



Australian Government
National Health and
Medical Research Council

N H M R C

A Summary of Peer Review for Project Grant Applications to NHMRC 2011

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The Project Grant scheme is by far NHMRC's largest funding scheme. With over 3500 applications this year, 36 grant review panels and many thousands of external reviewers involved, the quality of peer reviews is of crucial importance.

This document sets out the steps involved in the peer review process.

I previously published a description of the review system three years ago (see: http://www.nhmrc.gov.au/_files_nhmrc/file/grants/peer/nhmrc_peer_review_process_2009.pdf). Now that RGMS is in place, it is timely to update this. I have outlined the main steps below, and there is a Q & A section at the end.

1. Submission of applications

3508 applications were received. NHMRC research staff in consultation with NHMRC Academy members have allocated applications to Grant Review Panels (GRPs) in accordance with the applicant's wishes, as far as possible.

Each GRP will consist of 12-15 members and each GRP member will be given approximately 8 applications to be primary spokesperson for and 8 applications to be secondary spokesperson for.

2. Assignment of external assessors

This is the task of the NHMRC Academy whose membership has been expanded this year to 126. We asked Academy members to attend an assigners' meeting in the first week of April to identify 6 possible external assessors for each of the 3,508 project grant applications. Due to the delay of the closing date, following the disruption to submissions due to the closure of RGMS in February, we were not able to provide the Academy with RGMS's full functionality for the identification of suitable assessors, though an initial match of keywords was possible. In future years, this capability of RGMS will be available.

NHMRC PhD staff have worked with NHMRC Academy members to obtain two external assessments and a spokesperson report for all applications.

This year, not only did we have over 15,000 CVs on the RGMS database, we also had available on trial a sophisticated propriety information-trawling software which can link PubMed information to each application. This software is already in use by some overseas peak medical research funding bodies and NHMRC is considering the purchase of licences for this software for 2012.

3. External Assessors Reports

This year, we wish to have all assessments for all grants completed by late-June, so that all applicants have sufficient time (7 working days) to develop their responses. As of the second week of June, we have received around 60% of these assessors' reports.

4. Grant Review Panels

GRPs will meet in NHMRC Offices in Canberra from 1st August to 9th September to complete the review of applications prior to funding announcements. A number of key improvements to our processes have been implemented this year:

