HEALTH SERVICES RESEARCH ASSOCIATION AU.NZ

HSRAANZ Survey: Structural Review of the NHMRC's Grant Program

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HSRAANZ Survey: Structural Review of the NHMRC's Grant Program

Survey conducted by the
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Acronyms

ACRONYMS	Titles/Descriptions
CI	Chief investigator
ECR	Early-career researcher
HSRAANZ	Health Service Research Association of Australia and New Zealand
NHMRC	National Health and Medical Research Council
MCR	Mid-career researcher
SR	Senior researcher

Introduction

In July 2016, The National Health and Medical Research Council (NHMRC) sought comment on the Structural Review of NHMRC's Grant Program. According to NHMRC's consultation with the research sector, the work required to prepare and evaluate the high numbers of ultimately unsuccessful grant applications is placing an unsustainable burden on applicants and peer reviewers. Concerns have also been raised that many researchers, especially those at early and mid-career stages, are becoming discouraged from pursuing research and that there are disincentives to exploring new areas of research.

To address these challenges, an over-arching review of NHMRC's grant program is being undertaken. This review is being undertaken by the Office of NHMRC with the assistance of an Expert Advisory Group. The aims of the review are to determine whether NHMRC can streamline its current research funding structure in order to optimise the significant public investment in health and medical research to achieve the best possible health outcomes.

The NHMRC has proposed three possible alternative models to the existing grant program structure and are seeking comment on which model may provide a relative advantage by:

- Reducing the burden on the research sector of grant application and review;
- Encouraging greater creativity and innovation in research;
- Continuing to attract and provide opportunities for researchers at all career stages;
- Providing flexibility to respond to the nation's changing health needs;
- Fostering collaboration and partnerships in research and the translation of that research into improved individual and population health; and,
- Meeting the major objectives of NHMRC's grant program, including supporting excellence in Australian health and medical research.

This report outlines the views of the Health Service Research Association of Australia and New Zealand (HSRAANZ) members and subscribers in relation to each of the three alternative models. The report is formatted according to the questions posed within the NHMRC's submission template and refer to the major objectives of the NHRMC's grant program outlined within the Consultation Paper.

The HSRAANZ Survey

An online survey seeking individuals' perspectives on the value of each alternative model proposed within the Consultation Paper was distributed via the HSRAANZ online directory in July and August 2016. The core questions of the survey were related to the NHMRC's overarching objectives listed within the Consultation Paper: to reduce application burden; encourage creativity, collaboration, and research translation; provide opportunity across career stages; and meet the changing needs of the nation while supporting research excellence.

The survey contained a total of 37 items; of which, 12 items were open-ended text boxes to elicit further comments on each model and the comparative advantages of the different structural approaches. Respondents were also asked to rank the models with respect to:

1. Reducing application preparation and review time;
2. Encouraging early-career and mid-career researchers;
3. Promoting innovative research;
4. Achieving a balance between health and medical research;
5. Supporting equitable opportunity across career levels;
6. Ensuring funding is available for health service research; and,
7. Assisting with the translation of health service research findings into policy or practice.

To enhance response rates, individuals received multiple reminder emails. As of August 17th, a total of 50 individuals completed the survey. Respondents were asked to indicate their career stage using the following response options: established or senior researcher (SR); mid-career researcher (MCR); early-career researcher (ECR); or other. Of those who selected other, three individuals self-reported as PhD candidates, research assistants or researchers with significant career interruptions. These individuals were categorized as ECRs for reporting purposes. One individual self-reported as an experienced researcher and was therefore categorized as an SR. The final sample is comprised of 18 SRs (36%), 11 MCRs (22%), and 21 ECRs (42%).

Responses to the close-ended survey questions were analysed using Stata 11.0, and reported using proportion and means. The qualitative content analysis of comments provided by survey respondents involved coding and categorising each comment. All comments are provided in raw, de-identified form within Appendix A.

Alternative Model 1 - Survey responses

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?

Research excellence and innovation: Individuals were asked how confident they were that the Ideas grants would support more innovative and significant research than the current project grant funding stream. Approximately 25% of respondents indicated they had no confidence in this model to achieve this NHMRC objective. While an additional 18% and 41% indicated they had slight or moderate confidence respectively, only 16% reported they had a high degree of confidence in this approach. Please see Table 1 for a summary of these proportions by career stage.

National research capability: Individuals were asked how confident they were that the combination of Team, Ideas, and People grants outlined in Model 1 would support the right balance of people support for researchers. The majority of respondents reported they had moderate confidence in this model achieving this balance (53%); 39% of respondents indicated they had slight confidence. Please see Table 1 for a summary of these proportions by career stage.

What would be the advantages and disadvantages of this model if introduced?

Ability of health service researchers to participate in Team Grants under Model 1: Individuals were asked how confident they were that they would be part of Team grant application under Model 1. The majority of participants reported they had a moderate to high degree of confidence (64%;); approximately one in three participants (36%) had no or only slight confidence that they would be able to participate in a Team Grant. Comparing confidence levels across career stages reveals that 83% of SRs had high or moderate confidence of involvement whilst only 55% of MCRs and 65% of ECRs reported similar confidence levels. Please see Table 1 for a summary of these proportions by career stage.

The effect of restrictions on the scope of research conducted by health service researchers: Individuals were asked if the restriction to two grants (one Team and one Ideas grant, or two Ideas grants) would help to focus or adversely limit the scope of their research efforts. Relatively equal proportions of respondents reported adverse (38%) or positive (40%) effects. The remaining 11 respondents were uncertain of the effect. Please see Table 1 for a summary of these proportions by career stage.

Table 1: Summary statistics for survey items related to Alternative Model 1.

