

# **A DESCRIPTION OF THE PEER REVIEW PROCESS FOR PROJECT GRANT APPLICATIONS TO NHMRC**

## **A message from Professor Warwick Anderson**

Peer review is critical to health and medical research and fundamental to decisions as to which research and researchers to fund. The volume of applications NHMRC receives each year for Project Grants alone is considerable – 3000 are expected in 2009. This in itself presents challenges to NHMRC in ensuring consistent and robust decision making. My aim since becoming CEO in June 2006 has been to ensure that we develop the best possible and fairest practices.

The good reputation of peer review relies both on the fact and the perception that funding decisions are fair, expert and objectively assess the quality of research proposals without fear or favour. The process of peer review needs to be as transparent as possible and applicants need to be aware of the criteria that the NHMRC uses to determine whether or not to fund their proposal.

### **Selectors/Assigners**

NHMRC recently re-introduced the involvement of Assigners (Selectors) into our process. Assigners Panels have long been an NHMRC tradition, to assist with the process of setting up peer review panels and nominating assessors. This tradition had lapsed earlier this decade and the practice had become that the selection of members of the Grant Review Panels (GRPs) was undertaken by the Chair of the GRP, with the nomination of assessors undertaken by the GRP spokesperson. Many people pointed out that this system gave the spokespersons enormous influence. The use of independent Selectors aimed to improve the transparency of this processes by ensuring that the selection of panel members and the decisions of the panels are made by different groups of people. This minimises the risk of a single view dominating.

### **An Academy**

From 2009 the role of Assigners/Selectors will be crystallised in the formation of the NHMRC Academy, a small group of eminent researchers appointed to assist with our peer review processes. The NHMRC Academy will consist of individuals with considerable experience in and knowledge of Australian and international health and medical research fields and established reputations for high integrity. The establishment of the NHMRC Academy is an important step in the further improvement of our processes. Our invitation for applications to the Academy received a very high level of interest.

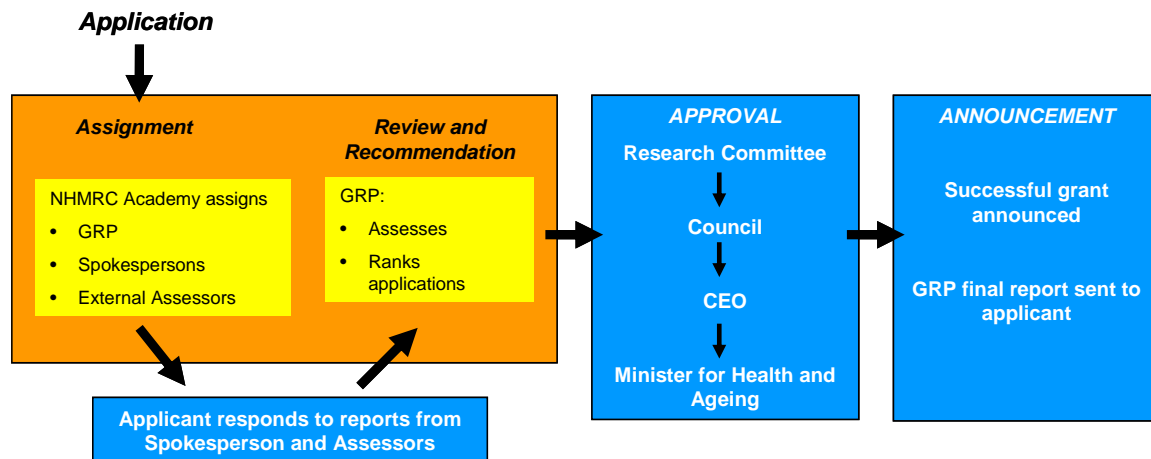
### **Steps in the annual Project Grants peer review process**

Each application will be considered by one of approximately 45 GRPs, with a total of around 500 researchers. Each GRP is configured as carefully as possible to include the necessary breadth of expertise to assess the relevance, quality and innovativeness of the proposed research. Nevertheless, GRP panels are diverse. In some larger disciplines such as immunology and microbiology, the GRP members are likely to all come from that discipline. Smaller and emerging fields on the other hand will be grouped together into a single GRP - e.g. in 2008,

surgery, dental sciences and nuclear medicine, medical physics, otorhinolaryngology and radiology.

