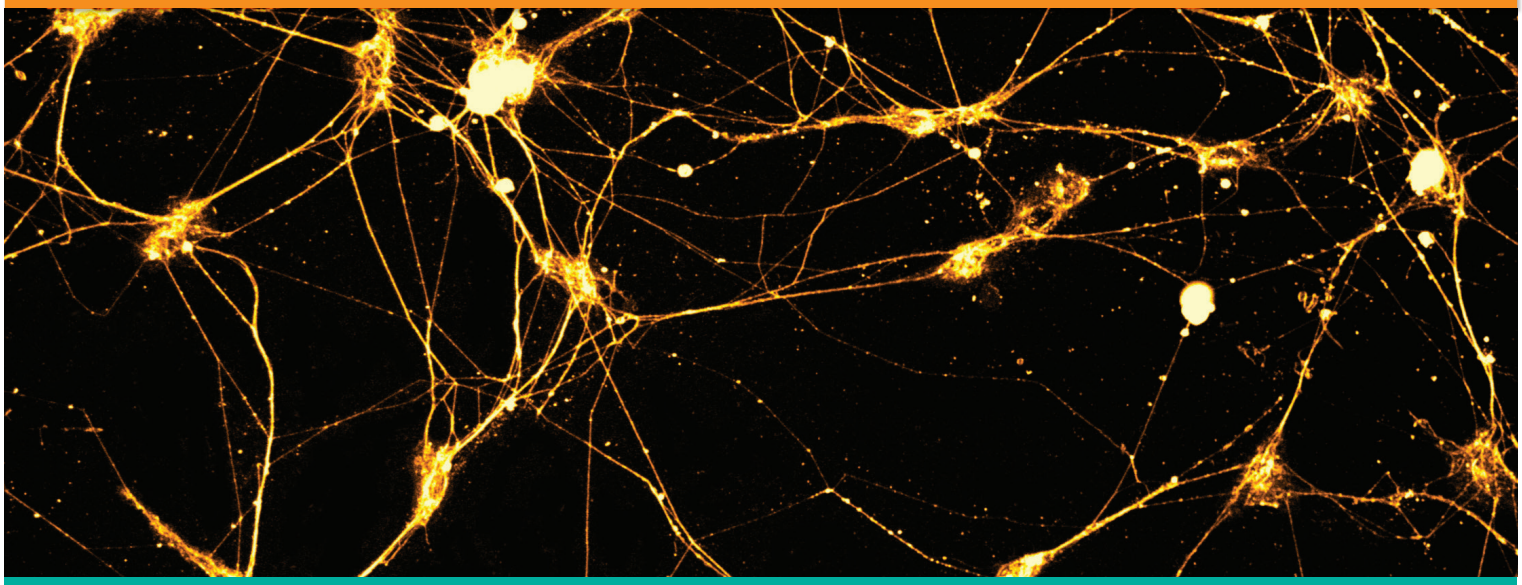
Australian Government
National Health and Medical Research Council

NHMRC



# Structural Review of NHMRC's Grant Program

## Consultation Paper

JULY 2016

WORKING TO BUILD A HEALTHY AUSTRALIA

**Cover image:**

Neural spiderwebs – unlocking the secrets of laser irradiation for pain therapy

*by Laita Bokhari, Dr Michael Lovelace, Dr Roberta Chow, Professor Tailoi Chan-Ling, Professor Patricia Armati.*

# Contents

# Making a Submission

Submissions must be in writing and lodged via NHMRC's public consultation website. Information about submission requirements, including a template to respond to the consultation questions in this document, is provided on the NHMRC public consultation website.

# Executive Summary

The National Health and Medical Research Council (NHMRC) is the Australian Government's primary health and medical research funding agency. Its major role is to support medical research and medical research training for the improvement of individual and population health.

NHMRC funding for research is mainly drawn from the Medical Research Endowment Account (MREA). Government appropriations to the MREA through the federal Budget quadrupled between 2000–01 ($185 million) and 2010–11 ($750 million). Since then, the Government has maintained the funding of the MREA at about $800 million per annum.

The increased investment in medical research and researchers enabled through the quadrupling of the MREA has significantly boosted the size and productivity of Australia's health and medical research sector. However, rapid growth in grant application numbers and rising costs of research have led to funding rates for NHMRC's major grant schemes falling to historical lows (e.g., 13.7% for the $420 million Project Grants Scheme in 2015). Absolute numbers of research grants and fellowships that can be awarded are also now falling.

Feedback from the research sector indicates that the work required to prepare and evaluate the high numbers of grant applications that will not be funded is placing an unsustainable burden on applicants and on the thousands of expert peer reviewers who evaluate applications for NHMRC every year to ensure that we continue to support high-quality health research for the benefit of Australians. Concerns have been raised that early and mid-career researchers are being discouraged from pursuing a career in health and medical research and that there is conservatism in the development and assessment of research proposals.

Given the enormous potential for research to address present and future health challenges, we must ensure that this precious fund, the MREA, is used wisely. Against this background, the Structural Review of NHMRC's Grant Program is being undertaken to determine whether NHMRC's suite of funding schemes can be streamlined to relieve the pressures outlined above to optimise the public investment in health and medical research – by reducing the burden on the research sector, encouraging creativity and innovation, and providing opportunities for outstanding researchers at all stages of their careers to contribute to the improvement of human health through research.

The alternative grant program models canvassed in the paper are presented with the intention of stimulating discussion and advice from the research sector and other interested parties about how NHMRC could best structure its grant program to distribute research funds from the MREA. The three models presented here are:

- *Alternative Model 1* - The focus of this structure is on supporting teams to conduct collaborative programs of research. The drivers of this structure are collaboration, capacity building, simplicity and flexibility.
- *Alternative Model 2* - The focus of this structure is on supporting the full research program of high performing researchers with a single grant, providing flexibility to collaborate widely and enter into partnerships to achieve commercialisation, translation and implementation. The drivers of this structure are support for the best researchers and a more structured pathway to becoming an established researcher.

- *Alternative Model 3* - The focus of this structure is on supporting teams of researchers on ideas-based grants. The driver of this structure is simplification of the grant program, while continuing support for a breadth of research to create new knowledge and promote the translation of research into policy and practice.

These models have been developed with the advice of an Expert Advisory Group established for the Review, supplemented with advice from a reference group of early and mid-career researchers. They have also drawn on the advice of NHMRC Principal Committees, especially Research Committee.

All three models are designed to consolidate a significant proportion of MREA expenditure into fewer grant schemes and to limit numbers of unfunded applications. A substantial reduction in application numbers would enable NHMRC to implement major changes to its application and peer review processes, e.g., by introducing more than one application round per year or continuous application rounds and/or iterative review of near-miss applications by the same grant review panel.

Feedback from those using NHMRC's grant program – researchers and research institutions – is critical to ensuring that all of the potential effects of the possible alternative models are considered.

Once the review is completed and the structure of NHMRC's grant program determined, NHMRC will then consider changes to its application and peer review processes.

# Background

The National Health and Medical Research Council (NHMRC) is Australia's primary Government body for supporting health and medical research. Under the *National Health and Medical Research Council Act 1992* (NHMRC Act), NHMRC pursues activities designed to raise the standard of individual and public health and to foster medical and public health research and training throughout Australia.

These objectives are achieved mainly through the award of research grants funded from the Medical Research Endowment Account (MREA), which receives an annual appropriation in the Federal Budget. In response to recommendations of the 1998 Health and Medical Research Strategic Review (the Wills Review) and the 2004 Investment Review of Health and Medical Research (the Grant Review), the MREA was increased from $185 million in 2000–01 to $750 million in 2010–11. Despite fiscal pressures, the Australian Government has met its commitment to maintain funding for health and medical research and allocations to the MREA remain steady at about $800 million per annum, rising with indexation.

NHMRC's strategy for health and medical research[1] takes into account the need to respond to national priorities in health and science, to consumer needs and community perspectives, and the broad policy environment, including the Australian Government's Science and Research Priorities (2015) and the National Innovation and Science Agenda (2015).[2] As disbursements from the Government's newly established Medical Research Future Fund (MRFF)[3] grow over the coming years, the MRFF will play an increasingly important role in research support alongside the MREA. Expenditure from the MRFF will be determined by the Minister for Health, guided by the strategy and priorities determined by the Australian Medical Research Advisory Board and taking into account NHMRC's strategy for health and medical research.



[1] More information about NHMRC's current funding schemes is available at: http://www.nhmrc.gov.au/grants-funding/apply-funding.

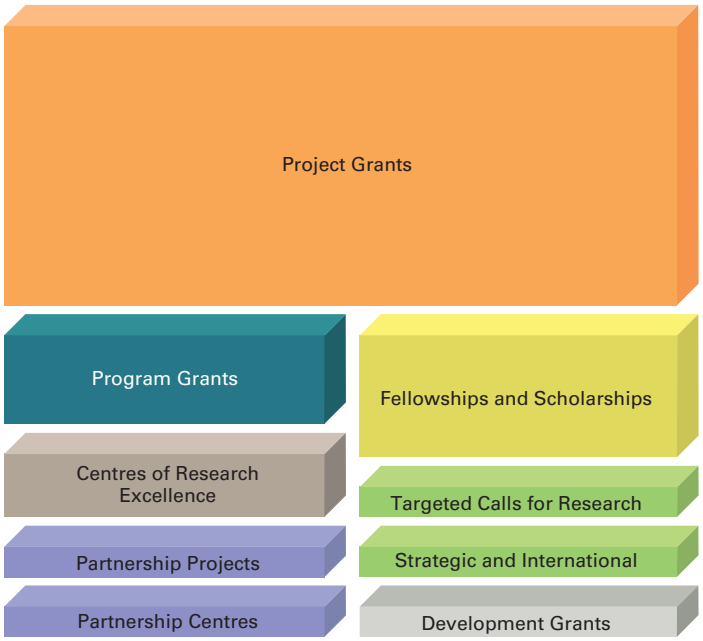
[2] The Australian Government's National Innovation and Science Agenda is available at: http://www.innovation.gov.au/start/agenda?tid=1.

[3] More information is available at: http://www.health.gov.au/internet/main/publishing.nsf/Content/mrff.

# NHMRC's Grant Program

As a national body, NHMRC has a responsibility to cover the breadth of health and medical research needs. NHMRC distributes grants through a range of schemes with specific aims, e.g., to create knowledge, to build capability, to accelerate translation of research findings into policy and practice, to foster collaboration, to strengthen international research links and to build partnerships with industry, policy makers and other research users. Information about NHMRC's current grant program is at Attachment A.

**Figure 1: Current NHMRC grant program - Structure**




Funding is awarded across the full spectrum of health and medical research from discovery to clinical medicine, public health and health care delivery. Support is provided to individual investigators and teams to undertake specific projects and multidisciplinary research programs and to form centres and national networks. Salary support is provided to outstanding investigators through Postgraduate Scholarships and Research Fellowships for all career stages.

Most NHMRC funding is awarded in response to investigator-initiated applications in which the research is conceived and developed by the researchers. A smaller proportion of funding is directed to specific areas of unmet need, e.g., through Targeted Calls for Research, special Centres of Research Excellence, Partnership Centres and some Partnership Projects.

The primary criterion for all funding decisions is excellence. NHMRC relies on review by independent experts to identify the best applications, based on the significance of the research, the quality and feasibility of the research proposal, and the track record of the investigators. Rigorous processes of peer review ensure transparency, probity and fairness.

Although most NHMRC grants are administered by universities, NHMRC-funded research is undertaken in universities, medical research institutes, hospitals and primary health care settings. With the exception of the Independent Research Institute Infrastructure Support Scheme, indirect support for research is provided to institutions by Commonwealth and State mechanisms outside NHMRC.

NHMRC's grant program has served Australia well, supporting the development of a highly productive, internationally competitive medical research sector, which has produced high-quality research[4] and made major contributions to the understanding of health and disease and the improvement of human health. As outlined in this paper, this system is now under increasing pressure and it is time to consider alternative models for distribution of the MREA.

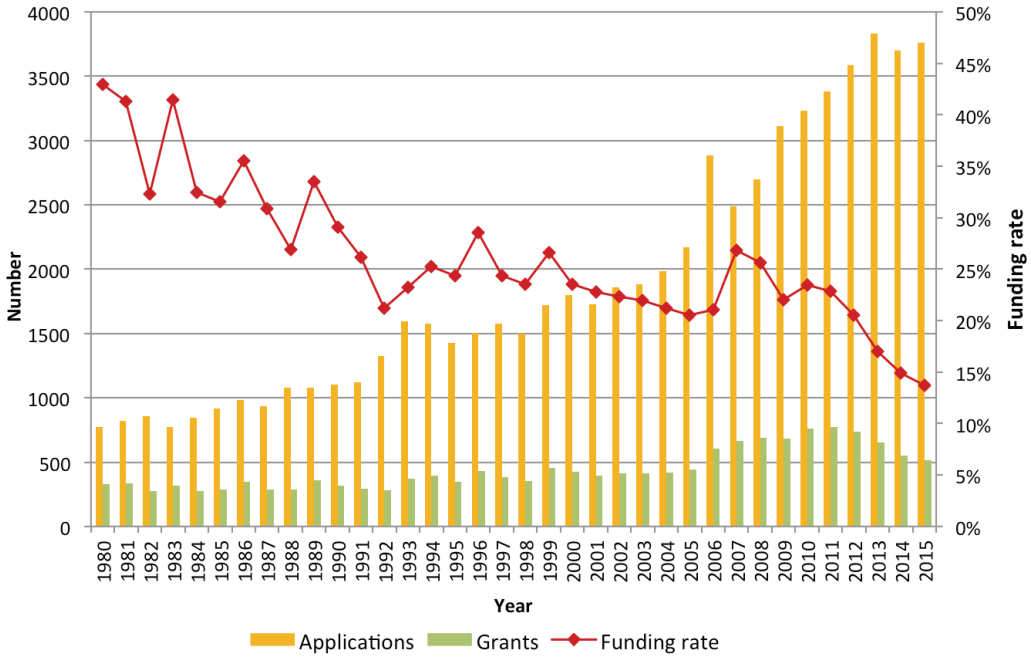


[4] NHMRC-funded research does well when measured by bibliometric performance data (see https://www.nhmrc.gov.au/guidelines-publications/nh164).