Survey item	Number of respondents (%)			
	Total	By career stage		
		ECR	MCR	SR
Confidence in ability to participate in Team applications				
High	16 (32.0)	3 (14.3)	2 (18.2)	11 (61.1)
Moderate	16 (32.0)	8 (38.1)	4 (36.4)	4 (22.2)
Slight	11 (22.0)	6 (28.6)	4 (36.4)	1 (5.6)
None	7 (14.0)	4 (19.1)	1 (9.1)	2 (11.1)
Confidence in Ideas Grants to support innovative research				
High	8 (16.3)	4 (20.0)	3 (27.3)	1 (5.6)
Moderate	20 (40.8)	5 (25.0)	4 (36.4)	11 (61.1)
Slight	9 (18.4)	7 (35.0)	1 (9.1)	4 (22.2)
None	12 (24.5)	4 (20.0)	3 (27.3)	2 (11.1)
Confidence in Team, Ideas, and People Grants to support an equitable balance of people support				
High	2 (4.1)	2 (10.0)	0 (0.0)	0 (0.0)
Moderate	26 (53.1)	12 (60.0)	3 (27.3)	11 (61.)
Slight	19 (38.8)	5 (25.0)	7 (63.6)	7 (38.9)
None	2 (4.1)	1 (5.0)	1 (9.1)	0 (0.0)
Effect of restrictions on research scope				
Adverse – limits scope of research	19 (38.0)	4 (19.1)	7 (63.6)	8 (44.4)
Positive – focuses scope of research	20 (40.0)	9 (42.9)	2 (18.2)	9 (50.0)
Uncertain	11 (22.0)	8 (38.1)	2 (18.2)	1 (5.6)

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

Respondents were provided with open-ended text boxes to gain additional feedback on the advantages and disadvantages of Alternative Model 1; 20 participants provided such feedback. Common themes across these comments included: the effect of this model on ECRs; the disadvantage of grant restrictions, specifically for researchers in disciplines such as economics and statistics; and the scientific rigour of the applications. Whilst the latter two, restrictions and scientific rigour, were noted as disadvantages, participants' feedback revealed conflicting opinions on the effects of this model on ECRs. It is important to note that three participants also felt this approach would result in a loss of SRs. Please see Box 1 for examples of participant feedback.

Box 1: Respondents' feedback on advantages and disadvantages of Alternative Model 1.

Theme	Example of feedback	Disadvantage/Advantage
Scientific rigour (Research excellence)	"Concern too that Scientific Quality is losing ground here – where is the guarantee that the research methods are appropriate and high quality – this is the weakness in much current research and this is what generates research waste."	Disadvantage
Impact on ECRs (National research capacity)	"As an NHMRC early career fellow, Model 1 will reduce the opportunities to lead a grant as the model, by design, encourages established teams which are typically lead by senior researches…There are already too many hurdles and limited opportunities for ECFs - This model I fear will only create a further hierarchy rather than expanding opportunities."	Disadvantage
	"I support the abolition of Fellowships other than for early career researchers. We have a major workforce problem currently because Fellows are very vulnerable at the point of transitioning from e.g. CDF to SRF… I am aware of multiple senior and productive researchers who have lost their Fellowships and then found it extremely difficult to find employment because they have relied on NHMRC funding and have not developed a portfolio of skills and experience that includes teaching and industry-funded research."	Advantage
	"One problem with this model for early career researchers is if the ECR interests lie outside those of any team they are asked to participate in. Thus, if you spend your postdoctoral years working on projects that are of little interest to you, your own track record and ability to get grants in the future can be compromised."	Disadvantage
	The ECRs who receive the fellowships are still likely to be those who are being strongly supported by, or in the team of, an established 'research star'. 'Innovation and significance' can often only be properly established (to the satisfaction of grant reviewers) once most of the work has been completed, so still rewards those with long-standing research programmes.	Disadvantage
	"… I think the Team Grant idea may limit research participation in smaller universities, which already struggle to make headway due to lack of critical mass. The ideas grants would support these researchers, however. Availability of fellowships across the career spectrum is a good feature of this model. It is already difficult for good researchers to stay funded throughout their careers, so I would	Advantage/Disadvantage

	not like to see our top talent defunded. It should not be all about early career researchers."	
	"The support for ECRs in this model is very attractive to an ECR like myself."	Advantage
	"V[ery] concerned about the salary for mid-career researchers. These other grants need to be funded appropriately."	Disadvantage
Restrictions (Research breadth)	"I think the cap on applications and grants would adversely affect researchers who specialize in specific disciplines (e.g. health economics, biostatistics) where those skills are needed to support a robust research project in a multitude of other disciplines - having a cap on applications would mean that a health economist included in a team grant could not also pursue their own research interests by leading a grant of their own."	Disadvantage

Alternative Model 2 - Survey responses

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?

Research excellence and innovation: The survey asked respondents to indicate their preference for restricted eligibility for Ideas Grants (Alternative Model 1) or the 'stronger focus on innovation and significance' (Alternative Model 2). While a small proportion (14%) of respondents did not specify a preference, approximately 50% preferred the stronger focus on innovation whilst 36% preferred restricted eligibility. Please see Table 2 for a summary of these proportions by career stage.

Collaboration and partnerships: Individuals were asked if the Collaborative Bonus included within Alternative Model 2 would be a useful incentive or result in tokenistic collaboration. The greatest proportion of individuals reported this feature would likely result in tokenistic collaboration (44.9%); smaller proportions indicated it was a useful incentive or were unsure of the outcomes (31% and 24%, respectively). Please see Table 2 for a summary of these proportions by career stage. Participants' open-ended feedback also suggested the value of the Collaborative Bonus was unknown or would not be effective in achieving this NHMRC objective (Box 2).

National research capability: Individuals were asked how confident they were that the combination of Investigator and Idea Grants outlined in Alternative Model 2 would support the right balance of people support for researchers. Only one individual, an SR, reported a high degree of confidence; the overwhelming majority of respondents had slight or no confidence (70%) in the ability of this Model 2 to support researchers at all career stages. Please see Table 2 for a summary of these proportions by career stage.

What would be the advantages and disadvantages of this model if introduced?

Ability of health service researchers to lead Investigator Grants under Alternative Model 2: Individuals were asked how confident they were that they would be able to lead an Investigator application under Alternative Model 2. The greatest proportion of respondents (34%) indicated they had no confidence in their ability to lead an Investigator Grant; this was followed by 30% of respondents who had moderate confidence and 20% who had slight confidence. Only 16% of respondents had a high degree of confidence, most of whom were SRs. Please see Table 2 for a summary of these proportions by career stage.

Ability of health service researchers to be involved in Investigator Grants under Alternative Model 2: Individuals were asked how confident they were in their potential to be involved in an Investigator application under Model 2. The greatest proportion of respondents (36%) indicated they had a high degree of confidence in their potential involvement. Similar to the previous item regarding leadership of such grants, those with higher confidence levels were typically established researchers. Approximately 28% of respondents had moderate confidence and 22% had slight confidence. Only 14%

of respondents had no confidence in their potential involvement, most of whom were ECRs. Please see Table 2 for a summary of these proportions by career stage.

The effect of restrictions on the scope of research conducted by health service researchers: Individuals were asked if the restriction to one Ideas grant would help to focus or adversely limit the scope of their research efforts. Relatively equal proportions of respondents reported adverse (34%), positive (34%), or uncertain (32%) effects. Please see Table 2 for a summary of these proportions by career stage.