Within each GRP, each application is assigned two Spokespersons whose role it is to lead the panel's discussion of the application. The two diagrams below illustrate the major steps and timing of the grant assessment process:

**Figure 1:** Project Grant Peer Review Assessment Flow Diagram



## STEP 1: ASSIGNMENT

In 2009, applications will be assigned to GRPs by the NHMRC Academy assisted by senior NHMRC staff. The Academy will also assist in the finalisation of GRP membership. Since the profile of applications changes from year to year, adjustments to GRPs are made after all applications are received to provide as far as possible the expertise to cover all the applications received.

As outlined above, this process to establish GRPs occurs independently of the members and chairs of the GRPs. That is, for the last two years, the people who advise on how applications should be assessed (by which panels, spokespersons and assessors) are independent of those who act as spokesperson for the grant and consider the external assessments.

External assessors' and spokesperson's reports will be forwarded to the applicants for their response. At this stage, a small number of applications which are clearly not competitive against the other applications that year may be removed from further consideration.

## External Assessors

A general principle of peer review is to strive to ensure that each application gets both the most expert and appropriate review possible and, as far as is feasible, all applications are subject to similar levels of expert review. In a country the size of Australia, there is a wide diversity in the size of the fields in health and medical research. As mentioned above, the consequence of this divergence in field sizes is that for larger fields, there can be many members of a GRP able to provide appropriate peer review for applications, but for small and emerging fields and disciplines, with many fewer applications, this is not the case. For these latter, applications face a more diverse panel consisting of several research fields and disciplines. That is, the numbers of

discipline experts on a particular panel varies and therefore, to rebalance this, the fairest method is to try to bring at least two external reviews to every application.

## **STEP 2: REVIEW AND RECOMMENDATIONS**

The GRP assesses applications against a 7-category scale, with categories 7 (the highest) to 4 considered to be of sufficient merit to be funded. Applications with category scores of 1 to 3 are considered to have significant weaknesses which render them not suitable for funding in their current form. In practice, available funding will usually extend only from the highest ranked grants (category 7) into a proportion of those in category 5.

<b>Project Grant Scoring Criterion</b>
Category 7 – Highest International quality and research performance
Category 6 – Highly Competitive
Category 5 – Excellent
Category 4 – Good
Category 3 – Satisfactory
Category 2 – Marginal
Category 1 – Poor

Further details on the scoring categories are provided at [Attachment 1](#).

### **Review**

The GRP considers each grant in turn. The Chair will first announce the grant to be considered. Members with an identified conflict of interest are required to declare this to the panel and take any further steps required under the relevant NHMRC policy on conflict of interest. For example, the member will usually be required to absent themselves during the assessment of the application concerned. On average, 10 members will assess around 75 applications from all over Australia at each GRP. There is very frequently at least one conflict of interest to manage for each application, even on the most carefully constructed panel. In practice, the NHMRC collects information on conflicts early in the assessment process and aims to constitute panels with sufficient expertise to assess each application, even with a number of members absent due to conflicts of interest.

The Chair will then announce the names of the spokesperson and external assessors. The Chair will ask both spokespersons whether they consider the application competitive in the current funding round. When both spokespersons consider the application should receive a category score of 3 or below, a budget is not proposed and the GRP discussion may be truncated.

The GRP Chair plays an independent role in proceedings and does not vote on applications. This independence allows the NHMRC to seek the Chair's advice on various procedural matters while still maintaining a separation between the researchers who assist us to establish the process, and those who actively participate in the assessments. This structure is somewhat analogous to a judge (GRP Chair) and jury (voting members of GRP panel) system.

## **Competitive Applications**

For applications considered to be competitive in the current round, the primary spokesperson will initiate discussion of the application including the views of the external assessments, by declaring a category score and providing a concise summary of the proposed research, highlighting its strengths and weaknesses. The primary spokesperson will also comment on the reports of the external assessors, highlighting any instance where the nominated category score differs markedly from the views of the external assessors.