# The Case for Review

Funding rates for most NHMRC funding schemes have fallen significantly in the past three years. This is most striking for the Project Grants scheme (Figure 2), which accounts for 50% of MREA expenditure. Marked falls in funding rates have also occurred for NHMRC Early Career, Career Development and Research Fellowships (see **Attachment A**). Absolute numbers of grants and fellowships awarded each year have also now fallen.

**Figure 2: Rising application numbers and falling funding rates in the Project Grants scheme, 1980 – 2015**




The fall in funding rates reflects the fact that application numbers and costs of research have risen faster than the value of the MREA.

There is now widespread concern that the high volume of applications for NHMRC funding is having a range of negative effects on Australian health and medical research, such as the following:

- Researchers are spending a substantial period each year preparing grant applications that will not be funded, despite many being of sufficient quality to be funded.
- The load on peer reviewers (most of whom are themselves researchers) has become excessive for the number of grants funded.
- Early and mid-career researchers, especially women, may feel discouraged from pursuing a research career.
- Applicants are more likely to propose, and peer reviewers are more likely to favour, "safe" research to the detriment of innovation.
- The low likelihood of funding is driving further increases in application numbers as researchers seek to improve their chances of obtaining a grant, exacerbating the situation.

During the 2012–15 triennium, NHMRC's Research Committee considered a range of possible solutions and concluded that commonly suggested changes to existing funding schemes (e.g., lowering the cap on the number of Project Grants held by each investigator) would not achieve a sufficient reduction in application numbers to overcome the issues noted above.

In 2015, NHMRC undertook public consultation on *Current and Emerging Issues for NHMRC Fellowship Schemes*. Many submissions to the consultation noted the important contribution of NHMRC Fellows to high-quality research in Australia and expressed concerns about the sustainability of research careers. Many also suggested that the Fellowships schemes could not be considered in isolation and called for an over-arching review of NHMRC's grant program.

With the establishment of the MRFF as a perpetual source of new funds to support medical research and innovation, there is hope that existing funding pressures on the health and medical research sector will be relieved. It will take some years, however, for MRFF funding to match the MREA and the priorities guiding its expenditure are expected to be different and complementary to those of NHMRC.

For all of these reasons, NHMRC is undertaking the Structural Review of NHMRC's Grant Program (the Review).

# Aims

The aim of the Review is 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. In optimising this investment, we would seek to:

- reduce the burden on the research sector of grant application and review so researchers can spend more time producing high-quality research
- encourage greater creativity and innovation in research
- continue:
  - attracting and providing opportunities for the most talented researchers at all career stages
  - providing flexibility to respond to changing national 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 (Table 1).

The Review is focussed on the structure of NHMRC's grant program and will not consider the details of the peer review process. (Information about the scope and conduct of the Review is at **Attachment B.**) Any refinements to peer review processes would be considered once the structure of the grant program is determined. For example, if the review resulted in changes that reduced the burden on the research sector by substantially reducing the number of grant applications each year, NHMRC could consider increasing the number of funding rounds per year for major funding schemes or opening schemes for continuous applications and/or introducing iterative peer review (where near-miss applications can be revised in response to feedback and re-reviewed by the same grant review panel), as well as other significant changes to peer review processes.

**Table 1. Major objectives of NHMRC's grant program**

| |
|---|
| 1. Research excellence<br>• Supports high-quality research by international standards<br>• Supports research that leads to scientific discovery and innovation<br>• Supports research that leads to improvements in individual and population health |
| 2. Research breadth<br>• Supports research across the spectrum from basic (i.e., biomedical) to clinical, public health and health services research and in diverse disciplines<br>• Supports research in diverse environments, including universities, medical research institutes, hospitals, primary health care and in the community |
| 3. Research translation<br>• Supports translation of research into new products, devices and interventions by commercial pathways when appropriate<br>• Supports translation of research into improved health care practice and policy |
| 4. Collaboration and partnerships<br>• Enables and encourages collaborative enterprises (e.g., partnerships with research users, national coordination, international linkages)<br>• Supports multidisciplinary research |
| 5. National researcher capability<br>• Supports researchers at all career stages<br>• Supports researchers from diverse disciplinary backgrounds<br>• Enables retention of outstanding researchers in the health and medical research system regardless of age or gender<br>• Accommodates career disruptions<br>• Supports teams and individual researchers according to research needs |

# Alternative Models for NHMRC's Grant Program

## DEVELOPMENT OF THE MODELS

On 28 January 2016, the NHMRC CEO announced the review of the structure of NHMRC's grant program.[5] An Expert Advisory Group was established to provide advice and assistance to NHMRC in examining the current grant program and possible alternative grant program structures (models).[6]

The Expert Advisory Group considered data about NHMRC's current grant program, the potential challenges facing this program, feedback from the NHMRC's 2015 consultation on the Fellowship Schemes and examples of grant program structures in other countries, including Canada, the United Kingdom and the United States of America. The Group discussed a range of ideas for possible alternative grant programs, before recommending that NHMRC consult on three models with different features to stimulate feedback from the research sector.

In developing these models, the advice of the Expert Advisory Group has been supplemented by advice from a group of early and mid-career researchers. NHMRC has also drawn on the advice of NHMRC Principal Committees, especially Research Committee.

## COMMON FEATURES

While not repeated in each of the alternative models described below, NHMRC is committed to retaining certain features in any alternative grant program model. These features are listed below. As with the current grant program, the detail of these common features would largely be implemented through funding rules and processes once the structure of the grant program is determined.

**Common features**

NHMRC is committed to retaining the following features in any alternative grant program model:

- Research excellence determined by independent peer review as the basis for allocating funding.
- Continued commitment of at least five per cent of the annual MREA allocation to Aboriginal and Torres Strait Islander health research.
- Commitment to funding capacity building for Aboriginal and Torres Strait Islander researchers.
- Support for investigator-initiated research as a core component.
- Schemes for strategic research (such as Targeted Calls for Research and Government initiatives, e.g., dementia research), national networks and international collaborations.
- Support for research across all of the Broad Research Areas (i.e., basic, clinical, public health and health services research).
- Fellowships will continue to cover the range of career stages, as they do now.
- Support for diversity of researchers, including different genders, full-time and part-time researchers and those with career breaks.
- Support for partnerships, commercialisation, translation and implementation.
- Arrangements to ensure effective transition from the current grant program structure.

[5] CEO's announcement of the Structural Review: http://www.nhmrc.gov.au/media/nhmrc_updates/2016/reviewing-structure-nhmrc-s-grant-programme.

[6] Further information about the Structural Review, including membership of the Expert Advisory Group, is in Attachment B.

The alternative models described below also contain some new features for consideration, including:

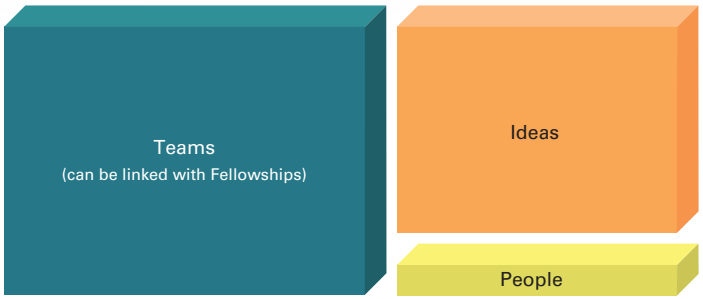
- lower caps on the number of grants that individual researchers can apply for and be awarded, to reduce the burden on both applicants and the peer review community
- a different approach to determining grant budgets, i.e., based on pre-determined funding tiers (funding packages) selected by applicants, rather than submission and assessment of a detailed budget proposal
- additional requirements for large or 'big science' grants (such as large clinical trials, cohort studies and genomic studies), and
- for Models 1 and 2, linking of fellowships with research grants, to support both salary and research costs. (Fellowships would not exist under Model 3.)

The models presented below are not intended to award investigators more or less total NHMRC funding than they currently receive but are intended to reduce application numbers and to simplify NHMRC's funding program for the research community, while continuing to meet the major objectives of NHMRC's grant program. Detailed analyses of funding tiers, grants sizes and fellowship numbers at each level of seniority will be undertaken to support any decision to move to a different grant program structure.

## ALTERNATIVE MODEL 1

This structure would support teams to conduct collaborative programs of research across the spectrum of research areas and disciplines and include partnerships, commercialisation, translation and implementation. The drivers of this structure are collaboration, capacity building, simplicity and flexibility.

**Figure 3: Model 1 - Structure**




### Team Grant

This grant would provide long-term funding to teams of Chief Investigators (CIs) to support collaborative programs of research in all fields of research. The features of this grant include:

- Five year duration.
- A range of funding packages would be available.
- Salary support for a CI could be drawn from the Team Grant or provided through a fellowship (see below).
- The grant would support a team of CIs. All CIs would be considered equal on the grant, i.e. the existing CIA to CIJ classification would not be used.
- There would be a requirement to include early and mid-career researchers as CIs on the team.
- The team may also include cross-disciplinary researchers.
- Restrictions on the number of grants applied for/held by a CI, including:
  - Applications would be limited to one per round per CI.
  - CIs who hold a Team Grant could not apply for a new Team Grant in years 1-3 of the existing grant.
  - CIs holding a Team Grant could apply for and hold only one Ideas Grant, and could not hold a People Grant.
- Team Grant applicants would be required to address a substantial research question.
- Assessment would be based primarily upon the track record of CIs (relative to opportunity), including the early and mid-career researchers.

Team Grants could be linked to fellowships:

- A CI on a Team Grant application could apply for a fellowship as part of the Team Grant.
- Fellowships would only be awarded if the applicant was awarded the Team Grant.
- The award of the Team Grant would not automatically result in a fellowship being awarded.
- Peer review of Team Grant and fellowship applications would be combined in a single process.

**Ideas Grant**

This grant would support research projects in all fields of research with an emphasis on innovation and significance of research, rather than track record. Accordingly, they are intended also to provide opportunities for early and mid-career researchers. The features of this grant include:

- One to five year duration.
- A range of funding packages would be available. The funding provided could be used flexibly, as determined by the CI(s), including for CI salaries.
- There would be two streams:
  - Standard – funding would be capped at $2.5 million per grant
  - Large or 'big science' – for grant applications seeking $2.5 million or more. This stream would have additional requirements, including a systematic review of the evidence to support the need for the proposed research and a framework of milestones to support achievement of the research goals.
- Restrictions on the number of grants applied for/held by a CI, including:
  - Applications would be limited to one per round per CI.
  - CIs may hold only two Ideas Grants.
  - CIs holding a Team Grant may hold only one Ideas Grant, and CIs holding an Ideas Grant may not hold a People Grant.
- A maximum of 10 CIs per grant.
- Assessment would be weighted towards significance / innovation of the research proposal.

**People Grant**

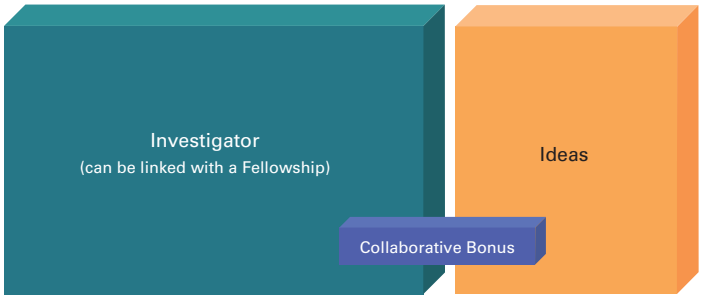
This grant would support early career researchers through postgraduate scholarships and early career fellowships that include project funding. The features of the People Grant include:

- Duration up to four years.
- Eligibility limited to early career researchers. A researcher may only hold a scholarship and a fellowship once.
- An early career fellow would receive salary and research costs and a scholar would receive a smaller funding package.
- Assessment would be based on achievement, research proposal and research output.

## ALTERNATIVE MODEL 2

The structure would support the full research program of high performing researchers with a single grant, providing flexibility to collaborate widely and enter into partnerships to achieve commercialisation, translation and implementation. The drivers of this structure are support for the best researchers and a more structured pathway to becoming an established researcher.

**Figure 4: Model 2 - Structure**




**Investigator Grant**

This grant would provide long-term support, via a single grant, for top-performing individual CIs and their groups to conduct programs of research. The features of this grant include:

- Five year duration.
- A range of funding packages would be available, depending on the streams (listed below) which take account of the researcher's experience.
- Salary support for the CI could be drawn from the Investigator Grant or provided through a fellowship (see below).
- Assessment would be based on track record and broad research outline.
- CIs may only hold one Investigator Grant.

Investigator Grants could be linked with fellowships:

- A CI on an Investigator Grant application could apply for a fellowship as part of the Investigator Grant.
- Fellowships would only be awarded if the applicant was awarded the Investigator Grant.
- The award of the Investigator Grant would not automatically result in a fellowship being awarded.
- Peer review of Investigator Grant and fellowship applications would be combined in a single process.

There would be a number of streams within the Investigator scheme, including:

- Established
- Transition
- Postdoctoral
- Career Interruption
- Cross-discipline
- Clinical.

**Ideas Grant**

This grant would provide funding for researchers with good ideas but insufficient track record to obtain an Investigator Grant. The features of this grant include:

- Duration up to five years.
- All researchers above the postdoctoral level could apply.
- A range of funding packages would be available. The funding provided could be used flexibly, as determined by the CI(s), including for CI salaries.
- CIs may only apply for and hold one Ideas Grant.
- There would be two streams:
  - Standard – funding would be capped at $2.5 million per grant
  - Large or 'big science' – for applications seeking a grant of $2.5 million or more. This stream would have additional requirements, including a systematic review of the evidence to support the need for the proposed research and a framework of milestones to support achievement of the research goals.