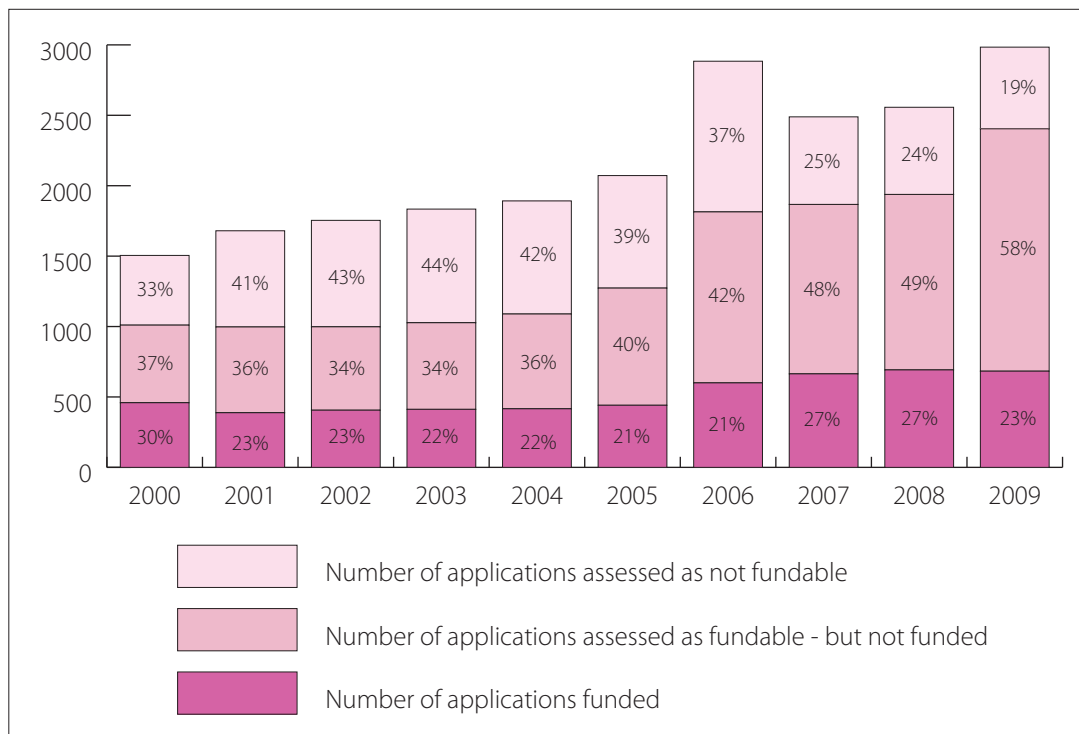
- i. Research Committee approved a revised policy for appointments to GRPs which articulated goals regarding, for example, gender balance and jurisdictional representation (see: <http://www.nhmrc.gov.au/media/noticeboard/notice11/principles-grp-establishment>).
- ii. There will be experienced researchers as Chairs for all GRPs. The Chairs will be chosen by NHMRC on the basis of their lack of conflicts with the applications under consideration on the panel. We have sought assistance from New Zealand and Singapore in this task as well as other non-conflicted Australian researchers and NHMRC staff with research backgrounds.
- iii. Our aim of course is to give every application equal and fair consideration. New for this year:
 - asking each GRP member to provide a score against all three selection criteria – Scientific Quality (50%), Significance and/or Innovation (25%), and Track Record relative to opportunity (25%), rather than provide a single overall score.
 - providing new advice to GRP members on how to consider track record relative to opportunity, so that interruptions to careers (mainly women raising young children) are properly taken into account.
- iv. Chairs will ensure that all GRP members have a fair opportunity to comment so that there is no domination by any member. They will also remind ensure that members address each of the selection criteria when scoring all applications.
- v. Senior NHMRC staff and I will meet with the Chairs each evening and review the day's outcomes. We will review the distribution of scores across each panel and discuss any significant change against our records for GRPs over the last several years.
- vi. There will again be observers, usually from the medical research charities and the consumers' health movements. Observers are not active researchers but do hold responsible positions in society. Their responsibility at the GRP meetings is to ensure that the processes are fair within and between panels. The Chair of the Observers will participate in the end of day Chairs/NHMRC staff discussions to provide an independent input into how each GRP is going.
- vii. At the end of the GRP process, the observers provide the Research Committee and CEO with a report.
- viii. There will be new induction support for GRP members, especially new members.

5. After GRPs – the formal processes

NHMRC's Research Committee will meet late in September 2011 to consider the outcomes from the GRPs and to make funding recommendations to Council.

- i. Research Committee has already made preliminary budgetary allocations for all NHMRC funding schemes including Project Grants.
- ii. Research Committee does not have any individual grant information and does not change the scoring of any grant. This means that the grants to be funded are the views of the peer review process, not of "the NHMRC".
- iii. For more than a decade, available funding has allowed only all the category 7 and 6 grants, and a proportion of the category 5 grants to be funded.
- iv. Since the NHMRC scoring system identifies that all grants categorised as 4, 5, 6 or 7 are fundable, this means that many applications worthy of funding are unable to be funded. I often hear the comments "NHMRC wouldn't fund my grant", when in fact, we would recommend funding if the money hadn't run out.
- v. The majority of applications each year are categorised as 4 or 5. In 2009 for example, for every application funded, there were approximately two others that were deemed fundable but were not able to be funded (see **Figure 17**, page 22 of 'NHMRC Facts at a Glance' booklet at <http://www.nhmrc.gov.au/publications/synopses/nh138syn.htm>).