Table 2: Summary statistics for survey items related to Alternative Model 2

Survey item	Number of respondents (%)			
	Total	By career stage		
		ECR	MCR	SR
Confidence in ability to lead an Investigator application				
High	8 (16.0)	0 (0.0)	2 (18.2)	6 (33.3)
Moderate	15 (30.0)	6 (28.6)	3 (27.3)	6 (33.3)
Slight	10 (20.0)	5 (23.8)	2 (18.2)	3 (16.7)
None	17 (34.0)	10 (47.6)	4 (36.4))	3 (16.7)
Confidence in potential to participate in an Investigator application				
High	18 (36.0)	4 (19.1)	4 (36.7)	10 (55.6)
Moderate	14 (28.0)	6 (28.6)	3 (27.3)	5 (27.8)
Slight	11 (22.0)	6 (28.6)	4 (36.4)	1 (5.6)
None	7 (14.0)	5 (23.8)	0 (0.0)	2 (11.1)
Preference for restricted eligibility for Ideas Grants or stronger focus on innovation				
Restricted eligibility	18 (36.0)	7 (33.3)	3 (27.3)	10 (55.6)
Stronger focus on innovation	25 (50.0)	9 (42.9))	6 (54.6)	8 (44.4)
No preference	7 (14.0)	5 (23.8)	2 (18.2)	0 (0.0)
Confidence in Team, Ideas, and People Grants to support an equitable balance of people support				
High	1 (2.0)	0 (0.0)	0 (0.0)	1 (5.6)
Moderate	14 (28.0)	6 (28.6)	2 (18.2)	6 (33.3)
Slight	25 (50.0)	11 (52.4)	6 (54.6)	8 (44.4)
None	10 (20.0)	4 (19.1)	3 (27.3)	3 (16.7)
Effect of restrictions on research scope				
Adverse – limits scope of research	17 (34.0)	3 (14.3)	6 (54.6)	8 (44.4)
Positive – focuses scope of research	17 (34.0)	7 (33.3)	3 (27.3)	7 (38.9)
Uncertain	16 (32.0)	11 (52.4)	2 (18.2)	3 (16.7)
Value of a Collaborative Bonus				
Result in tokenistic collaboration	22 (44.9)	8 (38.1)	5 (50.0)	9 (50.0)
Useful incentive	15 (30.6)	7 (33.3)	4 (40.0)	5 (27.8)
Uncertain	12 (24.5)	6 (28.6)	1 (10.0)	4 (27.8)

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

A total of 13 respondents provided additional feedback on the advantages and disadvantages of Alternative Model 2. Common themes across these comments included: the likelihood of Alternative

Model 2 affecting change and addressing Consultation objectives; the value of the Collaborative bonus; and applicants' team sizes as a disadvantage (Box 2).

Box 2: Respondents' feedback on advantages and disadvantages of Alternative Model 2.

Theme	Example of feedback	Disadvantage/Advantage
Ability of Model 2 to affect change (NHMRC Consultation Objective)	"There are too many researchers with good ideas that are not getting funded. There are too many established researchers that block the development of new research because of the reliance on track record."	Disadvantage
	"All assessment is still based on track record which will do nothing to improve innovative research or lessen the uncertainty of early and mid-researcher careers at these levels - both stated aims of this NHMRC review."	Disadvantage
	"I think this model is slightly better but the entire system is set up in a way which makes it unlikely these tweaks will lead to significant change."	Disadvantage
	"This could result in more of the same, where ECRs and MCRs struggle to attract project funding next to senior researchers with very long CVs."	Disadvantage
Collaborative Bonus (Collaborations and Partnerships)	"The "collaborative" bonus is a… band aid applied because this model will severely limit collaboration. I think the different investigator streams would be very difficult to define and manage and would promote "gaming"."	Disadvantage
	"Collaborative bonuses - the team needs to be planned and "real" rather than token"	Disadvantage
	"…I like that people don't require large teams to be funded (which reduces discipline, and small university, bias) but this model also supports a collaborative approach. As noted in the brief, "collaboration" would need to be clearly defined. It should include more than one organisation, and in a real way, with evidence of an established collaborative effort and outcomes. I prefer M1 for the concept of Ideas grants. M2 seems to be providing a "consolation prize" for non-performers."	Advantage/Disadvantage
Restrictions (Research Breadth)	"I think the cap on applications and grants would adversely affect researchers who specialize in specific disciplines (e.g. health economics, biostatistics) where those skills are needed to support a robust research project in a multitude of other disciplines - having a cap on applications would mean that a health economist included in a team grant could not also pursue their own research interests by leading a grant of their own."	Disadvantage

Alternative Model 3 - Survey responses

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?

Research translation: Individuals were asked to select the Research Support streams they would be likely to apply under (response options included: knowledge creation, commercialisation, and implementation). Individuals were able to select as many streams as relevant to their current position. The most commonly selected stream was knowledge creation (84%), followed by implementation (80%) and commercialisation (10%). It is important to note, that two participants felt these streams are not inclusive of health service research (example: *"I suspect that Health Services Research would fall (as usual) "between the gaps" of the themes identified.").*

National research capability: Individuals were asked how confident they were that the sole focus on Research Support grants outlined in Alternative Model 3 would support the right balance of people support for researchers. The overwhelming majority of respondents had slight or no confidence (72%) in the ability of Alternative Model 3 to support researchers at all career stages. Please see Table 3 for a summary of these proportions by career stage.

What would be the advantages and disadvantages of this model if introduced?

Ability of health service researchers to lead Research Support Grants under Alternative Model 3: Individuals were asked how confident they were that they would be able to lead a Research Support application under Alternative Model 3. The greatest proportion of respondents (35%) indicated they had no confidence in their ability to lead an application; this was followed by 33% of respondents who had slight confidence and 18% who had moderate confidence. Only 14% of respondents had a high degree of confidence, all of whom were SRs or MCRs. Please see Table 3 for a summary of these proportions by career stage.

Ability of health service researchers to be involved in Research Support Grants under Alternative Model 3: Individuals were asked how confident they were in their potential to be involved in a Research Support application under Model 3. Approximately 32% of respondents had slight confidence in their potential involvement; equal proportions of respondents (28%) indicated they had either a high or moderate degree of confidence. Similar to the previous items regarding leadership of such grants, those with higher confidence levels were typically established researchers. Only 12% of respondents had no confidence in their potential involvement. Please see Table 3 for a summary of these proportions by career stage.

The effect of restrictions on the scope of research conducted by health service researchers: Individuals were asked if the restriction to two Research Support grants would help to focus or adversely limit the scope of their research efforts. The greatest proportion of respondents suggested this restriction would help to focus their research efforts (40%), however approximately one in three respondents (32%)

were uncertain of the effects. The remaining 28% of respondents believed this restriction would have a negative effect. Please see Table 3 for a summary of these proportions by career stage.