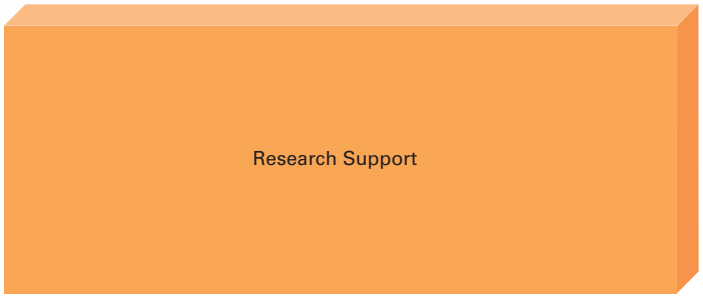
**Collaborative Bonus**

An applicant for an Investigator or Ideas Grant who demonstrates collaborative gain would receive a bonus. This would not be a separate scheme. The additional funding (bonus) would be included in the Investigator or Ideas Grant awarded to the researcher.

## ALTERNATIVE MODEL 3

This structure would support teams of researchers on project / ideas based grants via one grant scheme. The driver of this structure is simplification of the grant program, while continuing support for a breadth of research to create new knowledge and promote the translation of research into policy and practice.

**Figure 5: Model 3 - Structure**




**Research Support**

This grant would provide funding to support teams of researchers. The features of this grant include:

- Duration up to five years.
- A range of funding packages would be available. The funding provided could be used flexibly, as determined by the CI(s), including for CI salaries.
- Large or 'big science' applications – for applications seeking a grant of $2.5 million or more, there would be additional requirements, including a systematic review of the evidence to support the need for the proposed research and a framework of milestones to support achievement of the research goals.
- CIs may only apply for one grant and hold a maximum of two grants.

This grant would include funding for the following subtypes and streams:

- Knowledge creation subtype:
  - Standard: for established researchers.
    - Assessment would be based on the research proposal (major weight) and team track record, relative to opportunity.
  - New Investigator: for talented early career individual researchers seeking to obtain independence.
    - Assessment would be based on the research proposal and track record (relative to opportunity).
- Translation subtype:
  - Commercialisation: research designed to lead to a commercial product.
    - Assessment would be based on the research proposal and team track record (relative to opportunity). Evidence would be required of the commercialisation pathway.
  - Implementation: would include a requirement to have a partner organisation provide a co-contribution to research funding.
    - Assessment would be based on the research proposal and team track record (relative to opportunity).

## OTHER ISSUES FOR CONSIDERATION

The alternative models presented above were designed with a range of features to stimulate discussion and feedback, to assist NHMRC in determining whether to change the structure of its grant program and, if so, what features that structure should include. A number of other issues were also considered in their development. We invite you to comment on these issues in your response to this consultation paper.

- Honorary Fellowships: Any of the models could also allow scientists to apply for an honorary fellowship in circumstances where they are not seeking salary support but are still involved in research (e.g., because they are in salaried roles). Another type of honorary fellowship might be for senior scientists towards the end of their careers who are continuing an important mentoring role. Honorary fellows would not receive salary support from NHMRC but their institution might, for example, provide a retiring fellow with support in the form of office space, a computer, and library and other services.
- Safety nets: The alternative models do not include 'safety-net' extensions for grants, e.g., a one-year extension if a grantee is unsuccessful in a renewal application, because this would reduce the pool of funding available for new grants each year.
- Centres and Partnerships: The alternative models and the funding for national networks are intended to encompass research currently undertaken through Centres of Research Excellence and Partnership schemes. As part of streamlining the grant program, these schemes would not exist as separate schemes under these models.
- Collaboration: Consideration would need to be given to the meaning of 'collaborative gain', which attracts additional funding (a collaboration bonus) under Model 2, e.g., whether collaboration between teams within the same organisation would be sufficient or whether it should encompass other types of collaboration (e.g. between institutions or disciplines).
- Institutional Support Scheme: Consideration was given to development of a competitive scheme for institutional support to provide additional funding for Administering Institutions. For example, this funding could be used to support commercialisation by helping an Administering Institution to establish a start-up company. Such a scheme would reduce the pool of funding available for grants each year.

# THE THREE MODELS - KEY FEATURES

| | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| **The main scheme** | *Team* - Long-term (5 year) grants to support a team of excellent researchers to pursue programs of research, aiming to reduce their need to apply for more, smaller grants.<br>These grants could be linked with a fellowship. | *Investigator* - Long-term (5 year) single grants to support excellent individual researchers and their groups, aiming to provide flexibility in their research program and reduce the need to apply for multiple grants.<br>These grants could be linked with a fellowship. | *Research Support* - support for projects/ ideas (1-5 years) to teams of researchers, with separate streams to support commercialisation and implementation research. |
| **Additional schemes** | *Ideas* - Additional dedicated scheme to support ideas-based projects, with the emphasis on innovation and significance of the research and less weight on the researcher's track record. | *Ideas* - Additional dedicated scheme to support ideas-based projects, available to researchers, other than postdoctoral researchers, with insufficient track record for the Investigator Grant.<br>*Collaborative bonus* - Additional funding with the Investigator or Ideas Grant if collaborative gain can be demonstrated. | |
| **Support for stages of researcher experience** | Established researchers primarily supported through Team Grants.<br>Team Grants must include early and mid-career researchers, providing them with an opportunity to gain research experience as part of the pathway to independence.<br>Any Team Grant applicant may also apply for a fellowship. | Investigator Grants available to researchers across the spectrum of experience, with specific streams for established, postdoctoral and transition researchers (early/mid-career).<br>Any Investigator Grant applicant may also apply for a fellowship. | Research Support grants available to researchers across the spectrum of experience, with a specific stream for new researchers. |
| | Ideas Grants also provide opportunities for researchers at different career stages, including early and mid-career researchers. | Ideas grants are also available to established and mid-career researchers. | |
| | Early career researchers further supported through a dedicated fellowship scheme. | | |

# Questions

This consultation paper seeks feedback from the research sector and other interested parties about the issues raised.

**Questions for each model**

We invite you to consider the alternative models and to address the following questions for each of them:

- 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?
- What advantages and disadvantages of this model do you see for you or your organisation if the model was introduced? (For example, what impact would it have on a researcher at your stage of experience? Would it support research in your research area?)
- Can you identify negative consequences for Australia's health and medical research system if the model was introduced and how might these be mitigated?
- Could the model be adjusted to optimise its impact? If so, how?
- Do you have other comments about the model?

**General question**

- Do you have comments on the other issues discussed in this paper?

## NEXT STEPS OF THE REVIEW

The feedback provided in response to this consultation paper will help shape the advice to the CEO of NHMRC about whether and, if so, how to change the structure of NHMRC's grant program. It is anticipated that this advice will be provided to the CEO by December 2016.

If the review results in a decision to change the structure of NHMRC's grant program, the lead time for implementing any significant changes means that these would be implemented from 2018. They would be accompanied by comprehensive transition arrangements.

## Attachments

A. Supplementary Information on NHMRC's Current Grant Program
B. Scope and Conduct of the Structural Review of NHMRC's Grant Program

Attachment A

# Supplementary Information on NHMRC's Current Grant Program

**ATTACHMENT A:**

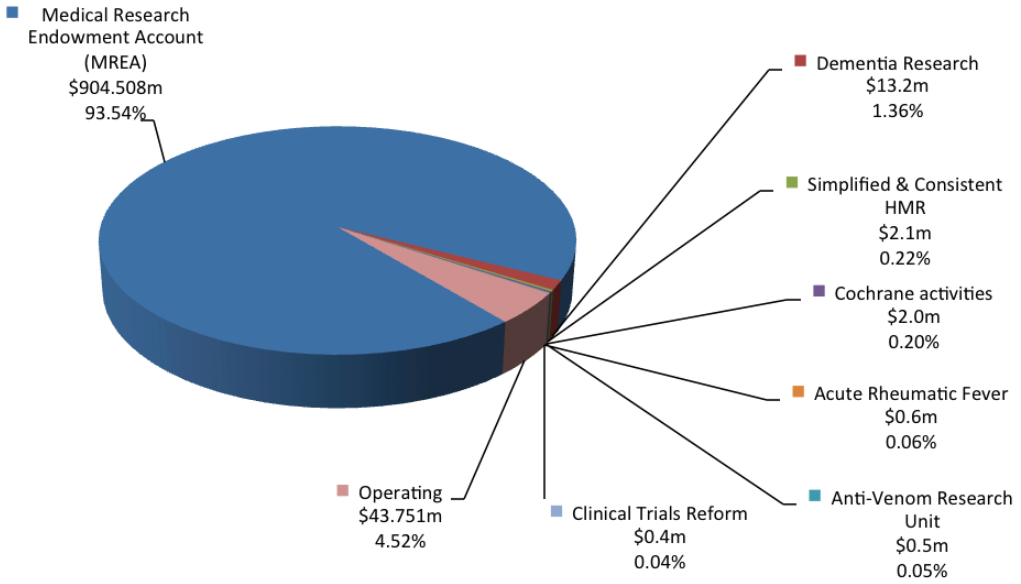
# Supplementary Information on NHMRC's Current Grant Program

The following figures and tables present information on NHMRC's budget and its expenditure on current research funding schemes. Expenditure data are mainly extracted from NHMRC's Research Grant Management System (RGMS). Multi-year data are shown for the longest period for which reliable data are available or for which the relevant schemes existed. The values shown are current at 31 May 2016 and may differ from the initial announcement of funding outcomes due to additional funding/awards allocated post-announcement.

## A. THE MEDICAL RESEARCH ENDOWMENT ACCOUNT

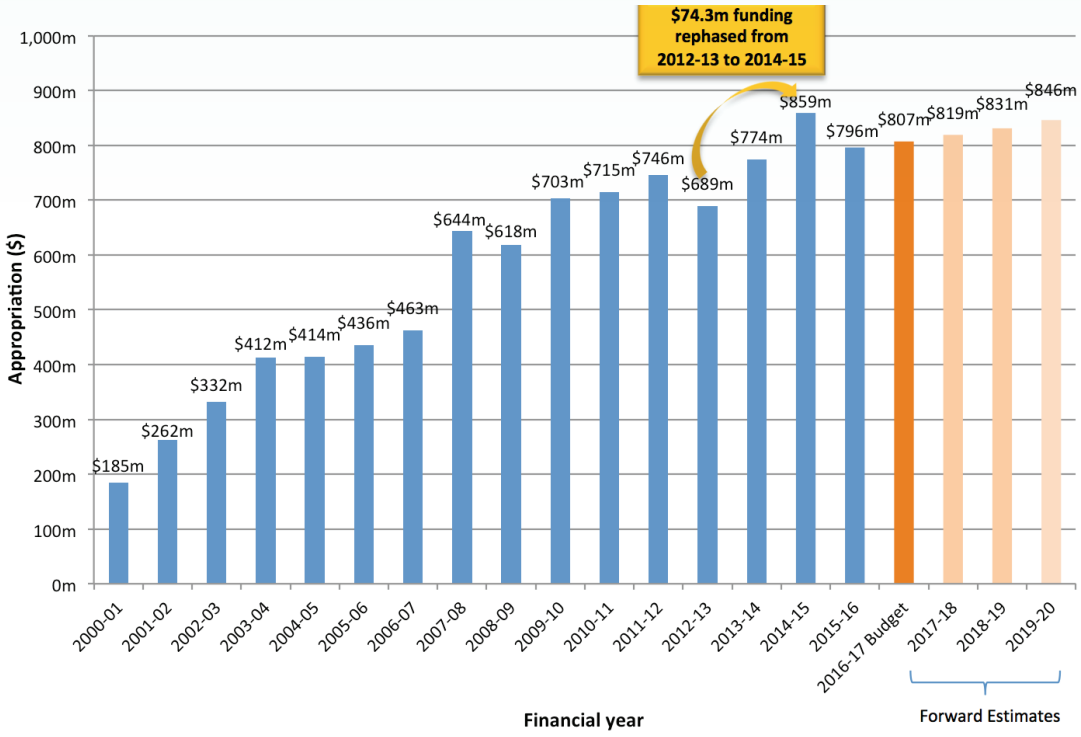
NHMRC receives funding for research and administration through the Federal Budget. About 93% of NHMRC's total expenditure is drawn from the Medical Research Endowment Account (MREA) (Figure 1). Other funds are provided to support the operating costs of the Office of NHMRC, its Council and Principal Committees, grant review panels and expert working groups ("Operating") and for specific, generally time-limited, Budget measures.

**Figure 1: Total NHMRC Expenditure 2014–15**




After a strong period of growth over many years, MREA appropriations have reached a plateau and are projected to remain constant in the Forward Estimates apart from indexation (Figure 2).

**Figure 2: MREA Appropriations from Government, 2000–01 to 2016–17 (and Forward Estimates)**




Notes: Appropriation in 2014-15 excludes funds received from the *Boosting Dementia Research* Budget Measure.