Figure 17: NHMRC Facts at a Glance



- vi. For applications in category 5, the same proportions of applications in this category are funded across each GRP. For example in 2010, 45% of all Category 5 Grants from all GRPs were funded.
- vii. Indigenous health is NHMRC's **only** enduring research priority. Given our longstanding commitment to providing at least 5% of total research funding to Indigenous health research, Research Committee each year funds additional grants below the standard Project Grant cut off but still within the fundable category scores. In 2009, 27 of 72 Indigenous health grants were funded (38% funded rate) and in 2010, 21 of 53 grants were funded (40% funded rate).
- viii. **Strategic Initiatives:** The NHMRC Act requires us to identify major health issues that we will work on in a triennium. Each year, Research Committee is asked to include/refine the call for applications in some of these areas.
 - Note that these major health issues are not necessarily research priorities; NHMRC's work in each of these initiative areas may reflect activities in other domains such as ethics or clinical and public health advice.
 - For project grants where the applicants have designated that their applications fall with the Strategic Initiative area, subcommittees of Research Committee examine grants that scored a category 5 but fall below the funding line, to identify those which best fit with the intentions expressed in our Strategic Plan. Last year, an additional three grant applications were funded; 2 in Complementary and Alternative Medicine and 1 in Comparative Effectiveness Research
- ix. **Special Initiatives:** These are areas in which NHMRC has been provided with external funding or is conducting the peer review on behalf of another agency/department.
 - Recent examples of external funding include special initiatives into dementia, palliative care, hearing services and maternity services research, with funds coming from the Department of Health and Ageing.
 - Recent examples of peer review for another agency/department include the Department of Climate Change and Energy Efficiency (DCCEE). Through an agreement with the Department over the past two years, we conduct the peer review on health-based applications, submitted in accord with that DCCEE's objectives; we fund anything that scores **above** our cut-off, and refer the remaining grants that have scored a category 5 or 4 to the DCCEE for their decision.
 - The example above is analogous to how we work with a number of charitable funding bodies, notably the Cancer Councils, the Heart Foundation, as well as with our sister governmental organisation Cancer Australia. For these too, if the applicant ticks both the NHMRC and the charity or Cancer Australia box, then grants **above** the NHMRC cut off will be funded by NHMRC, and those below but categories 5 or 4, will be forwarded to these organisations for their decision (NHMRC has no role in those decisions).

Research Committee operates according to strict conflict of interest guidelines and members do not have access to any information about specific grants. The only exceptions are the Strategic Initiative and Special Initiative grants in category 5 but below the cut-off. As indicated above, Research Committee members scrutinise these to ensure that they truly fit the descriptors, but there is strict control of potential conflicts of interest during this process.

NHMRC's Council then considers the recommendations of Research Committee. We try to ensure that Council can consider the recommendations as soon as possible after Research Committee. Council too has no information on individual grants and they are not supplied with State breakdowns or other identifying material, in order to keep grants de-identified. Through long convention, Council is asked to confirm or reject Research Committees recommendations, but not amend them. If Research Committee's recommendations were rejected by Council, they would be referred back to Research Committee for consideration. However, this has never happened.

Ministerial approval is then sought. This occurs through the CEO accepting the Council recommendations and preparing formal documentation to allow the Minister to approve expenditure of public monies. The Minister may refer the recommendations back to Council for further consideration. Neither the Minister nor the CEO make any changes to Council's (and therefore Research Committee's) recommendations. Certain formal government requirements set by the Department of Finance and Deregulation must be met before the CEO may forward the recommendation.

OTHER COMMENTS

Room for improvement

I hope that this explanation will help applicants understand the processes undertaken each year. No peer review is perfect – the analogy is usually with democracy itself; not perfect, always room to improve, but much better than any alternative.

Each year, all GRPs are asked to make recommendations for improvement. These recommendations come from Chairs, members and observers. As well, many researchers around the country contact me and other NHMRC staff with thoughtful suggestions. While these suggestions are considered, it is Research Committee with its wide range of expertise and experience that needs to be the final arbiter of our processes, within the Departmental funds available to run the Office of NHMRC.

NHMRC operating costs via our Departmental funds are very low; the administrative support for all NHMRC's funding schemes is equivalent to 1.9% of the total research budget.

The future

When we have fully activated RGMS, it will be possible to end the “tyranny” of once a year applications. Research Committee has been considering a proposal from me to enable funding decisions to be made at intervals around the year for project grants. If such a system were to be introduced, this may mean that an “unsuccessful” grant could be improved and resubmitted within a few months, rather than a year later. There are many details to be worked through

though and full opportunities for consultation with the whole research community will be essential. But, if we can introduce this, the potential of RGMS will be realised.