Table 3: Summary statistics for survey items related to Alternative Model 3

Survey item	Number of respondents (%)			
	Total	By career stage		
		ECR	MCR	SR
Confidence in ability to lead a Research Support application				
High	7 (14.3)	0 (0.0)	3 (27.3)	4 (22.2)
Moderate	9 (18.4)	2 (10.0)	2 (18.2)	5 (27.8)
Slight	16 (32.7)	6 (30.0)	3 (27.3)	7 (38.9)
None	17 (34.7)	12 (60.0)	3 (27.3)	2 (11.1)
Confidence in potential to be involved in a Research Support application				
High	14 (28.0)	1 (4.8)	4 (36.7)	9 (50.0)
Moderate	14 (28.0)	6 (28.6)	3 (27.3)	5 (27.8)
Slight	16 (32.0)	11 (52.4)	2 (18.2)	3 (16.7)
None	6 (12.0)	3 (14.3)	2 (18.2)	1 (5.6)
Confidence in Team, Ideas, and People Grants to support an equitable balance of people support				
High	2 (4.0)	0 (0.0)	2 (18.2)	0 (0.0)
Moderate	12 (24.0)	5 (23.8)	2 (18.2)	5 (27.8)
Slight	22 (44.0)	11 (52.4)	3 (27.3)	8 (44.4)
None	14 (28.0)	5 (23.8)	4 (36.7)	5 (27.8)
Effect of restrictions on research scope				
Adverse – limits scope of research	14 (28.0)	3 (14.3)	5 (45.5)	6 (33.3)
Positive – focuses scope of research	20 (40.0)	7 (33.3)	3 (27.3)	10 (55.6)
Uncertain	16 (32.0)	11 (52.4)	3 (27.3)	2 (11.1)
Research support streams				
Result in tokenistic collaboration	22 (44.9)	8 (38.1)	5 (50.0)	9 (50.0)
Useful incentive	15 (30.6)	7 (33.3)	4 (40.0)	5 (27.8)
Uncertain	12 (24.5)	6 (28.6)	1 (10.0)	4 (27.8)

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

A total of 14 respondents provided additional feedback on the advantages and disadvantages of Alternative Model 3. Common themes across these comments included: the focus on implementation and translational research (particularly when considering grant application restrictions); the negative impact on ECRs and MCR; and the size of applicants' research institutions (Box 3).

Box 3: Respondents' feedback on advantages and disadvantages of Alternative Model 3.

Theme	Example of feedback	Disadvantage/Advantage
Focus on implementation and translational research (Research translation)	"If you want people to collaborate and grants are restrictive (limited to x number of grants) then it will reduce collaboration - especially on attempting new work"	Disadvantage
	"Unclear why implementation grants always have to have a partner organisation. Need to distinguish between implementation projects and implementation research."	Disadvantage
	"I prefer Model 3 to the other models because it acknowledges the important of partnership and translational research and is relatively simple (and therefore less prone to gaming). However the tight restriction on number of grants will definitely mitigate against collaboration, and the best HSR is collaborative."	Advantage/Disadvantage
Impact on ECRs (National research capacity)	"I suspect that having research support grants that can be used for CI salary would adversely affect sustainable jobs for researchers - institutions would be unlikely to support ongoing salary (or even contract salary) for researchers as a 'university' based position... This would actually worsen the job security issues that the sector currently faces."	Disadvantage
	"All assessment is still based on track record which will do nothing to improve innovative research or lessen the uncertainty of early and mid-researcher careers at these levels - both stated aims of this NHMRC review."	Disadvantage
	"The lack of dedicated funding for ECRs is a real concern here."	Disadvantage
Size of research teams and institutions	"While the simplicity rhetoric is good, I see a big potential for blocking out smaller teams and institutions. There is not enough detail about how grants will be funded, but I suspect that big flashy teams with lots of staff and lots of money already would thrive on this model, while those with good ideas but less flash might struggle to get any funding. A basic concept to the review is to reduce demand, and this model would do that. I could see a lot of competent researchers giving up if this was the model."	Disadvantage
	"Model 3 would be catastrophic for ECRs and MCRs outside of large universities."	Disadvantage

Comparative advantages of Alternative Models - Survey responses

Respondents were also asked to rank the models with respect to:

1. Reducing application preparation and review time;
2. Encouraging early-career and mid-career researchers;
3. Promoting innovative research;
4. Achieving a balance between health and medical research;
5. Supporting equitable opportunity across career levels;
6. Ensuring funding is available for health service research; and,
7. Assisting with the translation of health service research findings into policy or practice.

Individuals were not required to complete these ranking exercises, and could choose to provide comments in an open-ended text box (Appendix 1). Furthermore, in some cases, respondents felt it was appropriate to rank the models equally; therefore, reported proportions may not total 100%. Where this occurred, the number of individuals who were unable to specify a clear preference is reported along with the total number of participants who completed the exercise. The sections below report the proportion of respondents who allocated a first place ranking to each Alternative Model; Figure 1 provides a summary of these proportions across all seven NHMRC objectives.

Reducing application preparation: Just over half of participants (51.3%) ranked Alternative Model 1 as the most likely to reduce application preparation times; Alternative Model 3 was ranked first by 31%. One individual ranked all models equally, and indicated there was not sufficient information provided to determine the relative advantages of each Alternative Model.

Reducing peer review burden: Approximately 40% of participants ranked Alternative Model 3 as the most likely to reduce peer-review burden; this was followed by 33% of participants selecting Alternative Model 1 and 15.4% selecting Alternative Model 2. Four individuals ranked two models equally.

Encouraging ECR and MCR development (National research capacity): Exactly half of participants (50.0%) ranked Alternative Model 1 as the most likely model to encourage ECR development; Alternative Model 2 was ranked first by 22.5% and Model 3 was ranked first by 19.5%. Only one individual ranked two models equally.

Providing equitable opportunity across career stages (National research capacity): Exactly half of participants (50.0%) ranked Alternative Model 1 as the most likely model to achieve a balance of people support for researchers. Both Alternative Models 2 and 3 were ranked first by a quarter of the remaining participants. Five individuals ranked two models equally.

Balancing safe and innovation research (Research excellence): Just under half of respondents (46.2%) ranked Alternative Model 1 as the most likely to support both safe and innovative research; similar proportions selected with Alternative Model 2 (26.3%) or 3 (24.3%). Five individuals ranked two models equally.

Individuals were also asked if they preferred the focus on broad research outcomes included within Alternative Model 2 or the focus on substantial research questions included within Alternative Model 1. Whilst 18% of respondents did not have clear preference, a larger proportion of respondents preferred Alternative Model 2's focus on broad research outcomes as compared to Alternative Model 1's substantial research questions (48% versus 34%, respectively).