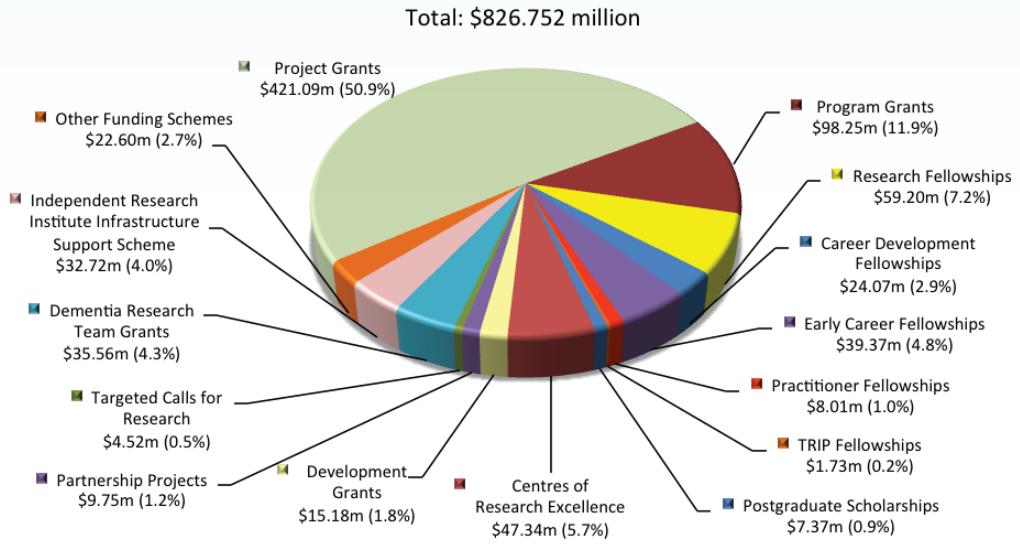
# B. NHMRC'S CURRENT GRANT PROGRAM

## Expenditure, grant types and grant size

NHMRC awards new grants of around $800 million each year ($826.8 in 2014-15) through a variety of schemes (Figure 3). A distribution of NHMRC grant budgets awarded across research support schemes is provided in Figure 4.

In the 1980s, there were three main schemes: Project Grants, Program Grants and block grants for medical research institutes. Since the re-shaping of the grant program following the 1998 *Health and Medical Research Strategic Review* (Wills Review), new schemes have been added. There are currently 15 schemes through which grants are awarded, many with sub-types (Table 1).

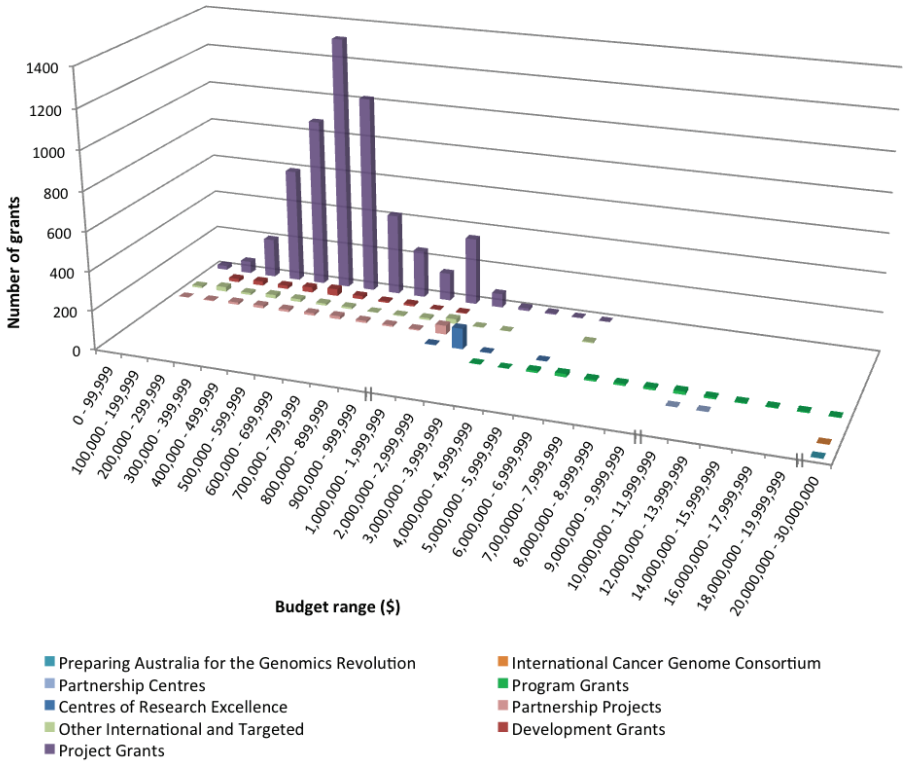
## Figure 3: New MREA Commitments in 2014–15




Notes:

1. Includes commitments made from the *Boosting Dementia Research* Budget Measure.
2. 'Other Funding Schemes' category includes NHMRC-EU Collaborative Research Grants $4.0m, International Collaborations $7.9m (National Institute for Health Research (NIHR), Californian Institute of Regenerative Medicine (CIRM), Global Alliance for Chronic Diseases (GACD) – Type 2 Diabetes, Equipment Grants $6.0m, National Health Research Enabling Capabilities (NHREC) Transitional Funding $1.7m, and Release of People Support Co-funding $3.0m.
3. There were no MREA funds committed for Partnership Centres in 2014-15.

## Figure 4: Distribution of NHMRC grant budgets, 2008–2015




Notes: Excludes people support schemes (fellowships and scholarships).

## Table 1: NHMRC schemes and sub-types available in 2016

| Scheme | Sub-type | Scheme objectives |
|---|---|---|
| People support grants | | |
| **Postgraduate Scholarships** | a) Dora Lush Biomedical Research Postgraduate Scholarship<br>b) Medical/Dental Postgraduate Scholarship<br>c) Public Health and Health Services Research Postgraduate Scholarship<br>d) Aboriginal and Torres Strait Islander Health Research Postgraduate Scholarship | To support outstanding health, medical and dental graduates early in their career so that they can be trained to conduct research that is internationally competitive and to develop a capacity for original independent research within Australia.<br>The scholarship is to support applicants gaining PhD or Research Masters. |
| **Early Career Fellowships**<br>(4 years) | **Australia**<br>a) Clinical Research<br>b) Fellowship for Aboriginal and Torres Strait Islander Health Research<br>c) Health Professional Research<br>d) Peter Doherty Biomedical<br>e) Public Health and Health Services Research<br>**Overseas**<br>f) CJ Martin Biomedical<br>g) Neil Hamilton Fairley Clinical<br>h) Sidney Sax Public Health<br>**International exchange**<br>i) Australia-China Exchange<br>j) INSERM Exchange | To enable developing health and medical researchers of outstanding ability to undertake advanced training in health and medical research either in Australia or overseas.<br>To provide opportunities for Australian researchers to undertake research that is both of major importance in its field and of benefit to Australian health.<br>To foster career development at the postdoctoral level by encouraging the beneficial experience of a different research environment.<br>Fellowships are for applicants <2 years post-PhD. |
| **Career Development Fellowships**<br>(4 years) | Two levels of Career Development Fellowship are available (Level 1 for applicants from 2 to <7 years and Level 2 for applicants from 7 to <12 years post-PhD) for each type:<br>a) Aboriginal and Torres Strait Islander<br>b) Clinical<br>c) Industry<br>d) Population Health<br>e) RD Wright Biomedical | To recognise and provide support for the most outstanding early to mid-career health and medical researchers to undertake research that is of major importance in its field and of significant benefit to Australian health and medical research. |
| **Practitioner Fellowships**[1]<br>(5 years, part-time award) | Two levels of Practitioner Fellowship are available (Levels 1 & 2) according to level of achievement. | To accelerate the bridging of the gap between the acquisition of new knowledge from research and its implementation into practice and policy.<br>To support research which results in the translation of new evidence into improved clinical practice and health policy and which delivers improvements in health and healthcare to Australians. |

[7] Honorary Practitioner Fellowships are awarded when a current Fellow accepts an appointment to another prestigious position in health and medical research in Australia. The Fellow must demonstrate that the aims of the other appointment are compatible with the aims of the Practitioner Fellowship Scheme. Remuneration is not provided by NHMRC during the term of an Honorary Practitioner Fellowship.

| Scheme | Sub-type | Scheme objectives |
|---|---|---|
| Research Fellowships[2] (5 years) | a) Senior Research Fellowship A<br>b) Senior Research Fellowship B<br>c) Principal Research Fellowships<br>d) Senior Principal Research Fellowship | To support Australia's very best health and medical research talent in full-time research, during the most productive years of their research life to further develop as leaders in their field and contribute to the Australian research community through active participation.<br>To foster an intellectual environment which supports and builds the capacity of Australian research for the future and in so doing, creates knowledge through investment in research which improves health and thus contributes to Australia's prosperity. |
| Translating Research into Practice (TRIP) Fellowships (2 years, part-time award) | Nil | To provide support for health care professionals, health care personnel and policy makers to translate evidence into health care and public health improvements.<br>Aimed at developing early to mid-career applicants wishing to combine research translation with their career and is not designed to support applicants already established as health care leaders. |
| Research support grants | | |
| Project Grants (1-5 years) | a) New Investigator Grant | To support researchers who are yet to receive significant research funding through a competitive grants process. |
| | b) Standard Project Grant | To fund research leading to improved health of all Australians by providing support for investigator-initiated research relevant to health across all fields of research, from basic research through to research in clinical and community settings. |
| Program Grants (5 years) | Nil | To provide support for teams of the highest quality researchers to pursue broadly based, collaborative research addressing complex problems.<br>To provide substantial, long-term, flexible funding to integrated groups of researchers with well-established track records of high impact health and medical research. |
| Centres of Research Excellence (CRE)[3] (5 years) | a) CRE - Clinical<br>b) CRE - Health Services<br>c) CRE - Population Health | To support research which aims to improve health outcomes, and promote/or improve translation of research outcomes into policy and/or practice. It also supports researchers in capacity building activities in specific areas of need identified by NHMRC. |
| Development Grants (1-3 years) | Nil | To provide financial support to individual researchers, research teams, or health and medical research companies in partnership with a researcher/s to undertake health and medical research at the early proof of-principle or pre-seed stage.<br>The focus is on research that has the potential to be commercialised. |

[2] Honorary Research Fellowships are awarded when a current Fellow accepts an appointment to another prestigious position in health and medical research in Australia. The Fellow must demonstrate that the aims of the other appointment are compatible with the aims of the Research Fellowship Scheme. Remuneration is not provided by NHMRC during the term of an Honorary Research Fellowship.

[3] Two additional CRE streams are available in 2016 only: a CRE - Infectious Disease Emergency Response, and a CRE - Indigenous Researcher Capacity Building.

| Scheme | Sub-type | Scheme objectives |
|---|---|---|
| **Partnerships** (1-5 years) | a) Partnership Centres | Support the implementation of research informed changes in health and health care systems.<br>To synthesise and disseminate existing research to improve health and health care system performance.<br>To undertake collaborative research.<br>To build capacity both within the research community and to undertake applied research and within the system to use research as part of change management. |
| | b) Partnership Projects | To encourage researchers and partner organisations to form alliances to define research questions, identify research projects, conduct research, interpret its findings and promote the use of those findings to influence the design and evaluation of health and health care policy and practice.<br>To increase the opportunities for the transfer and exchange of research evidence (knowledge), which could result in a greater uptake of research evidence into health policy and health practice and, consequently, an improvement in Australian health and health care. |
| **Targeted Calls for Research and Priority calls** (1-5 years) | a) NHMRC National Institute for Dementia Research (NNIDR) Grants | To provide funding for individual researchers, teams of researchers or organisations, to undertake research and implementation projects in identified priority areas that will deliver on the Institute's policy objectives. |
| | b) The Northern Australia Tropical Disease Collaborative Research Program | To support innovative high quality teams to undertake research into the prevention, diagnosis, and treatment of tropical disease and translate research findings into outcomes for health in Australia and the region. |
| **International Collaborations** (1-5 years) | a) NHMRC-European Union (NHMRC-EU) Collaborative Research Grants | To provide a financial contribution to the Australian researchers' participation in leading international research that has been favourable evaluated for funding through select Horizon 2020 or Seventh Framework Programme topics.<br>To support health and medical research that is of benefit to Australia. |
| | b) NHMRC-NIH BRAIN Initiative | To provide a financial contribution to Australian researchers to participate in leading international research that has been selected for funding through the BRAIN initiative and by NHMRC.<br>To foster international collaborations that benefit Australia's health and medical research efforts. |
| | c) Global Alliance for Chronic Diseases (GACD) | Calls for proposals on the prevention and management of chronic non-communicable diseases, with specific attention on intervention research in low and middle income countries and Aboriginal and Torres Strait Islander populations. |
| | d) NHMRC-National Institute for Health Research (NIHR) Collaborative Research Grants | To provide assistance to Australian health and medical researchers to participate in collaborative research projects with researchers from the UK. |
| **Infrastructure support grants** | | |
| **Equipment Grants** (Annual grant) | Nil | To assist ongoing competitively funded medical research across Australia.<br>Provided to Administering Institutions in proportion to their competitively awarded NHMRC grants. |
| **Independent Research Institute Infrastructure Support Scheme (IRIISS)** (Annual grant) | Nil | To develop and maintain infrastructure to support high quality health and medical research.<br>Provided to Independent Medical Research Institutes at up to 20 cents per dollar of their competitively awarded NHMRC grants. |

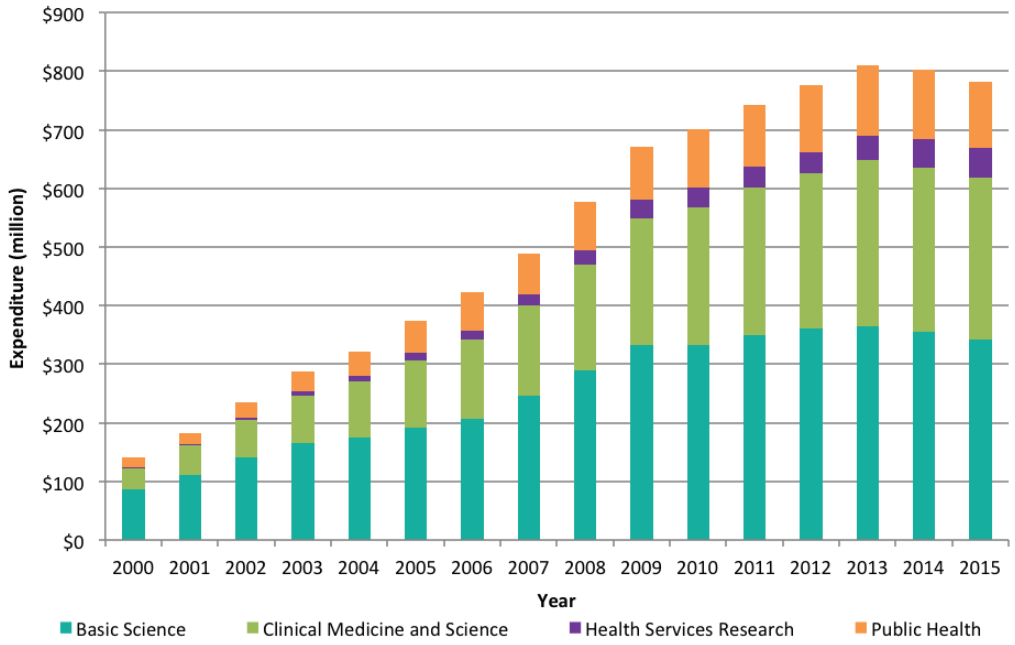
While NHMRC primarily invests in investigator-initiated research, it also funds priority-driven research[4] (around 16% of MREA new funding commitments in 2015). Priority-driven research is mainly awarded through the following schemes:

- International collaborations;
- Australian Government initiatives (e.g., the 2014 Budget Boosting Dementia Research Initiative and the 2015 Budget Developing Northern Australia Initiative);
- Targeted Calls for Research (TCRs);
- Centres of Research Excellence (CREs) in specific areas; and
- Targeted scholarships and fellowships for Aboriginal and Torres Strait Islander researchers.