The next step requires the secondary spokesperson to provide a category score and provide a brief report highlighting areas of agreement and disagreement with the reports provided by the primary spokesperson and the external assessors.

Following the two spokespersons' reports, all GRP members are provided with an opportunity to discuss the application and to present their views, and to question the two spokespersons. The Chair's role is to encourage full discussion by all panel members.

Each GRP member, excluding the Chair, votes on each application by providing a category score (1-7). The overall category score for each grant is the median of these scores. The mean value is also determined and referred to as the application's 'Rating'.

## **Ranking and Budget**

If a grant receives a category score of 5 or higher, the GRP will also consider the budget requested in the application and make a recommendation. The GRP is also required to make budget recommendations for applications in a Priority Area, Strategic Plan Initiative or Strategic Initiative with a category score of 4.

The GRP is asked to advise the budget that it believes is required to support the direct costs of research. The GRP will consider the various components of the budget request (personnel, equipment and direct research costs) and the budget justification provided by the applicant. Budgets are modular – that is they comprise Units of Personal Support Packages and Direct Research Costs.

NHMRC does not subsequently impose any cuts, including across the board cuts, to grants.

After all applications have been reviewed, on the last day, each GRP is asked to separate any applications which have been given the same Category and Rating, in categories 4 and 5.

## **Final report of the GRP**

Around 75% of applications to NHMRC, depending on the field, are judged by GRPs to be worthy of funding – that is, they are allocated to categories 4 or higher. We believe that the most useful feedback to applicants is an indication of the GRP's view of the application against the criteria for judging applications – that is, scientific merit, relevance and innovativeness, and the track record of the applicants (an indicator of the investigators' ability to successfully undertake the research).

## **Feedback to Applicants**

From 2008, we aim to provide applicants with an indicator against each of these – was the application competitive against others on each of these criteria, less competitive, or not competitive? This provides applicants with a comprehensive view of what needs to be improved should they wish to resubmit the application. As well, there is a free form section where the spokesperson can add specific comments should they feel these would be of additional help.

## **Feedback to Administering Institutions**

In 2008 we provided administering institutions with a ranked list of their unsuccessful applications. Individual applicants were provided with a written report against the selection criteria, a category score and further information on where their grant was ranked (e.g.: in the top 30%, 40% and so on).

## **Independent Observers during the GRPs**

Since 2007, NHMRC has appointed many independent observers for our peer review process. These observers are respected members of the community and independently monitor GRP proceedings, providing reports daily. Observers play an important role in monitoring the fairness of the processes and fulfil our responsibility to open our processes to public scrutiny.

## **Role of NHMRC Staff**

Until 2008, the role of NHMRC staff in the annual process contrasted to our “sister” organisations around the world, where staff with a research background help establish committees and arrange key parts of the peer review. An active recruitment drive for such staff with research experience (postdoctoral through to senior) is underway and NHMRC now has more than a dozen staff with PhDs working in our organisation. These scientifically qualified staff will be able to provide more informed advice and assistance to the GRPs and to the process of establishing them. However, NHMRC will always use leaders from within the research community to help us assign applications to GRPs and spokespersons, find external assessors, and conduct peer review. Furthermore, staff do not participate at all in peer review, or in budget formulation.

## **STEP 3: APPROVAL**

NHMRC staff prepares the outcomes of the GRPs for Research Committee, strictly adhering to the scores and rankings of the GRPs.

All applications scored by GRPs in category 6 and 7 are recommended for funding. Then, the same proportion of applications are recommended for applications ranked in category 5 for each GRP. The total number recommended overall depends on the amount of funding available each year.

Applications allocated to category 4 are also judged by GRPs as very worthy of funding, but are unable to be funded due to the level of funds available.

For applications involving Indigenous health-based research, the NHMRC obtains separate advice from an Indigenous Health Research Advisory Panel. This is explained further below.

For applications in strategic plan or special initiative areas (see below), a Sub-Committee of NHMRC's Research Committee examines all applications categorised as 5, but below the cut-off, for eligibility – that is, to test whether or not they address NHMRC priority areas, against the descriptors in the call for applications. They do not undertake any other review and the process relies entirely on the GRP scores.