Balancing health and medical research (Research breadth): Relatively equal proportions of respondents ranked Alternative Model 1 or Model 3 as the model most likely to achieve an equitable balance between these different research areas (39.5% and 40.5%, respectively). Alternative Model 2 was ranked first by 25% of respondents. Eight individuals ranked two models equally.

Ensuring funding for heath service research (Research breadth): Approximately 46% of participants ranked Alternative Model 3 as the most likely to ensuring funding for health service research; this was followed by 34% of participants selecting Alternative Model 1 and 17% selecting Alternative Model 2. Six individuals ranked two models equally.

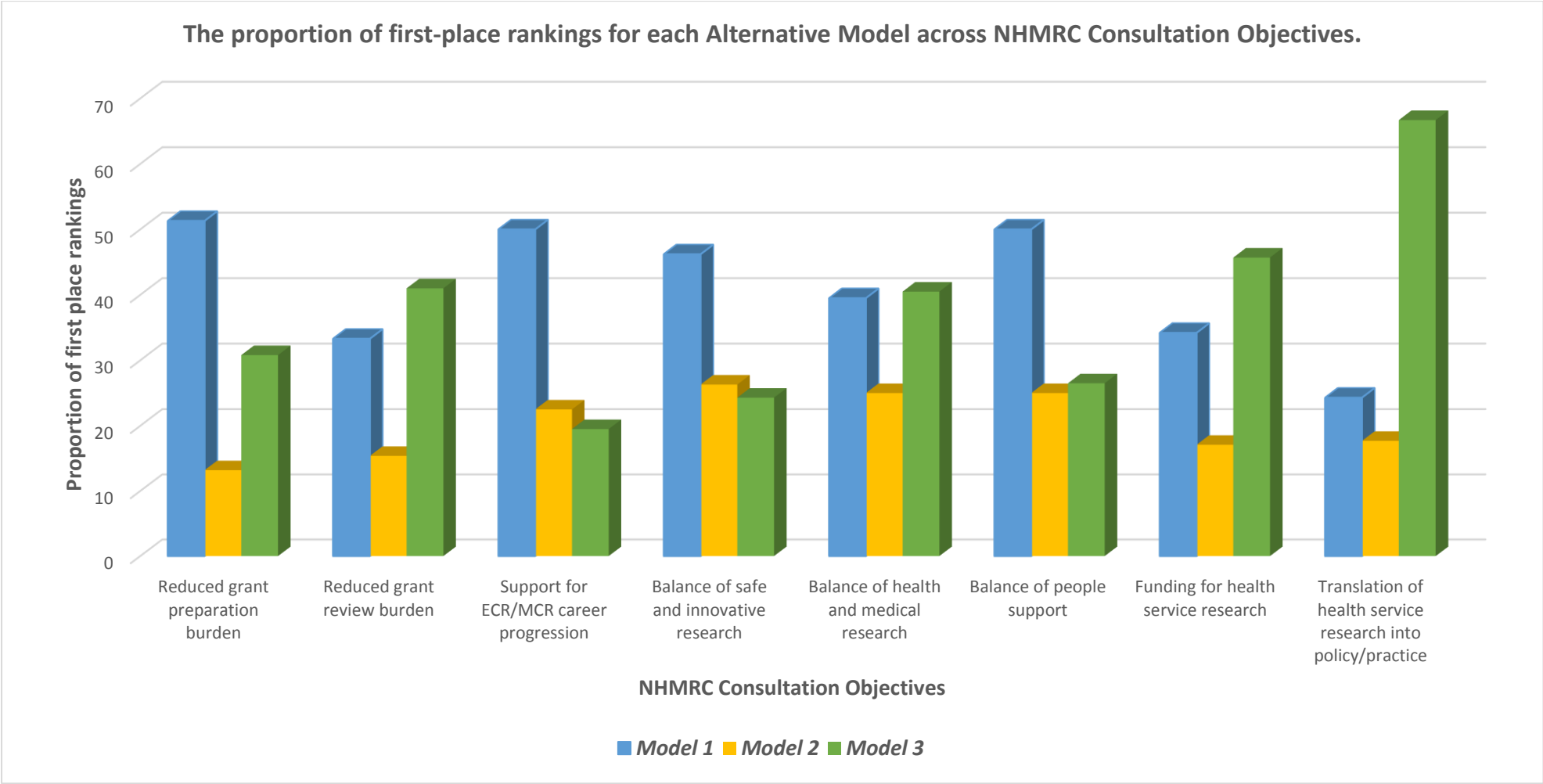

Figure 1: The proportion of first-place rankings for each Alternative Model across NHMRC Consultation Objectives

Summary of key messages from HSRAANZ survey respondents

A consistent theme within respondents' qualitative feedback was the inability to provide an informed opinion on the relative advantages of the three alternative models. The lack of detail within the Consultation Paper was noted as a major concern for many individuals, with many suggesting there is need for modelling or evidence on the advantages of each approach (Box 4). This lack of detail may have also led to some respondents' belief that these alternative models are similar to the existing NHMRC structural approaches and will not achieve change. Furthermore, individuals reported some difficulty in determining the differences between the models; this was evidenced in the number of individuals who could not easily allocate rankings across the three models.

Box 4: Examples of respondents' feedback on the lack of information provided within the Consultation Paper
"The limited detail currently available about each of the proposed models makes it difficult to assess their relative benefits…"
"Are these questions about the beliefs of the research community or are [NHMRC] suggesting that these models have not been evaluated in other contexts. Bit of a worry our Medical Research Funding is… uninformed experimentation rather than supported by a good pilot test."
"Guesswork…Terrifying…Pay for some evidence to support what will be a flood of opinionated histrionics.
"This is a wild guess. Hard to conceptualise."
"No evidence to show it will achieve this [reduced grant review time] for any model".
"The low funding success results, the failure of awarded funds to cover full research costs and relatively insecure employment tenures currently dissuade people from pursuing and maintaining research careers; it is unclear that any of the proposed models will address these issues.

Overall, Alternative Model 1 was ranked first in the following four NHMRC objectives: reduce grant preparation time; encourage ECR and MCR progress; balance safe and innovative research; and provide opportunity across career stages. Alternative Model 3 was also ranked first in the four NHMRC objectives: reduce grant review times; balance health and medical research; provide funding support for health service research; and encourage translation of health service research into policy and practice. It is important to note, that Alternative Model 2 was not ranked first in any of the reviewed NHMRC objectives.