Collaborative approaches to research and translation are encouraged across all schemes, particularly through Partnerships for Better Health, Development Grants, CREs and several of the international collaborations.

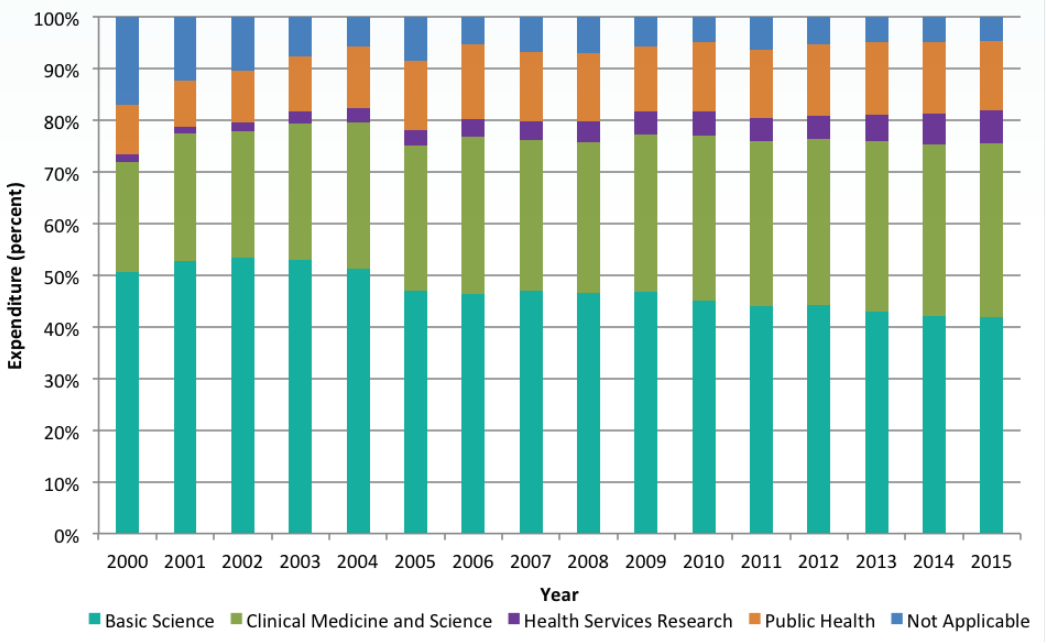
NHMRC supports research in all four Broad Research Areas – basic (i.e., biomedical), clinical, public health and health services. It spends a small but growing proportion on health services research (6.3% in 2015). Basic Science receives the largest proportion of funding (41.8% in 2015); this is declining relative to the other areas (Figure 5a and 5b).

**Figure 5a: MREA Expenditure by Broad Research Area, 2000–2015**




[4] Priority-driven research is where NHMRC calls for research in specific disease areas or to meet specific objectives. The investigators initiate and design applications and define the scope of the research.

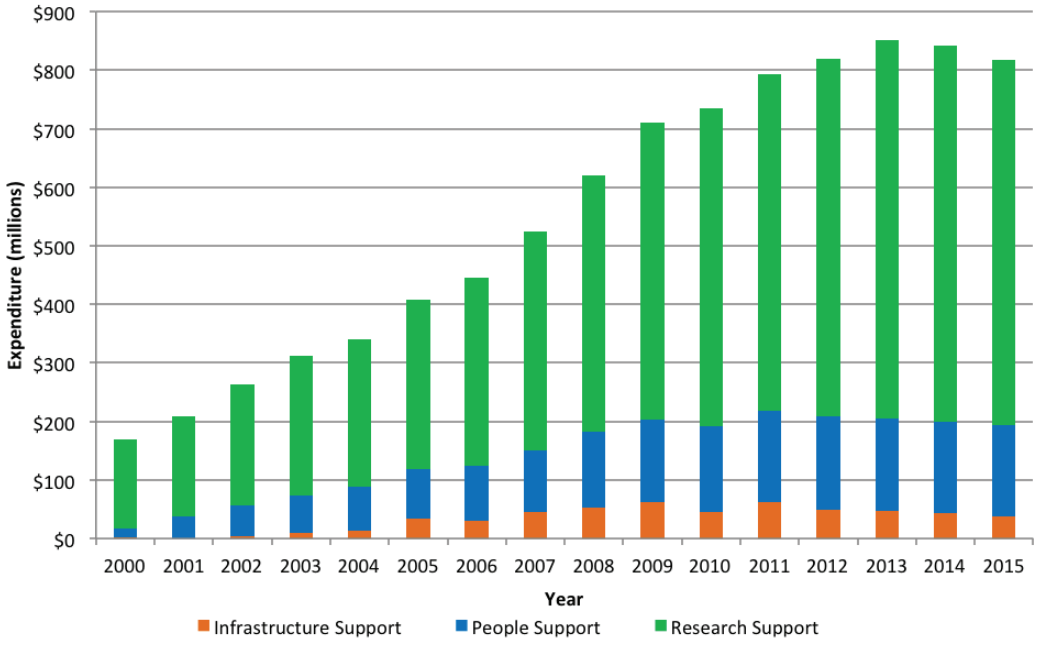
**Figure 5b: MREA Expenditure by Broad Research Area, 2000–2015**




Notes: 'Not Applicable' includes Equipment Grants and IRIISS funding.

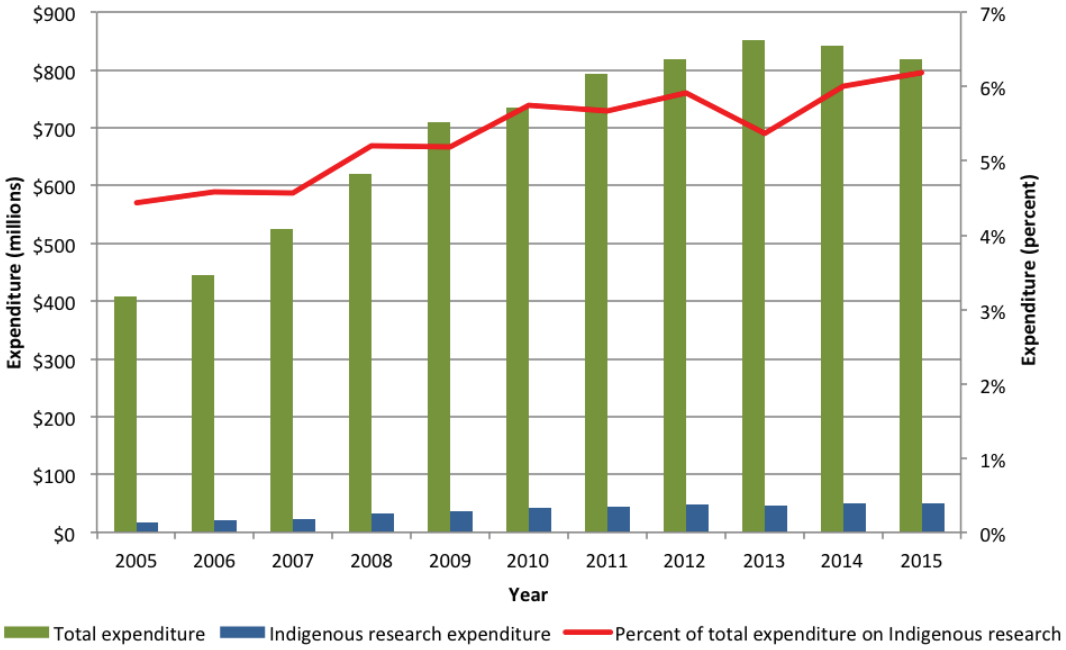
In 2015, 76.4% of the MREA was expended on research support (e.g., Project Grants, Program Grants), 18.9% on people support (fellowships and scholarships) and 4.7% on infrastructure support (IRIISS and Equipment Grants) (Figure 6). Since 2000, expenditure on people support has grown from 8.6% to 18.9% in 2015.

**Figure 6: MREA Expenditure on Research Support and People Support, 2000–2015**



NHMRC is committed to allocating at least 5% of the MREA on Aboriginal and Torres Strait Islander health research. This level was reached in 2008 and has since increased to around 6% (Figure 7). NHMRC's capacity building activities include fellowships for Aboriginal and Torres Strait Island research and a tripartite agreement with the Canadian Institutes of Health Research and the Health Research Council of New Zealand to improve international Indigenous people's health.

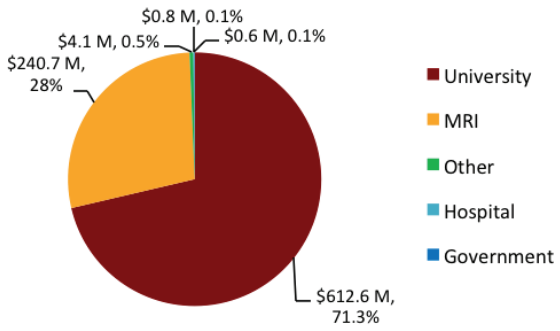
**Figure 7: MREA Expenditure on Aboriginal and Torres Strait Islander Health Research** (referred to as Indigenous Research in the figure)



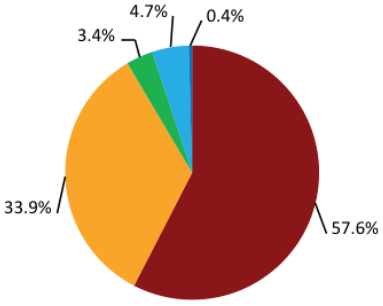

NHMRC research funding is distributed to Administering Institutions, which are responsible for the administration of NHMRC grants (Figure 8a). However, the research itself may be conducted at another site, the Participating Institution (Figure 8b).

**Figure 8: MREA Commitments by sector of (a) administering institution and (b) participating institution, 2015**

**8a: Administering Institution**



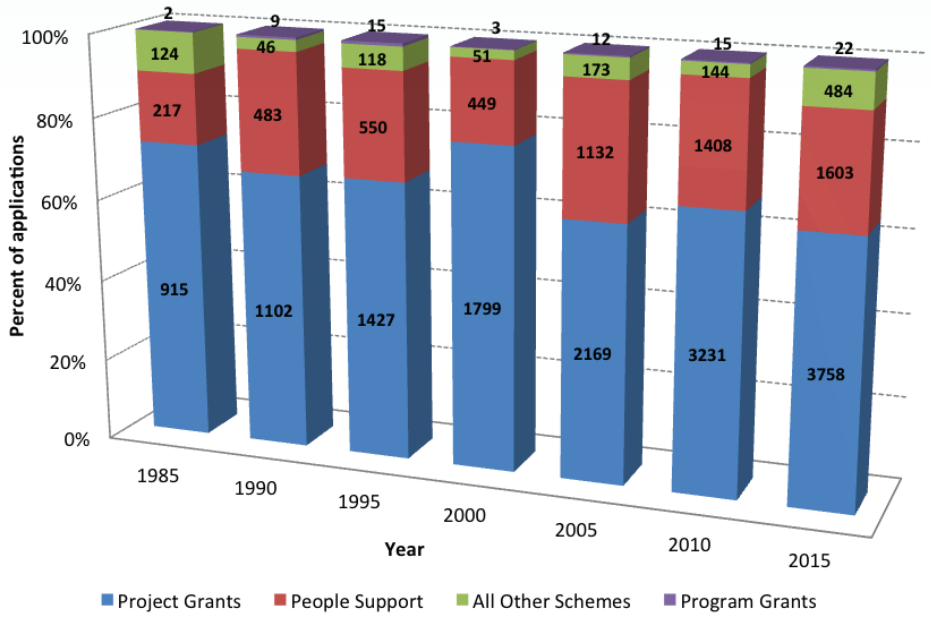

**8b: Participating Institution[1]**




Notes:
1. The data are based on the percentage of research effort for each participating institution, as allocated by applicants in grant applications.

The total number of grant applications received by NHMRC has increased from 1258 applications in 1985 to 5867 in 2015 (Figure 9).

**Figure 9: Number and percentage of total grant applications (by grant type)**




Notes:

1. 'All Other Schemes' includes CREs, Development Grants, International Collaborations, Partnerships and Targeted Calls.
2. 'People Support' includes: Scholarships, Early Career Fellowships, TRIP Fellowships, Career Development Fellowships, Practitioner Fellowships and Research Fellowships.

The number of applications, grants awarded and funding rates for all schemes is reported in Tables 2a and 2b.