For all applications to get a fair assessment across the full range of disciplines and fields, it's really important that all researchers help with peer review. The work of panel members and reviewers are the only means we have to make judgements on which research to support and I am sure that the excellent support and participation by Australian health and medical researchers will continue.

Kind regards

A handwritten signature in black ink, appearing to read 'Warwick Anderson', with a long horizontal flourish extending to the right.

Warwick Anderson
Chief Executive Officer
National Health and Medical Research Council

June 2011

FREQUENTLY ASKED QUESTIONS

1. Why does NHMRC use external assessors for project grants?

Our aim is to provide all applicants with similar levels of peer review. With different sized fields of research in Australia, from large (immunology, microbiology) to small (newly emergent disciplines), having two good peer review assessments helps overcome the difficulties of GRPs with different mixes of disciplinary expertise.

Some researchers argue that external assessments are not needed and that the panel members themselves should undertake all the review. They often point to the NIH Study Sections as an example of a system where the panel itself may be wholly responsible.

The contrast in Australia is that we have researchers across a similar breadth of research fields and disciplines as in the USA and other larger countries, but a great diversity in the numbers of researchers in all those fields and disciplines. Here, only a proportion of our health and medical research sector is large enough to be able to set up a panel consisting wholly of that discipline. Some such disciplines include immunology, microbiology and cell biology. Together, though, these are just approximately 22% of the total applications seeking project grants support. Most other fields of research in Australia are much smaller and this means that our GRPs are multidisciplinary and have to consider a much wider range of applications than NIH Study Sections. As a result, the expertise in some of the application areas in any year may be limited to just one or a small number of GRP members, unlike the larger discipline areas mentioned above where all members may have appropriate field expertise. These panels must therefore rely on having peer opinion from external assessors, in order for all other panel members to be able to make an informed and fair judgment.

It is interesting to note that NIH too have been increasing the numbers of external assessments in recent years.

2. How are external assessments used by GRPs?

These reviews are presented to the “secondary spokesperson” for each grant, who is now charged with the responsibility of formally presenting the views of the external assessors to the GRP. In this way, these assessments are given more weight in the discussions than previously.

3. Does NHMRC have a database for external assessors?

In previous years we did not. The heart of the problem has been the IT arrangements available to the Office of NHMRC in recent years. By 2006, the IT systems being used were very out-dated and the lists of assessors had not been updated for a number of years. NHMRC became an independent agency in 2006 (previously being a division of the Department of Health and Ageing) and we were therefore required to set up our own system(s) or buy the out-dated ones. We made the obvious decision to move to new 21st century software and configuration, rather than try to rejuvenate old databases with software no longer supported by the manufacturers in some instances. The Department of Health and Ageing generously helped us for three years, while we marshalled resources to begin to set up a new Research Grants Management System (RGMS).

Our staff worked hard to find ways of nevertheless running successful peer review. For the many years during which no adequate assessor database existed, different parts of the Office had developed their own Excel or Access databases. This process worked well for establishing peer review panels, but not as well for assigning external assessors. Additionally, we had no technology that allowed us to know who had been approached across the various NHMRC funding schemes, or the state of progress for all applications.

Through this period, we relied heavily on hardworking researchers appointed to GRPs and the NHMRC Academy, though we were unable to support these people fully for the same reasons.

I am immensely grateful to the GRP members in recent years who through their hard work and commitment to making the panels work well, have helped maintain peer review quality as much as possible.

4. *Why did some project grants in 2010 receive no external assessments?*

Last year, the antiquated processes outlined above meant that external assessments were often late or not received at all. As a result, applications received varying review; a total of 154 applications had no external assessors (despite often sending many requests (sometimes more than a dozen) for assessments) and a further 1810 had only one. Where this occurred, GRPs were required to undertake additional diligence in the discussion. The situation was clearly unsatisfactory.