## **Role of Research Committee**

Research Committee is responsible for advising NHMRC on the principles and processes for each NHMRC “vehicle” (Project and Program Grants, Fellowships, Career Development Awards, Training Awards, Capacity Building Grants in Population health, Centres of Clinical Research Excellence, Partnership Grants for Better Health, etc).

Research Committee also advises NHMRC on the allocation of our research funding dollars (the Medical Research Endowment Account, MREA) across each of these funding schemes, annually. Thus, for Project Grants, the indicative budget is established at the beginning of the year (see role of Council below).

Following completion of the GRP process, Research Committee meets to consider the numbers of grants being recommended against the original designated budget. This involves NHMRC determining the “cut off” for funding – i.e. how far the available funding extends against the ranking of applications for all grants submitted that year – in 2008, out of a total of 2697 submitted, 688 were funded.

At no time are individual applications identified to Research Committee, meaning that all applications are funded as recommended by the GRPs. There is no further decision making by NHMRC's Research Committee, except in the priority areas, or special and strategic initiatives. Even for these, Research Committee's role is only to determine eligibility reasons and Research Committee does not alter the order of merit of applications as determined by the GRPs.

Following the conclusion of each round, Research Committee also reviews the outcomes of the round and whether policy changes are needed.

## **Role of NHMRC Council**

Council's role under the *NHMRC Act 1992* is to provide advice across all the areas of NHMRC's activities – funding research, and providing guidelines in public health, clinical practice and health ethics.

Each year, Council examines the draft research budget for proposed expenditure in the next funding year, as presented by Research Committee. Council's other role is to examine the funding recommendations from Research Committee, in the various schemes, and formally recommend them to the CEO. Again, individual grants are not identified and to date, Research Committee's recommendations have been accepted by Council.

## **Role of the Chief Executive Officer**

As CEO, my role is to take Council and Research Committee's advice, and formally make recommendations to the Minister, for ensuring appropriate peer review processes in accord with Research Committee's advice, and for responsible expenditure against the Medical Research Endowment Account (MREA).

I am also responsible for ensuring support for the process from the beginning – opening of the funding round – until completion (recommendations to the Minister).

I have no role in determining the outcome of individual applications.

## **Role of the Minister**

Only the Minister for Health and Ageing is authorised to commit expenditure against the MREA. Under the *NHMRC Act 1992*, the Minister is not entitled to direct the NHMRC to recommend the allocation of research funds to a particular person, organisation, State or Territory.

## **PRIORITY AREAS, STRATEGIC PLAN INITIATIVES AND STRATEGIC INITIATIVES**

Each year, the NHMRC designates a small number of health areas in which it encourages grant applications. These areas are Priority Areas, Strategic Initiatives, or areas in which the NHMRC receives additional funds to support additional priorities and special initiatives. These are listed below:

### **NHMRC Priority Area: Indigenous Health**

In 2009, NHMRC has designated Indigenous Health Research as its only Priority Area. NHMRC is committed to doing what it can to advance Aboriginal and Torres Strait Islander health research and has established certain requirements and processes which are designed to ensure that research into Aboriginal and Torres Strait Islander health is not only of high scientific and ethical merit but that it is beneficial to Aboriginal and Torres Strait Islander peoples.

NHMRC has also made a commitment to a target of at least 5% of its total research funding being allocated to Aboriginal and Torres Strait Islander health research. NHMRC receives separate advice from Indigenous Health Research Advisory Panels. Each year, NHMRC intends to support all high quality Indigenous health applications provided they are supported by the Indigenous Health Research Advisory Panels as meeting criteria that benefit to Indigenous communities (see <http://www.nhmrc.gov.au/grants/files/indighth.pdf>). In some cases the NHMRC may require applicants to address some issues specific to working with Indigenous communities prior to funding commencing.

### **Strategic Plan Initiatives**

The NHMRC Project Grant scheme is investigator initiated. That is, researchers apply for funding to complete research in their field of interest.