**Table 2a: Research Grant application numbers, awards and funding rates, 1980–2015 (by grant type)**

| APP YEAR | CENTRES OF RESEARCH EXCELLENCE[1] | | | DEVELOPMENT GRANTS | | | INTERNATIONAL COLLABORATIONS[2] | | | PARTNERSHIPS[3] | | | PROGRAM GRANTS | | | PROJECT GRANTS[4] | | | TARGETED CALLS[5] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | App | Gnt | Rate % | App | Gnt | Rate % | App | Gnt | Rate % | App | Gnt | Rate % | App | Gnt | Rate % | App | Gnt | Rate % | App | Gnt | Rate % |
| 1980 | | | | | | | | | | | | | | | | 773 | 332 | 42.9 | | | |
| 1981 | | | | | | | | | | | | | | | | 818 | 338 | 41.3 | | | |
| 1982 | | | | | | | | | | | | | | | | 857 | 277 | 32.3 | | | |
| 1983 | | | | | | | | | | | | | | | | 770 | 319 | 41.4 | | | |
| 1984 | | | | | | | | | | | | | 5 | 5 | 100.0 | 845 | 274 | 32.4 | 108 | 2 | 1.9 |
| 1985 | | | | | | | | | | | | | 2 | 2 | 100.0 | 915 | 289 | 31.6 | 122 | 0 | 0.0 |
| 1986 | | | | | | | | | | | | | 3 | 3 | 100.0 | 985 | 350 | 35.5 | 16 | 8 | 50.0 |
| 1987 | | | | | | | | | | | | | 9 | 9 | 100.0 | 937 | 289 | 30.8 | 16 | 16 | 100.0 |
| 1988 | | | | | | | | | | | | | 7 | 5 | 71.4 | 1077 | 290 | 26.9 | 28 | 15 | 53.6 |
| 1989 | | | | | | | | | | | | | 5 | 2 | 40.0 | 1078 | 361 | 33.5 | 22 | 22 | 100.0 |
| 1990 | | | | | | | | | | | | | 9 | 5 | 55.6 | 1102 | 320 | 29.0 | 43 | 42 | 97.7 |
| 1991 | | | | | | | | | | | | | 17 | 8 | 47.1 | 1121 | 293 | 26.1 | 39 | 37 | 94.9 |
| 1992 | | | | | | | | | | | | | 12 | 4 | 33.3 | 1323 | 281 | 21.2 | 33 | 32 | 97.0 |
| 1993 | | | | | | | | | | | | | 31 | 9 | 29.0 | 1595 | 371 | 23.3 | 85 | 41 | 48.2 |
| 1994 | | | | | | | | | | | | | 36 | 10 | 27.8 | 1578 | 398 | 25.2 | 81 | 43 | 53.1 |
| 1995 | | | | | | | | | | | | | 15 | 5 | 33.3 | 1427 | 347 | 24.3 | 113 | 71 | 62.8 |
| 1996 | 109 | 9 | 8.3 | | | | | | | | | | 17 | 6 | 35.3 | 1505 | 430 | 28.6 | 71 | 36 | 50.7 |
| 1997 | | | | | | | 2 | 2 | 100.0 | | | | 19 | 12 | 63.2 | 1578 | 384 | 24.3 | 182 | 58 | 31.9 |
| 1998 | | | | | | | | | | | | | 9 | 4 | 44.4 | 1496 | 352 | 23.5 | 116 | 60 | 51.7 |
| 1999 | | | | 6 | 2 | 33.3 | | | | | | | 13 | 5 | 38.5 | 1722 | 458 | 26.6 | 65 | 31 | 47.7 |
| 2000 | | | | 17 | 2 | 11.8 | | | | | | | 3 | 3 | 100.0 | 1799 | 423 | 23.5 | 34 | 18 | 52.9 |
| 2001 | 43 | 13 | 30.2 | 61 | 21 | 34.4 | 9 | 9 | 100.0 | 2 | 2 | 100.0 | 75 | 16 | 21.3 | 1725 | 393 | 22.8 | 153 | 83 | 54.2 |
| 2002 | 24 | 6 | 25.0 | 129 | 22 | 17.1 | 41 | 11 | 26.8 | 1 | 1 | 100.0 | 45 | 16 | 35.6 | 1860 | 415 | 22.3 | 7 | 3 | 42.9 |
| 2003 | | | | 126 | 28 | 22.2 | 9 | 9 | 100.0 | 1 | 1 | 100.0 | 27 | 11 | 40.7 | 1883 | 414 | 22.0 | 17 | 16 | 94.1 |
| 2004 | 29 | 12 | 41.4 | 57 | 20 | 35.1 | 2 | 2 | 100.0 | | | | 37 | 20 | 54.1 | 1982 | 421 | 21.2 | 39 | 16 | 41.0 |
| 2005 | | | | 28 | 9 | 32.1 | 4 | 4 | 100.0 | | | | 12 | 11 | 91.7 | 2169 | 445 | 20.5 | 128 | 67 | 52.3 |
| 2006 | 63 | 17 | 27.0 | 68 | 22 | 32.4 | 18 | 10 | 55.6 | | | | 25 | 12 | 48.0 | 2883 | 606 | 21.0 | 92 | 50 | 54.3 |

## Table 2a continued

| APP YEAR | CENTRES OF RESEARCH EXCELLENCE[1] | | | DEVELOPMENT GRANTS | | | INTERNATIONAL COLLABORATIONS[2] | | | PARTNERSHIPS[3] | | | PROGRAM GRANTS | | | PROJECT GRANTS[4] | | | TARGETED CALLS[5] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | App | Gnt | Rate % | App | Gnt | Rate % | App | Gnt | Rate % | App | Gnt | Rate % | App | Gnt | Rate % | App | Gnt | Rate % | App | Gnt | Rate % |
| 2007 | | | | 101 | 29 | 28.7 | 10 | 10 | 100.0 | | | | 16 | 12 | 75.0 | 2487 | 667 | 26.8 | 231 | 56 | 24.2 |
| 2008 | 140 | 15 | 10.7 | 63 | 23 | 36.5 | | | | 113 | 27 | 23.9 | 58 | 27 | 46.6 | 2697 | 691 | 25.6 | 44 | 42 | 95.5 |
| 2009 | 85 | 16 | 18.8 | 94 | 19 | 20.2 | 19 | 10 | 52.6 | | | | 20 | 10 | 50.0 | 3110 | 685 | 22.0 | | | |
| 2010 | | | | 91 | 18 | 19.8 | 1 | 1 | 100.0 | 52 | 16 | 30.8 | 15 | 9 | 60.0 | 3231 | 758 | 23.5 | | | |
| 2011 | 79 | 15 | 19.0 | 98 | 16 | 16.3 | 21 | 14 | 66.7 | 36 | 13 | 36.1 | 18 | 10 | 55.6 | 3379 | 789 | 23.4 | | | |
| 2012 | 83 | 17 | 20.5 | 102 | 14 | 13.7 | 32 | 11 | 34.4 | 36 | 20 | 55.6 | 24 | 13 | 54.2 | 3587 | 737 | 20.5 | 151 | 24 | 15.9 |
| 2013 | 74 | 15 | 20.3 | 111 | 24 | 21.6 | 14 | 12 | 85.7 | 109 | 36 | 33.0 | 24 | 11 | 45.8 | 3827 | 652 | 17.0 | 11 | 7 | 63.6 |
| 2014 | 83 | 19 | 22.9 | 143 | 26 | 18.2 | 13 | 5 | 38.5 | 85 | 13 | 15.3 | 27 | 11 | 40.7 | 3710 | 555 | 15.0 | 49 | 6 | 12.2 |
| 2015[6] | 87 | 15 | 17.2 | 96 | 24 | 25.0 | 34 | 23 | 67.6 | 45 | 22 | 48.9 | 22 | 9 | 40.9 | 3758 | 516 | 13.7 | 143 | 81 | 56.6 |

*Abbreviations*: App – number of applications; Gnt – number of grants; Rate (%) – funding rate

Notes:

1. Includes Capacity Building Grants.
2. Includes NHMRC-EU Collaborative Research Grants and collaborative schemes such as those with GACD, CIRM and the Agency for Science, Technology and Research, Singapore (A*STAR).
3. Includes Partnership Projects, Partnership Centres and the historical Health Research Partnership Grants.
4. In addition to current Standard and New Investigator Project Grants includes all historical Project Grant subtypes such as Clinical Trial/Large Scale, Epidemiology, Extended 5 Year and Project Grants coupled with Research Fellowships.
5. Includes all historical Strategic Awards and current Targeted and Urgent Calls.
6. Excludes applications in 2015 for GACD Lung Disease, Partnership Projects (3rd round), and Preventing Obesity TCR grants, as they are currently undergoing Peer Review (as at 31 May 2016).

## Table 2b: People Support Grant application numbers, awards and funding rates, 1980–2015 (by grant type)

| APP YEAR | SCHOLARSHIPS | | | EARLY CAREER FELLOWSHIPS[1] | | | MID-CAREER FELLOWSHIPS[2] | | | ESTABLISHED CAREER FELLOWSHIPS[3] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | App | Gnt | Rate % | App | Gnt | Rate % | App | Gnt | Rate % | App | Gnt | Rate % |
| 1980 | | | | | | | | | | | | |
| 1981 | | | | | | | | | | | | |
| 1982 | | | | | | | | | | | | |
| 1983 | | | | | | | | | | | | |
| 1984 | 133 | 45 | 33.8 | 98 | 14 | 14.3 | | | | | | |
| 1985 | 128 | 53 | 41.4 | 89 | 16 | 18.0 | | | | | | |
| 1986 | 158 | 66 | 41.8 | 98 | 16 | 16.3 | | | | | | |
| 1987 | 152 | 47 | 30.9 | 117 | 25 | 21.4 | | | | | | |
| 1988 | 183 | 55 | 30.1 | 87 | 20 | 23.0 | | | | | | |
| 1989 | 230 | 73 | 31.7 | 126 | 42 | 33.3 | | | | | | |
| 1990 | 223 | 73 | 32.7 | 130 | 55 | 42.3 | 130 | 22 | 16.9 | | | |
| 1991 | 298 | 79 | 26.5 | 139 | 36 | 25.9 | 78 | 22 | 28.2 | | | |
| 1992 | 357 | 84 | 23.5 | 155 | 33 | 21.3 | 76 | 16 | 21.1 | | | |
| 1993 | 416 | 91 | 21.9 | 202 | 51 | 25.2 | 70 | 17 | 24.3 | | | |
| 1994 | 391 | 95 | 24.3 | 197 | 38 | 19.3 | 81 | 5 | 6.2 | | | |
| 1995 | 315 | 96 | 30.5 | 178 | 48 | 27.0 | 57 | 9 | 15.8 | | | |
| 1996 | 267 | 99 | 37.1 | 238 | 45 | 18.9 | 58 | 5 | 8.6 | | | |
| 1997 | 237 | 93 | 39.2 | 217 | 44 | 20.3 | 67 | 5 | 7.5 | | | |
| 1998 | 268 | 101 | 37.7 | 166 | 55 | 33.1 | 43 | 6 | 14.0 | | | |
| 1999 | 255 | 106 | 41.6 | 204 | 59 | 28.9 | 68 | 10 | 14.7 | 44 | 2 | 4.5 |
| 2000 | 124 | 124 | 100.0 | 81 | 65 | 80.2 | 10 | 10 | 100.0 | 234 | 213 | 91.0 |
| 2001 | 297 | 148 | 49.8 | 162 | 83 | 51.2 | 136 | 28 | 20.6 | 204 | 116 | 56.9 |
| 2002 | 316 | 175 | 55.4 | 186 | 94 | 50.5 | 136 | 44 | 32.4 | 138 | 49 | 35.5 |
| 2003 | 319 | 185 | 58.0 | 244 | 110 | 45.1 | 148 | 42 | 28.4 | 160 | 75 | 46.9 |
| 2004 | 360 | 206 | 57.2 | 347 | 122 | 35.2 | 170 | 43 | 25.3 | 187 | 77 | 41.2 |
| 2005 | 340 | 173 | 50.9 | 375 | 143 | 38.1 | 222 | 55 | 24.8 | 195 | 90 | 46.2 |
| 2006 | 355 | 179 | 50.4 | 407 | 148 | 36.4 | 184 | 55 | 29.9 | 271 | 99 | 36.5 |
| 2007 | 351 | 183 | 52.1 | 434 | 144 | 33.2 | 349 | 67 | 19.2 | 295 | 107 | 36.3 |
| 2008 | 320 | 155 | 48.4 | 431 | 139 | 32.3 | 406 | 63 | 15.5 | 256 | 108 | 42.2 |
| 2009 | 324 | 145 | 44.8 | 393 | 129 | 32.8 | 434 | 63 | 14.5 | 275 | 101 | 36.7 |
| 2010 | 288 | 138 | 47.9 | 443 | 134 | 30.2 | 428 | 67 | 15.7 | 249 | 103 | 41.4 |
| 2011 | 324 | 144 | 44.4 | 433 | 144 | 33.3 | 356 | 77 | 21.6 | 284 | 112 | 39.4 |
| 2012 | 223 | 132 | 59.2 | 463 | 134 | 28.9 | 345 | 68 | 19.7 | 244 | 105 | 43.0 |
| 2013 | 222 | 120 | 54.1 | 575 | 144 | 25.0 | 308 | 67 | 21.8 | 301 | 96 | 31.9 |
| 2014 | 215 | 78 | 36.3 | 578 | 138 | 23.9 | 432 | 64 | 14.8 | 303 | 94 | 31.0 |
| 2015 | 231 | 69 | 29.9 | 570 | 138 | 24.2 | 461 | 63 | 13.7 | 341 | 88 | 25.8 |

*Abbreviations*: App – number of applications; Gnt – number of grants; Rate (%) – funding rate

Notes:

1. Includes all Australian, Overseas and International Early Career and Translational (TRIP) Fellowships.
2. Includes Career Development Fellowships and the historical Career Development Awards.
3. Includes Research Fellowships, Practitioner Fellowships, Australia Fellowships and Sir MacFarlane Burnet Fellowship. Excludes 6th year extensions for unsuccessful Research Fellows reapplying for funding.

