheme to hold more than one 'ideas' grant. For example one "investigator/team" grant and one "ideas" grants, or two (ideally three) "ideas" grants. Under this modified funding model, competitive researchers would not be set back by the unrealistic cap.

3. While capping the number of grant application to one per annual round may appear imperative to reduce the workload for peer-review and administration to a manageable level, this has the very real chance of adversely affecting the momentum of highly productive research programs in situations where an investigator/team is not funded in a continuous manner. The 'carrying' of an unfunded research group for a year, is realistically impossible for all but the largest organizations, and even then, only for a small number of groups for a short period of time. In order to mitigate the risk of losing momentum, and the benefits of past investment, we propose the implementation of two rounds of grant applications, at 6 months apart, per calendar year. This would have the effect of decreasing the possible "downtime" for temporarily unfunded programs, while also spreading the workload for grant assessment. By implementing such a scheme, the NHMRC would remove, to a large extent, the 'sudden death' nature of the funding model, and in combination with points 1 and 2 above, should avoid the submission of an unmanageable number of grants per cycle.
4. In addition, the committee felt that restricting researchers to one 'ideas' grant would inevitably lead to the submission of safe/conservative research projects at the expense of high risk-high payoff projects, and thus, runs counter to the stated objective of supporting research excellence, including blue sky research.

**Question 2.2:**

What advantages and disadvantages of this model do you see for you or your organisation if the model was introduced? (For example, what impact would it have on a researcher at your stage of experience? Would it support research in your research area?) (500 words max)

1. A modified model, as presented above, would allow flexibility and the establishment of collaborations based on scientific need, rather than on a construct determined several years earlier in the absence of research outcomes.
2. The hybrid model described above has the potential to accommodate a greater breadth of working styles.
3. The implementation of two rounds of funding per year should balance the administrative / peer review load with maintaining research momentum and efficiency.
4. The ability to hold multiple "Ideas grants" will encourage the tackling of high-risk high-reward projects over less risky projects that will result in incremental advancements.

**Question 2.3:**

Can you identify negative consequences for Australia's health and medical research system if the model was introduced and how might these be mitigated? (500 words max)

As indicated above, Model 2 in its original form has the potential to impose:

1. Inflexibility around the size and expertise of the group hired on Investigator grants, thus leading to a compromised ability to effectively address the research question at hand.
2. Model 2 may discourage the engagement of researchers who do not wish to lead, or who are not in a position to lead, an Investigator grant, but who could make very valuable contribution. These groups could include Honorary Fellows, emerging researchers and those with significant (but often temporary) career disruptions.
3. Model 2 has the potential to result in the significant loss of research momentum, and prior investment, if the sole application in a funding round is unsuccessful. A gap of 12 months would result in the loss of critical staff and skills and an unsustainable burden on the host institution.

4. The de-emphasis of track record as described for the “ideas grants” under this model is perceived to be a retrograde step that would likely result in decreased productivity and an inevitable shift towards rewarding grantsmanship over research potential. While not perfect, we suggest that the assessment of track record ‘relative to opportunity’ in the current NHMRC schemes is the best tool for ensuring equity and efficiency.

**Question 2.4:**

Could the model be adjusted to optimise its impact? If so, how? (500 words max)

Yes. Please see the suggestions outlined in 2.1.

**Question 2.5:**

Do you have other comments about the model? (500 words max)

None.

### Alternative model 3

*Refer to information about alternative model 3 in the consultation paper and respond to the consultation questions below.*

**Question 3.1:**

How effectively would the model optimise NHMRC’s public investment in health and medical research by meeting the aims of this Review, including the major objectives of NHMRC’s grant program found on page 12 of the consultation paper? (500 words max)

Model 3 is more nebulous regarding its merits and the criteria for the funding types, though we recognize that it potentially offers the most flexibility in the scope of work and level of funding. However, the absence of a supportive Fellowship scheme, Model 3 is a backwards step. We see no compelling case for not incorporating research fellowships into this “Research Support” scheme.

The inclusion for funding for discovery science all the way to commercial / clinical delivery is commendable. We note, that this could easily be delivered through the modified Model 2. Concern was however, expressed that emphasising translation within a single scheme may risk providing an impression, in the research community, that applied projects will be favoured over fundamental discovery projects. There must be a healthy balance between fundamental and translational research.

**Question 3.2:**

What advantages and disadvantages of this model do you see for you or your organisation if the model was introduced? (For example, what impact would it have on a researcher at your stage of experience? Would it support research in your research area?) (500 words max)

1. A high level of flexibility
2. The ability to span the spectrum of discovery through to clinical or commercial outcomes.

**Question 3.3:**

Can you identify negative consequences for Australia's health and medical research system if the model was introduced and how might these be mitigated? (500 words max)

1. The absence of a Fellowship scheme and the provision of a clear pathway for career progression and security. This will inevitably lead to the loss of some high achieving researchers from the sector and progressive shift of students and trainees into other less precarious careers.
2. The potential for bias against emerging researchers and those who have experienced career disruptions resulting in temporary decrease in research output.

**Question 3.4:**

Could the model be adjusted to optimise its impact? If so, how? (500 words max)

As outlined in Question 2, we favour the modification of Model 2 to include the breath of research and translational outcomes described in Model 3.

**Question 3.5:**

Do you have other comments about the model? (500 words max)

None.

## General

**Question 4:**

Do you have comments on the other issues discussed in this paper? (500 words max)

There are several important tenants that we feel should be adhered to when considering any changes to NHMRC funding structure.

1. Funding must be awarded on the basis of demonstrated excellence, wherein future success is frequently predicted by past success. We do not support the proposed de-emphasis of track record proposed in the 'Ideas' grant under Model 1 and 2. Rather, we feel that the 'relative-to-opportunities' provision in current NHMRC funding schemes suffices and should be retained.
2. Any changes in the scope of NHMRC funding should be closely aligned with the priorities for funding from the Medical Research Future Fund (MRFF). It is essential that Australia develops and maintains a vibrant research community with the capacity to span basic discovery science all the way to improved clinical/public health outcomes and successful commercialization. This should be achieved through a productive articulation/integration of the NHMRC and MRFF schemes. If the NHMRC and MRFF schemes are well articulated, the NHMRC could be in the position to increase the proportion of its funding for knowledge creation. In doing so, NHMRC would maintain a balanced appropriation of support for discovery versus translation to health delivery, with the latter likely to be within the purview of the MRFF. If there is a failure to adequately fund the entire research pipeline there will be a decreased return for investment and ultimately, suboptimal medical research outcomes for Australia.
3. The NHMRC Fellowship scheme is a vital part of the research landscape. It allows the nurturing of scientific leadership in a defined career structure and the delivery of world class research outcomes, including the training of future generations of biomedical and clinical researchers. None of the proposed models as described embrace a viable

Fellowship scheme. We feel the implementation of any of the proposed models without an enabling career structure for researchers, at every level of scientific seniority, would result in lost efficiency and productivity, a loss of morale, a brain drain from the medical research sector, and a further decline in school and university students studying STEM.