The new NHMRC Act requires the organisation to develop a Strategic Plan which must identify the major health issues of the triennium and the NHMRC's plan to tackle them.

These issues can be found in our Strategic Plan (<http://www.nhmrc.gov.au/publications/synopses/nh80syn.htm>). NHMRC's current Strategic Plan was tabled in Parliament on 21 March 2007. We have a wide range of Committees to deal with the issues identified and for some we wish to attract new research ideas to expand our research efforts in these areas.

Applications in these areas will undergo exactly the same peer review as all other applications. Research Committee will then recommend whether to support applications in category 5 but below the cut off, based on eligibility and funds available.

## **Special Initiatives**

Special Initiatives are research areas identified as a priority by an external agency and for which NHMRC has received additional money for that specific area. These will vary from year to year depending on the wish of the organisations and other government departments to target health and medical research through NHMRC in their areas of responsibility.

## **Peer review on behalf of other organisations**

NHMRC can undertake peer review of projects on behalf of other organisations, especially charitable research funding bodies (where this can help reduce their overhead costs). In most cases, applicants can indicate whether they also wish to be considered for NHMRC funding and if so, NHMRC will automatically fund any grant above the cut off for that year.

## **Acknowledging the assistance of peer reviewers**

Assessors and GRP members are absolutely essential to the operation of peer review. NHMRC is very appreciative of the care and time that our reviewers take. From this year, we would like to publicly acknowledge their contribution on our web site, and we expect people to be able to add this professional contribution to their curricula vitae.

*As ever, your thoughts and suggestions for improvements are always welcome.  
Comments should be forwarded to [nhmrc@nhmrc.gov.au](mailto:nhmrc@nhmrc.gov.au).*

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## NHMRC Project Grant Category Descriptors

Criterion	<i>Scientific Quality</i>	<i>Significance and Innovation</i>	<i>Track Record.</i>
<b>[7] Highest International quality and research performance</b>	The proposal is lucid in its objectives, exemplary in design and certain to be accomplished.	For example: the planned work addresses an issue of utmost importance to human health and will translate into fundamental outcomes in the science and practice of clinical medicine or public health. The publication will be highly influential and the subject of invited plenary presentations at international meetings, often with relevance across several fields. The work is highly innovative and introduces advances in concept.	Applications in this category are generally from the most outstanding researchers in the country. They have strong international reputations or are well on the way to developing them.
<b>[6] Highly Competitive</b>	The proposal has clarity of purpose and a near-flawless design. There is a high probability of successful accomplishment.	For example: the planned work addresses an issue of major importance to human health. The publication will be highly influential and could be the subject of invited plenary presentations at international and national meetings. The work is innovative with respect to the question being addressed and the approach to it.	The applicants have a record of achievement, relative to opportunity, that places them in the top 10-20% of peers and have a growing international reputation. One or more of the CIs are frequently on the stage at international specialty meetings as leaders in their field, or as emerging leaders.
<b>[5] Excellent</b>	The proposal has clarity of design, and any reservations are minor and unlikely to prevent successful outcome.	For example: the planned work addresses an issue of considerable importance to human health. The publication will be influential and could be the subject of invited plenary presentations at national specialty meetings. The work contains at least one innovative idea.	The applicants have a record of achievement, relative to opportunity, that places them well above average for their peers. They have a growing national reputation and their work appears frequently at national meetings
<b>[4] Good</b>	The proposal is sound, but has several areas of minor concern in experimental design or feasibility	For example: the planned work addresses an issue of some importance to human health. The publication will be influential. The work may have some novel aspects, while others underpin or extend existing knowledge. There are minor concerns about successful completion.	The applicants have a solid record of achievement, relative to opportunity. One or more of the CIs has an existing or emerging national reputation, albeit in a niche area.

- [3] SATISFACTORY** - This category includes all applications which are based on a satisfactory research approach and design. While the GRP will be confident that the applicants will be able to undertake the research, on balance the application is one that is not competitive.
- [2] MARGINAL** - These applications display a number of good features but are not competitive.
- [1] POOR** - Unfundable grants (reasons must be clearly articulated to applicants).