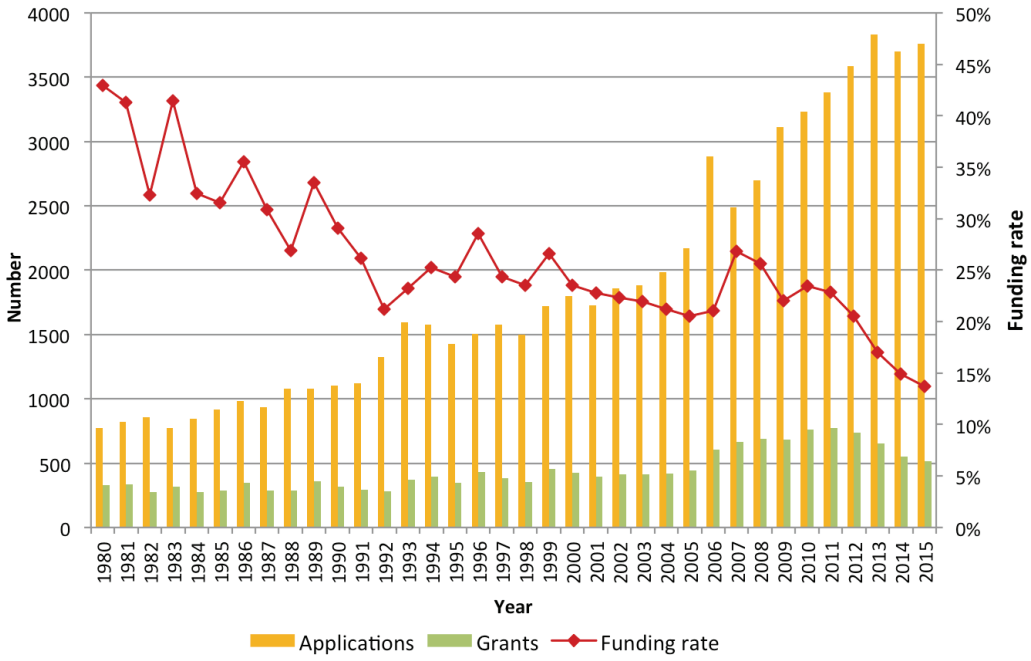
## C. PROJECT GRANTS SCHEME

NHMRC's largest scheme is Project Grants. These grants support the creation of new knowledge by funding the best investigator-initiated research project plan of five years, or less, in any area relevant to human health. The Portfolio Budget Statements currently commit NHMRC to allocating 50% of annual MREA expenditure to Project Grants.[5]

### Grant applications and awards

There were 516 Project Grants awarded in 2015, with a funding rate of 13.7% (Figure 10).

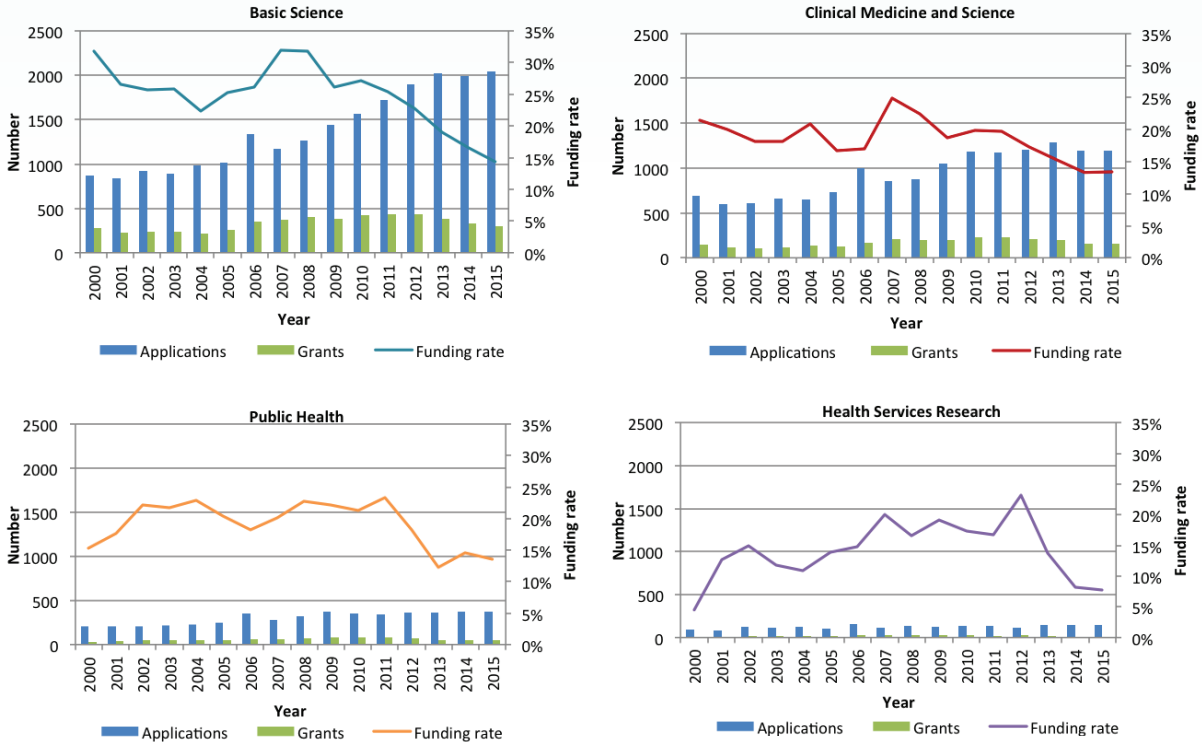
**Figure 10: Project Grant application numbers, grant numbers and funding rates, 1980–2015**




Project Grant funding rates vary by Broad Research Area. Basic Science research attracts the highest proportion of applications and has experienced the largest decline in funding rates (from 31.8% in 2000 to 14.4% in 2015). A breakdown of application numbers and funding rates by the Broad Research Area is provided in Figure 11.

[5] Department of Health, *Budget 2016-17, Portfolio Budget Statements 2016-17: Budget Related Paper No. 1.10, Health Portfolio*, 2016, p393.

**Figure 11: Project Grant application numbers, grant numbers and funding rate by Broad Research Area**

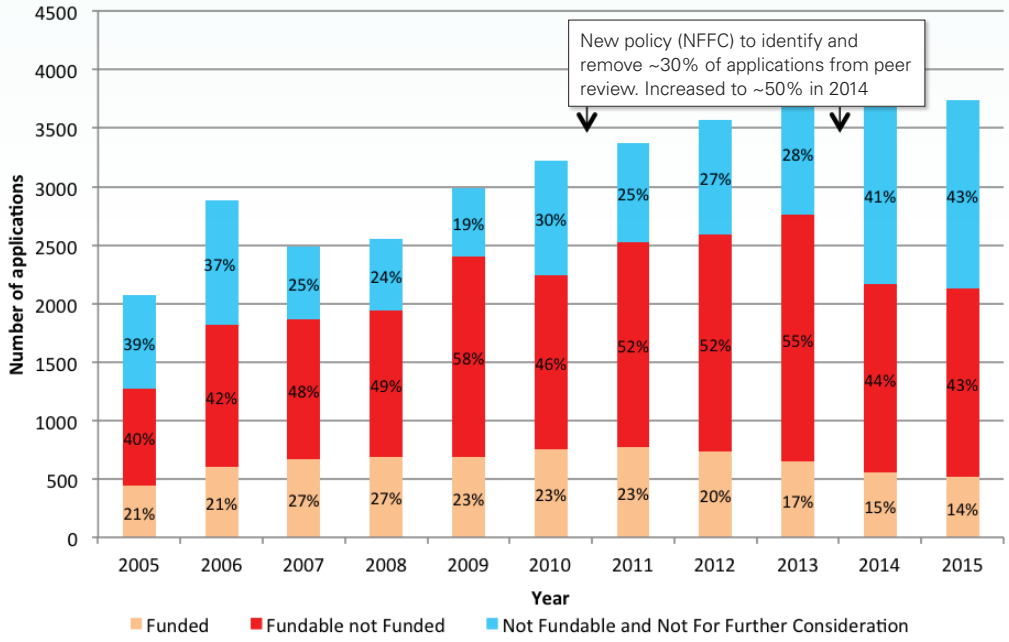



## Unfunded applications

There is an increasing proportion of applications that are fundable (that is, assessed as being of sufficient quality) but are not funded. For example, see Figure 12 below for Project Grants. Project Grants are scored out of seven; category descriptors are available on the NHMRC website.[6]

[6] NHMRC Project Grant Category Descriptors – available at: http://www.nhmrc.gov.au/grants-funding/apply-funding/project-grants (accessed, 17 April 2016).

**Figure 12: Project Grants funded, fundable and not fundable/NFFC, 2005–2015**




*Abbreviations*: NFFC – Not For Further Consideration; NCA – Non-Competitive Applications; GRP – Grant Review Panel

Notes:

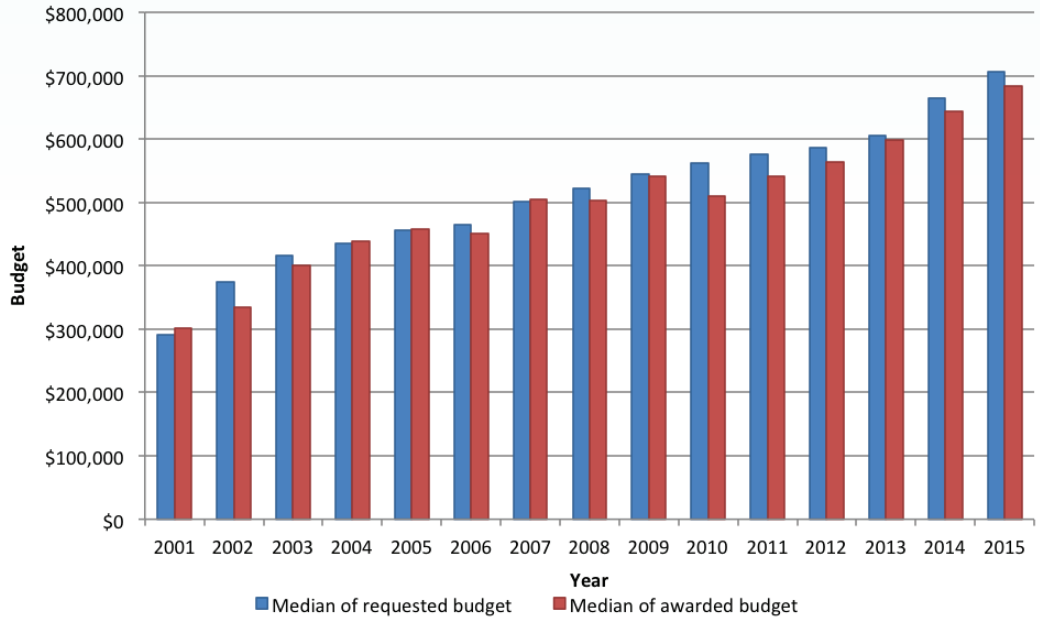
| | 2005 - 2009 | 2010-2015 |
|---|---|---|
| ■ | Category 1, 2, or 3 | NFFC, NCA + GRP ranked <3 |
| ■ | Category 4 or 5 | Category 4 or 5 |
| ■ | Funded | Funded (Category 5, 6 or 7) |

## Costs of research

Researchers are requesting, and NHMRC is awarding, bigger budgets to conduct their research. The median size of grants awarded by NHMRC has increased for most grant types.

The biggest increase in grant size has occurred in Projects Grants. The median budgets requested and awarded have approximately doubled since 2000, with the median grant having risen from $510,674 in 2010 to $684,035 in 2015 (Figure 13).

**Figure 13: Project Grants - requested and awarded budgets (median), 2000–2015**




While the median size of Project Grants in Basic Science is increasing (Figures 14 and 15), it is lower than the median size of grants in the other Broad Research Areas. In 2015, the median size of Project Grants in Basic Science was $638,423 (mean $670,393); in Health Services Research, $686,127 (mean $634,513); Clinical Science and Medicine, $740,766 (mean $1,005,042); and, for Public Health, $884,321 (mean $1,074,371).