There was also conflicting feedback on the value of each structural approach in relation to achieving a balance between ECR, MCR and SR career stages. This balance was also discussed in relation to the size of the applicants' research institutions; with those SRs within large centres likely to receive an inequitably higher proportion of research funds, while ECRs within smaller teams less likely to benefit from the opportunity to participate in applications.

Appendix 1: Qualitative comments

Comments on Alternative Model 1
Aligns most strongly with applied and translational research which is typically team-based and collaborative.
As an NHMRC early career fellow, Model 1 will reduce the opportunities to lead a grant as the model, by design, encourages established teams which are typically lead by senior researches. If an ECF is listed as a CI on a team grant, because they can only be on one grant, it does not provide an opportunity for ECFs to lead grant. There are already too many hurdles and limited opportunities for ECFs - This model I fear will only create a further hierarchy rather than expanding opportunities.
Hard to say more without the detail - main concern is that if you have to support senior staff from the funds then there won't be much $ left for research... Concern too that Scientific Quality is losing ground here - where is the guarantee that the research methods are appropriate and high quality - this is the weakness in much current research and this is what generates research waste.
I support the abolition of Fellowships other than for early career researchers. We have a major workforce problem currently because Fellows are very vulnerable at the point of transitioning from e.g. CDF to SRF, there is a flood of "imported" researchers who have impressive CVs (it is hard to get Australian HSR published in high-impact US and UK journals), and there is a lot of "gaming" in the system e.g. researchers deliberately delaying applications for promotion in order to be eligible at more junior levels. I am aware of multiple senior and productive researchers who have lost their Fellowships and then found it extremely difficult to find employment because they have relied on NHMRC funding and have not developed a portfolio of skills and experience that includes teaching and industry-funded research.
I think the cap on applications and grants would adversely affect researchers who specialize in specific disciplines (e.g. health economics, biostatistics) where those skills are needed to support a robust research project in a multitude of other disciplines - having a cap on applications would mean that a health economist included in a team grant could not also pursue their own research interests by leading a grant of their own.
If all the CI's are considered equal in the team, and CI's can only apply for/hold one grant then this will make it difficult for people in specialisations which are high demand but often not the major focus of a project (such as statistics and health economics). These researchers often also work on both methodological research and applied work. While these CI's are critical to the project, this applied work is probably not a full time role, and there are probably not enough individuals to have one for each project/grant. I'm not sure how this would play out - these roles could be excluded as CI's (so they can work on more than one project and apply for their own methods research)?
Model 1 seems to be the only model that addresses the aim to improve innovation in NHMRC funding with its ideas grant assessed for this criteria rather than track record. The requirement to include early and mid-career researchers as CIs on the Team grant is a good idea as it will lessen uncertainty of researcher careers at these levels. Encouraging multidisciplinary teams is also a good idea as it will improve quality, breadth and depth of research outputs.
Need to have multiple teams - not just one or two...
One problem with this model for early career researchers is if the ECR interests lie outside those of any team they are asked to participate in. Thus, if you spend your postdoctoral years working on projects that are of little interest to you, your own track record and ability to get grants in the future can be compromised.
Only if current funds for higher level Fellowships are added to the team and ideas grant funding pool. Then, isn't it just dispersing to the same people but another way?
Teams are likely to create silos of research. Good academics are not always good managers and a successful team

model relies on successful academic managers which can be difficult to determine.
The ECRs who receive the fellowships are still likely to be those who are being strongly supported by, or in the team of, an established 'research star'. 'Innovation and significance' can often only be properly established (to the satisfaction of grant reviewers) once most of the work has been completed, so still rewards those with long-standing research programmes.
The idea of less emphasis on 'track record' will help those of us in less established disciplines get a foothold in a system where we have had little prospect of success due to the dominance of established researchers and research groups. I have assumed that the research groups need not be necessarily concentrated into one institution, as the smaller disciplines tend to be spread across the country in order to teach clinical programs.
The limited detail currently available about each of the proposed models makes it difficult to assess their relative benefits/attractiveness.
The support for ECRs in this model is very attractive to an ECR like myself.
There is no low confidence option in 1d and that would have been my response.
This style of research funding does not support / is unlikely to support implementation research and health service delivery research which is where the majority of funding should be spent/ redirected for real outcomes and differences to be observed
Thought this was a balanced option. However, I think the Team Grant idea may limit research participation in smaller universities, which already struggle to make headway due to lack of critical mass. The ideas grants would support these researchers, however. Availability of fellowships across the career spectrum is a good feature of this model. It is already difficult for good researchers to stay funded throughout their careers, so I would not like to see our top talent defunded. It should not be all about early career researchers. I believe that whatever the model, the big universities will "game" their applications to the detriment of talent at smaller universities.
V concerned about the salary for mid-career researchers. These other grants need to be funded appropriately
While the focus is on track record, new researcher innovations are less likely to be funded. For example, allied health research would not flourish under model 1.

Comments on Alternative Model 2
There are too many researchers with good ideas that are not getting funded. There are too many established researchers that block the development of new research because of the reliance on track record.
Similar concerns here about lack of emphasis on Scientific Quality - where is the guarantee that the research methods are appropriate and high quality when focus is on track record and innovation? - this is the weakness in much current research and this is what generates research waste
The "collaborative" bonus is a joke - a band aid applied because this model will severely limit collaboration. I think the different investigator streams would be very difficult to define and manage and would promote "gaming".
The ideas grants are a bit contradictory - applicants must be beyond their post-doc, but have insufficient track record to apply for an investigator grant (even though the investigator grants have streams for all levels)?
All assessment is still based on track record which will do nothing to improve innovative research or lessen the uncertainty of early and mid-researcher careers at these levels - both stated aims of this NHMRC review.
collaborative bonuses - the team needs to be planned and "real" rather than token
Limits on grant numbers should be based on % contribution to each grant (and span across other funders e.g. ARC where possible) - there is a big different in commitment between a CIA and CIC for example). This is important for statisticians and health economists where they contribute to a smaller extent to many grants.
I think this model is slightly better but the entire system is set up in a way which makes it unlikely these tweaks will lead to significant change.
Seems to be a well-balanced proposal.
The limited detail currently available about each of the proposed models makes it difficult to assess their relative benefits/attractiveness.
This could result in more of the same, where ECRs and MCRs struggle to attract project funding next to senior researchers with very long CVs.
Are these questions about beliefs of the research community or are they suggesting these models have not been evaluated in other contexts? Bit of a worry that our Medical Research Funding is the thing of under informed experimentation rather than supported by a good pilot project. How about employing the same means as you would expect as ends.
Again, quite balanced. I like that people don't require large teams to be funded (which reduces discipline, and small university, bias) but this model also supports a collaborative approach. I think we have all seen examples where teams are cobbled together for a specific grant, without prior collaboration. As noted in the brief, "collaboration" would need to be clearly defined. It should include more than one organisation, and in a real way, with evidence of an established collaborative effort and outcomes. I prefer M1 for the concept of Ideas grants. M2 seems to be providing a "consolation prize" for non-performers. Grants should always support the BEST ideas, supported by the best team of researchers available. I believe that whatever the model, the big universities will "game" their applications to the detriment of talent at smaller universities. (I admit a conflict of interest here)