I am confident that the full implementation of RGMS will overcome this issue. For example, we will have access to over 15,000 Australian and international researchers' CVs in RGMS, introducing new potential reviewers. Many established researchers have also commented to me that they have never been contacted by NHMRC to undertake external assessments of Project Grant applications, I hope that the full implementation of RGMS will overcome this issue. However, we are still in the process of implementing all the planned RGMS features.

5. *Does NHMRC use overseas external assessors?*

Yes. NHMRC does use overseas external assessors, and there are no restrictions placed on the NHMRC Academy member in nominating overseas assessors. In recent years, we have also called increasingly on the New Zealand Health Research Committee and on the National Medical Research Council of Singapore for panel member nominations.

6. *Why does NHMRC use independent chairs?*

This decision was made to remove the perception of conflicts of interest identified by the Australian National Audit Office, and to ensure that the Chair's responsibility was focussed on NHMRC's policies in peer review, endorsed by NHMRC's Research Committee, and followed across all panels.

7. *Why is NHMRC using the Not for Further Consideration (NFFC) process?*

This is to minimise the workload on an overburdened GRP system, by removing some applications from GRP review. This occurs after the spokesperson's report and external

assessors' reports are sent to the applicants and they have responded – that is, just prior to the GRP meeting itself. This process allows GRP members the option to not discuss applications that, based on scores from the primary spokesperson, secondary spokesperson and up to two external assessors, are identified as being among the bottom third of applications to be considered by each GRP. However, when even one panel member feels that the scores are not reflective of the grant quality, the grant application can be 'rescued' and hence discussed under the normal GRP protocol.

8. *Why does NHMRC not consider journal impact factors, H-index or ERA journal rankings in the assessment of people's track record?*

Journal rankings rank the journal, not individual papers. ERA too was not designed as a way of ranking individuals. All serious commentators in bibliometrics warn against equating journal rankings with individual papers' quality and impact.

To explain some of our thinking, we published a paper in April 2010 on the NHMRC website discussing the use of Journal Impact factor (JIF) in the peer review of individual grant applications (see: http://www.nhmrc.gov.au/_files_nhmrc/file/about/senior_staff/articles/journal_impact_factors.pdf).

The key issues identified in this paper were the following:

- the JIF of the journal in which a publication appears does not describe the impact, importance or quality of individual papers – it describes the overall citation of all papers in that journal in a given time period
- the impact of an individual paper is better assessed by the citations acquired by that paper
- the quality and importance of a paper is a peer review judgement that needs to take into account many factors
- simplistic use of the JIF to assess the quality of individual papers is inconsistent with what is known about bibliometrics, notably with respect to the differences in citation practices between different fields of research.

While this paper was focussed on the use of JIF, there are many other publication and citation metrics available to the research community that can potentially be misleading when applied to the peer review of publication outputs of a small research team or individuals.

For example, there have been questions raised by the research community whether the ERA Ranked Journal List will be used in the peer review of NHMRC grant applications. The ERA Ranked Journal List was compiled for the purpose of performing a large-scale, retrospective ranking of published outputs in a single field of research at the institution level over a fixed time period (2003-2008). For this reason it is NOT appropriate to use the journal rankings in the peer review of grant applications, as the number of publications in question may be very small and may span multiple fields of research. Recently, it was announced that the journal listing will no longer be used in the ERA process.

There are similar issues with the use of other publication and citation metrics in peer review. For example, another popular citation/publication metric is the h-index, which is bound by the total number of publications from an individual and can therefore be seen to have an age-related (or years of active research/publishing) bias. In addition, h-index does not take

into account different citation practices between fields of research and can therefore be misleading when used to make comparisons between individuals or teams of researchers.

NHMRC is currently investigating further ways of evaluating the quality, value and impact of published work in peer review. At present, we would expect peer reviewers to take into account their expert knowledge of their field of research, as well as the citation and publication practices of that field when assessing the publication component of track record. Track record assessment should take into account the overall impact and contribution to the field of all of the published journal articles from a team of grant applicants, not just the standing of the journal in which those articles are published. The NHMRC encourages the publication of articles in high quality journals but do not support using the overall impact of all publications in a journal as a proxy measure for the impact of individual published outputs.