Comments on Alternative Model 3
if you want people to collaborate and grants are restrictive (limited to x number of grants) then it will reduce collaboration - especially on attempting new work
Unclear why implementation grants always have to have a partner organisation. Need to distinguish between implementation projects and implementation research.
Model three appear to me the most reasonable although I personally prefer the existing NHMRC grant structures above all of the proposed models.
This one seems to have the most emphasis on research methods - but just not sure what balance of support it will provide to teams
I prefer Model 3 to the other models because it acknowledges the important of partnership and translational research and is relatively simple (and therefore less prone to gaming). However the tight restriction on number of grants will definitely mitigate against collaboration, and the best HSR is collaborative.
I suspect that having research support grants that can be used for CI salary (as opposed to current restrictions on CI salary being drawn from many grant schemes including project grants) would adversely affect sustainable jobs for researchers - institutions would be unlikely to support ongoing salary (or even contract salary) for researchers as a 'university' based position if the grant funds can be used for CI salary. This would actually worsen the job security issues that the sector currently faces.
It seems odd that early career researchers can only apply for 'knowledge creation' grants, and not commercialisation or implementation grants. Is it assumed that commercialisation and implementation only come after a knowledge generation grant?
All assessment is still based on track record which will do nothing to improve innovative research or lessen the uncertainty of early and mid-researcher careers at these levels - both stated aims of this NHMRC review.
I suspect that Health Services Research would fall (as usual) "between the gaps" of the themes identified.
Really unsure about this proposal.
The limited detail currently available about each of the proposed models makes it difficult to assess their relative benefits/attractiveness.
The lack of dedicated funding for ECRs is a real concern here.
My least preferred option. While the simplicity rhetoric is good, I see a big potential for blocking out smaller teams and institutions. There is not enough detail about how grants will be funded, but I suspect that big flashy teams with lots of staff and lots of money already would thrive on this model, while those with good ideas but less flash might struggle to get any funding. This model seems most open to gaming, with no other options for the good idea from the lesser critical mass of researchers. A basic concept to the review is to reduce demand, and this model would do that. I could see a lot of competent researchers giving up if this was the model.
If research support grants include broad multidisciplinary research it would benefit allied health research and increase capacity.

Comments on the relative advantages of each Alternative Model	
Reduce grant preparation time	Unsure of the impact on time
	Stupid question - not sure any will achieve this outcome
	This can't be answered from the available information
	Uncertain
	Really not sure... Teams and individuals is easier to demonstrate than research plans
	It is difficult to determine the difference between 1 and 2. 5 year grants will reduce the frequency of grant writing, and Model 1 uses one grant for a team of people, whereas Model 2 is one grant per person. But I assume Model 1 grant applications will be bigger, and so could therefore take more time, particularly for the one person who is (stuck?!) Doing the coordination of the grant writing/preparation.
	Really very hard to say as it's not just the number of grant applications but the amount of effort that has to go into each individual one.
	Moving to a two-stage process could help. Expression of Interest, followed by an invitation to submit a full application is used in some grant schemes.
	There is insufficient information for me to answer this question.
	Guesswork... Terrifying... Pay for some evidence to support what will be a flood of opinionated histrionics.
	This is a wild guess. Hard to conceptualise
	Model 3 would also reduce number of researchers.
Reduce grant review time	Unsure
	No evidence to show it will achieve this for any model
	Again not sure, but teams/individuals again easier to assess than research plans
	Increased duration of grants and reduced capacity for holding multiple grants will reduce volume of peer review required. Reducing the number of types of grants will also reduce peer review burden, because they are all comparable.
	I am not sure about the answers to the above questions.
	There should be less input from panels and more based on average scores from external reviewers.
	The limit of the number of applications will certainly help as stronger applicants are locked into actually doing research, rather than writing the next proposal.
	There is insufficient information for me to answer this question
	Model 2 could require less peer review because the track record is doing most of the work in the case of Investigator grants (and this is not a good thing).
	Design a system for the resources available to you not vice versa; no other industry just has an open human resources budget.
	Again hard to ascertain
	Model 3 would also reduce number of potential reviewers available.
Encourage ECR/MCR progress	Unsure
	Pursuing a research career in health services research is becoming harder and not easier. Don't see this fixing that
	Think team support plus fellowships is best chance for ecrs - not sure they will get much funding under other 2 options
	The emphasis on early and mid-career researchers is very encouraging. 'Forcing' teams to have an ECR included (Model 1) could introduce perverse incentives, and it is not clear what the advantage to obtaining the 'People Grant' for ECR fellowship would be instead of just being an ECR on a team (Model 1). Model 1 may also result in ecrs to be very reliant on

	'who they know' in order to be identified for a team to take them forward. The different steams of individual funding in Model 2 mean that ecrs/mcrs would only be competing with others in their cohort which would be encouraging. Model 3 is less clear how ecrs would be encouraged.
	But as above I think the entire system is set up in a way which is antithetical to this goal. Unless you are able to ride on the coat-tails of an established 'research star' you may as well give up now, and this is not just because of the grants process but because of the way universities hire, fire and promote.
	There is insufficient information for me to answer this question. The low funding success rates, the failure of awarded funds to cover full research costs and relatively insecure employment tenures currently dissuade people from pursuing and maintaining research careers; it is unclear that any of the proposed models will address these issues.
	Model 1 features dedicated funding for ecrs and requires the inclusion of ecrs as part of team applications. By contrast, Model 2 favours senior researchers.
	Focus on the factors of your process that impact on quality of phd supervision first. The best thing an early career researcher can have is a phd supervisor that wasn't off campus half their candidature chasing money.
	Hard to determine
	Model 3 would be catastrophic for ecrs and mcrs outside large universities.
Balance safe and innovative research	Can't see it happening unless additional funds are provided.
	Really don't know - all have pros and cons so would rank all the same
	I think this is difficult to determine in advance, and really depends on how the funding is awarded. If 'blue sky' projects are awarded funding then people will be encouraged to submit innovative proposals. But just saying a scheme 'supports innovation' won't encourage innovative proposals if only those that have clear outcomes/ impacts / etc are funded.
	These both should be part of the assessment of all grants
	There is insufficient information for me to answer this question.
	That is not about the model, as much as it is about the motivations of people who stay in research.
	This is also related to peer reviewer attitudes. Can't necessarily be solved by a model.
Balance medical and health research	There's probably too much medical research (it's kind of like health - there's always more to be done, so how much is too much) and not enough on the service side of things. None of these models seem designed to fix that.
	Really don't know - all have pros and cons so would rank all the same
	I don't think there is enough information in the consultation document to determine how the NHMRC is going to improve the support for health services research within the program.
	Very difficult to address this.
	Research funding should be split into streams (where it is easier to compare across grants).
	None of them will do that.
	There is insufficient information for me to answer this question.
	Ineffective intervention studies in physical activity are going to continue because of your peer review process. The cross disciplinary process of review is inadequate.
	Not much between M1 and M2 here. I think the ECR support in M1 is good, but the more flexible investigator grants are better than the team grants.
Balance people	I worry that model two will result in a very large part of the funding pie going to a few

support	selected researchers with strong track records, making it more difficult for others to fund research. Funding teams still provides more funding certainty through 5 year grants, and a competitive team will still need to feature those highly experienced researchers, but will ensure that talented researchers who may have less experience still get opportunities to be a part of large research programs. I think that integrating less and more experienced researchers within teams is preferable to having separate schemes based on different levels of experience.
	Really don't know - all have pros and cons so would rank all the same
	Sorry - don't know!
	Surely anything else would be better than the current system
	Don't know.
	I wish I could rank all of these equal last. Oh wait, I can!
	There is insufficient information for me to answer this question.
Health service research funding	The collaborative bonus an incentive to join multiple disciplines in HSR- eg. Bioinformatics, IT systems design, economics, mathematics
	Really don't know - all have pros and cons so would rank all the same
	I don't think there is enough information in the consultation document to determine how the NHMRC is going to improve the support for health services research within the program.
	Good idea, but not sure how this will happen when bio-medical research soaks up most of the funding.
	I don't think any of them will do that, as currently presented.
	Hope not.
	This is difficult to gauge. There is not enough detail. I do like the M3 features of different types of grants, eg implementation science, but I worry about the obvious gaming capability here (more than with the other 2 models).
Health service research translation	Only model 3 has a specific Implementation focus
	I think this is fraught with problems - look at the research of getting research into practice - usually takes many years and that's with people working on it already.
	3 has definite translation advantages
	There is very little in the consultation document that discusses the impact/translation/implementation of research into practice. It is not clear if any of the models will specifically reward this type of project.
	Any model will need to make this explicit. None of the proposed models address this.
	Not sure
	This should be a separate research funding stream where the likelihood of changing practice is taking into account as a key criteria.
	I don't think any of them will do that, as currently presented. Some of the greatest obstacles to research translation lie with "research users" - time, skills, work culture, etc. The proposed models do not address any of these factors.
	A resource consideration beyond the scope of these models.
	Again, difficult to gauge, but M3 features an emphasis on translation more than the other models.

General comments
One strength of Scheme 3 is the specific stream to support translation and commercialisation research. Scheme 1 could be strengthened in relation to this by explicitly including eligibility of proposals that focus on translation research, or requiring researchers to include a component that addresses translation and/or commercialisation within a 5 year funding plan. The strength of this component would be ranked as part of the grant review process.
5 year funding is critical for career sustainability; the strict limit on the number of grants however is a concern for methods people whose expertise is needed across a range of different projects. eg. Biostatisticians, health economists.
With the current and proposed funding arrangements, once a candidate/team get through the review process, they are essentially given a bucket of money up front with little reward at the end (and few checks on how the funds are used). Ideally there would be incentive or bonus payment for going the extra mile and getting the research into practice (or at least the next step in the knowledge translation path). For example, a clinical trial may be funded, and the researchers conduct the trial to plan, analyse the results, write it up, and that's it. However, (assuming it was a positive trial), the next phase may be undertaken (e.g. evidence of dissemination to HHS's, or wide-scale implementation study is planned and commenced, or at least some steps of getting it into practice.
The creation of a separate stream for implementation research is attractive in model 3. Models 1 and 2 do not have elements that support HSR directly.
Start again! Not really asking the right question, so the answer is to the wrong question. Health is a multi-billion dollar industry in Australia, yet we do surprisingly little research on the service delivery side of things - it's well under-funded. In other industries, they'd spend more on getting the service right.
None of these models seem to be particularly attractive to early career researchers or support health services research. I am particularly concerned that they are getting rid of the existing partnership projects scheme which works well.
I think HSR will work with whatever model eventuates - the choice will be driven by the weight of bench science as always with NHMRC.
I didn't read the proposal in full detail, so may have missed the answers to some of the questions I've raised. Thanks for the opportunity to comment, and happy to be involved further if you'd like help!
As an early career researcher, who none the less has 20 + years' experience in commissioned research, I particularly welcome model 1 that addresses the aim to improve innovation in NHMRC funding with its ideas grant assessed for this criteria rather than track record. The requirement to include early and mid-career researchers as CIs on the Team grant in model 1 is a good idea as it will lessen uncertainty of researcher careers at these levels. Encouraging multidisciplinary teams on the Team grant in model 1 is also a good idea as it will improve quality, breadth and depth of research outputs - particularly high quality research that informs or influences policy and practice questions which requires multidisciplinary teams to be relevant for policy and decision makers.
All grants should be assessed for value for money against their potential research outcomes (where the full cost of the grant should be taken into account even when some costs are to be borne by others). This provides incentives for researchers to think of cost-effective research solutions; carefully consider CI contributions and have a well-balanced CI team (not too top heavy or have CIs listed that will in practice have very little input into the research) that will be able to deliver on outcomes. This also serves to drive down the cost of research. Final reports from grants should be evaluated for content and not just financial accounting. There should be some penalty until a satisfactory report is delivered. Also a public summary final report should be made available to account for the public expenditure.
This is fiddling around the edges of a system which is profoundly broken. Personally, I am about to leave for a private sector job after a great deal of heartbreak and hard work, and everyone agrees that I am very good at what I do.

There appears to be little discussion about the role and capacity of industry to contribute toward research. Some industries are very limited in their capacity and/or willingness to contribute even when they strongly support the proposed research.
Model 1 is a clear winner for ECRs.
Very difficult to determine differences between model one and two.
They definitely simplify the landscape from the current situation. I guess we need to accept it's about functionality not fairness. Whatever the model, the big universities will "game" their applications to the detriment of smaller universities. And the "good old boys" will get a bigger share of the pie. This is a given.