**Figure 14: Distribution of Project Grant budgets (awarded) by Broad Research Area, 2010**

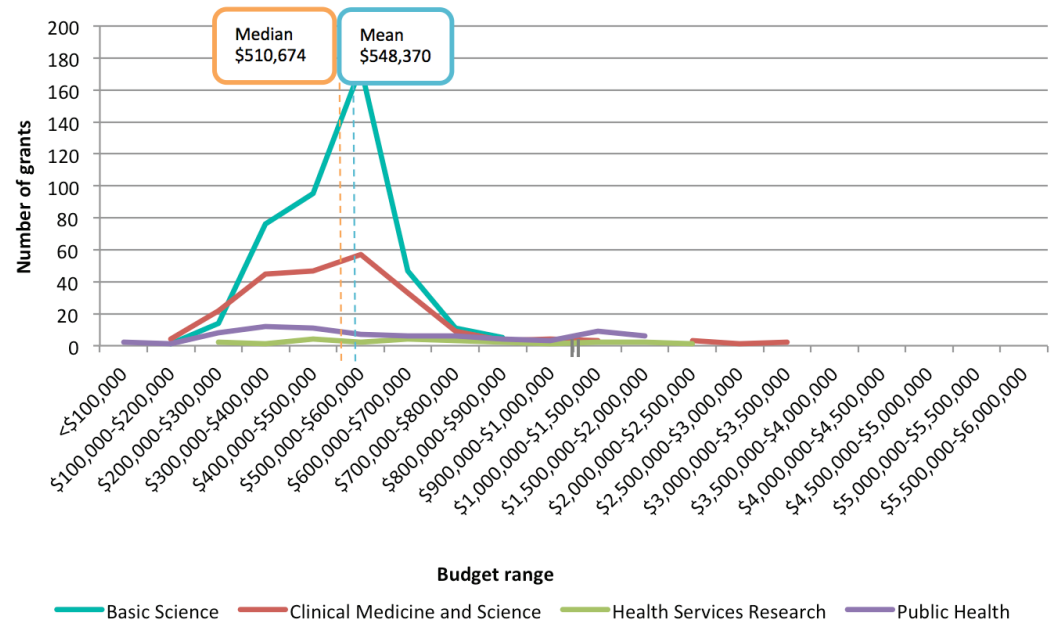
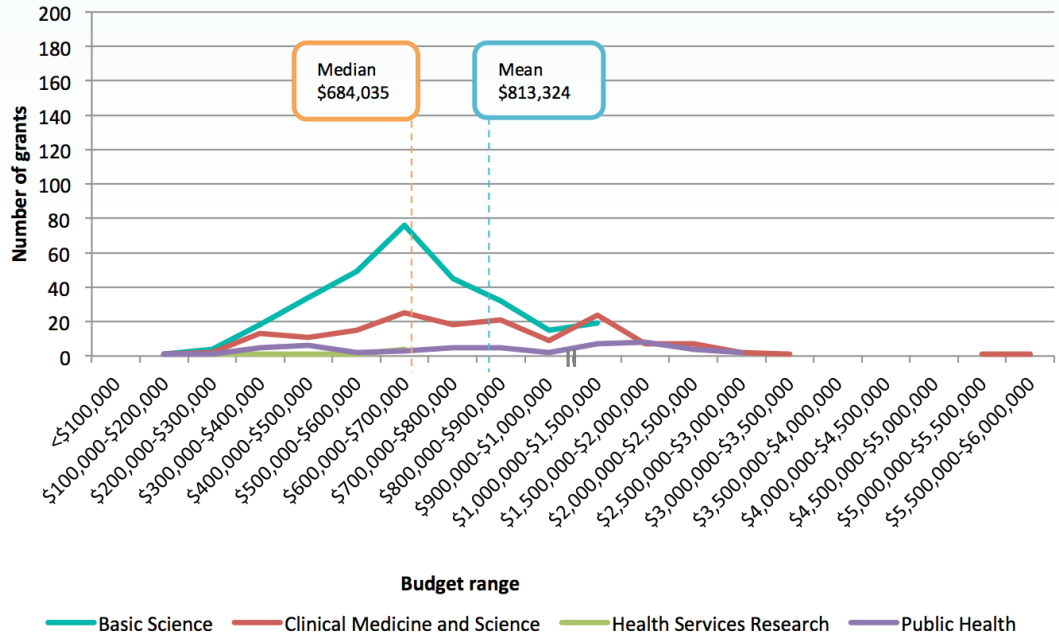


**Figure 15: Distribution of Project Grant budgets (awarded) by Broad Research Area, 2015**




Project Grants can include clinical trials and other studies with large budgets. Clinical trials are primarily funded through this scheme. In 2015, clinical trial project grants represented 9.7% of all funded Project Grants and 17.6% of Project Grants expenditure (Table 3).

**Table 3: Proportion of Project Grants and Project Grant commitments for clinical trials, 2010–2015**

| Year | Total no. of funded Project Grants | No. of clinical trial Project Grants[1] | Percent of total Project Grants that are clinical trials | Total commitments: all funded Project Grants | Total expenditure: clinical trial Project Grants | Percent of Project Grant commitments expended on clinical trials |
|---|---|---|---|---|---|---|
| 2010 | 758 | 60 | 7.9% | $415,664,652 | $52,766,673 | 12.7% |
| 2011 | 789 | 73 | 9.3% | $458,357,820 | $74,958,720 | 16.4% |
| 2012 | 737 | 55 | 7.5% | $460,893,683 | $67,765,049 | 14.7% |
| 2013 | 652 | 43 | 6.6% | $423,522,457 | $51,010,893 | 12.0% |
| 2014 | 555 | 51 | 9.2% | $421,092,975 | $60,713,325 | 14.4% |
| 2015 | 516 | 50 | 9.7% | $419,674,973 | $73,702,289 | 17.6% |

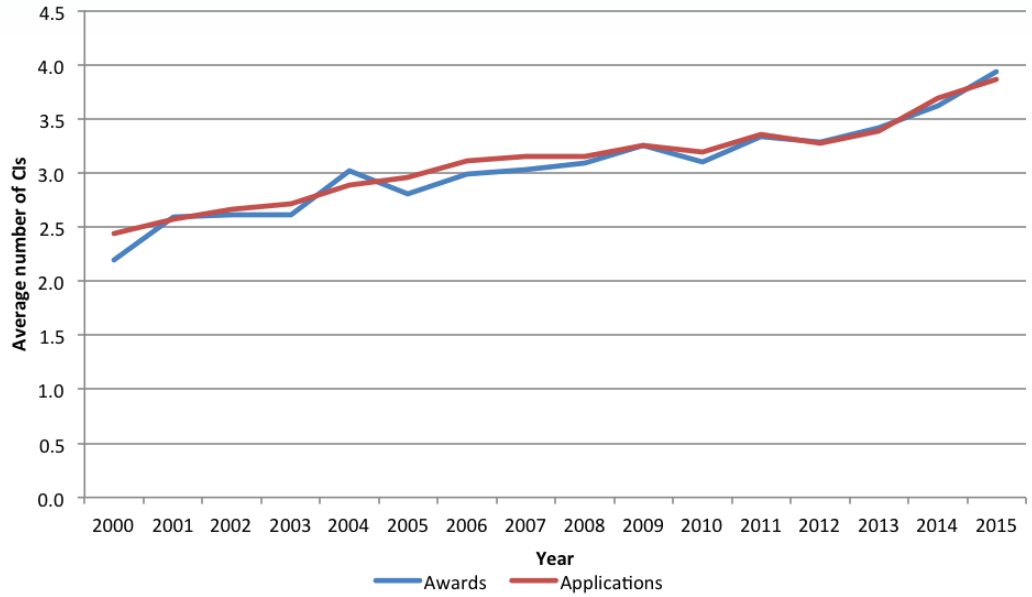
Notes:

1. Funded applications that nominated one of the following keywords: "clinical trial", "randomised controlled trial", "randomised trial", "randomized controlled trial", "randomized trial" or "RCT".

## Team size

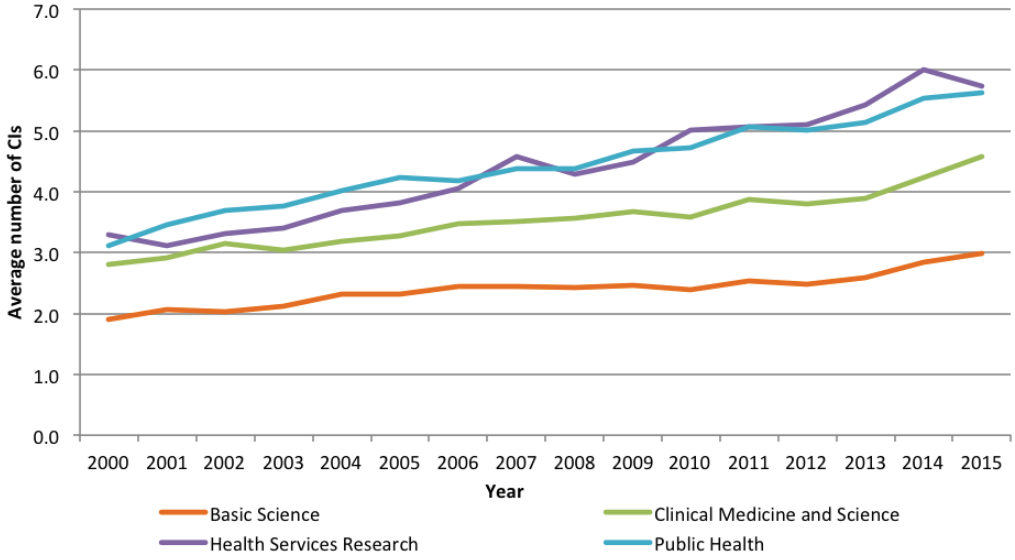
The average size of teams has been increasing for Project Grants (Figure 16).

**Figure 16: Project Grants - average number of Chief Investigators (CIs) on applications and awards, 2000–2015**




Project Grant team size has increased across all Broad Research Areas, particularly for Health Services and Public Health research (Figure 17).

**Figure 17: Project Grants - average number of Chief Investigators on applications by Broad Research Area, 2000–2015**



## Grant duration

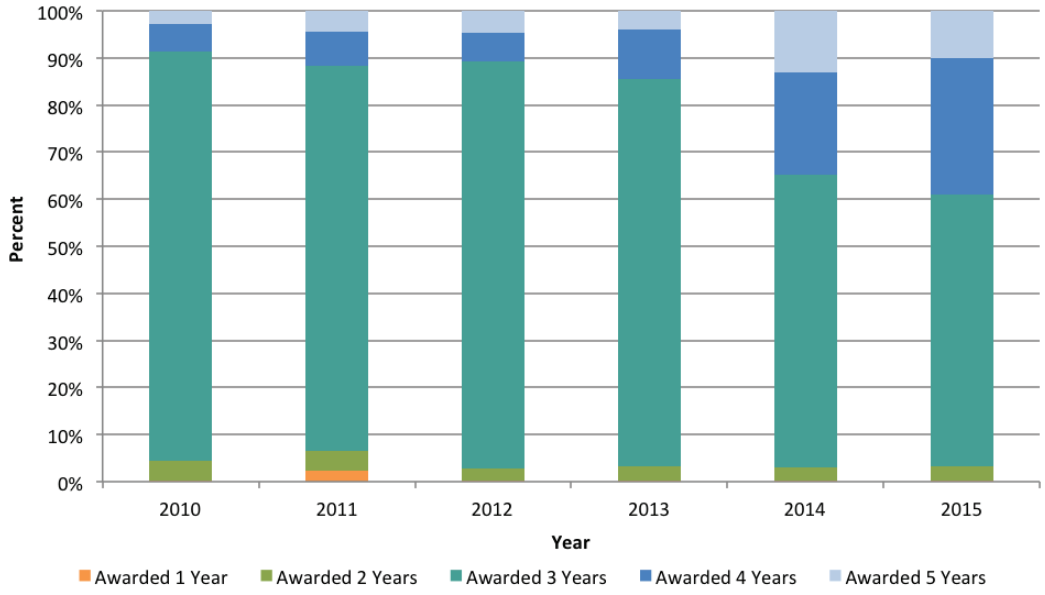
The duration of grants sought by applicants varies across the Broad Research Areas (Table 4).

**Table 4: Duration of Project Grants requested by Broad Research Area, 2015**

| Broad Research Area | No. applications in 2015 | 4 year grant duration requested | 5 year grant duration requested |
|---|---|---|---|
| Basic Science | 2046 | 26.6% | 6.7% |
| Clinical Medicine and Science | 1194 | 27.7% | 22.4% |
| Public Health | 375 | 25.9% | 24.3% |
| Health Services Research | 143 | 30.9% | 23.8% |
| **Total** | **3758** | **100.0%** | **100.0%** |

The duration of Project Grants awarded by NHMRC has increased. In 2010, 9% of grants awarded were four- and five-year grants compared with 40% in 2015 (Figure 18).

**Figure 18: Duration of Project Grants awarded, 2010–2015**



# D. PROGRAM GRANTS SCHEME

## Grant applications and awards

Program Grants are designed to provide substantial, long-term, flexible funding to groups of researchers to pursue collaborative research addressing complex problems. In 2015, there were twenty-two applications for Program Grants, with nine grants awarded (a funding rate of 40.9%) (Figure 19). These grants are available for research across the Broad Research Areas. Most applications are for basic science or clinical medicine and science research (Table 5).

**Figure 19: Program Grant application numbers, grant numbers and funding rates, 2001–2015**

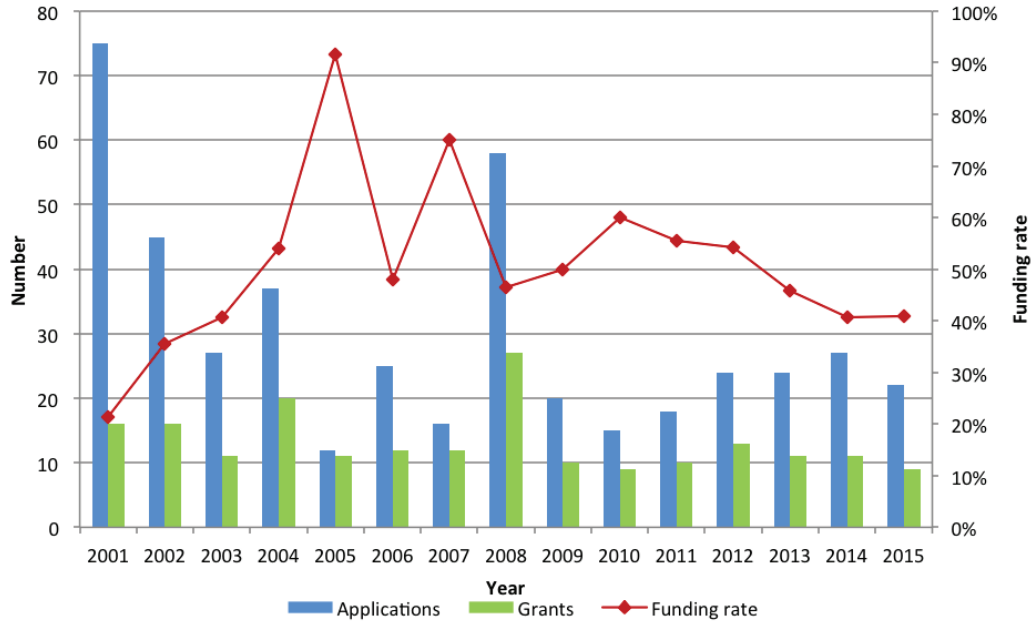



**Table 5: Program Grant applications and funding rates, by Broad Research Area, 2001–2015**

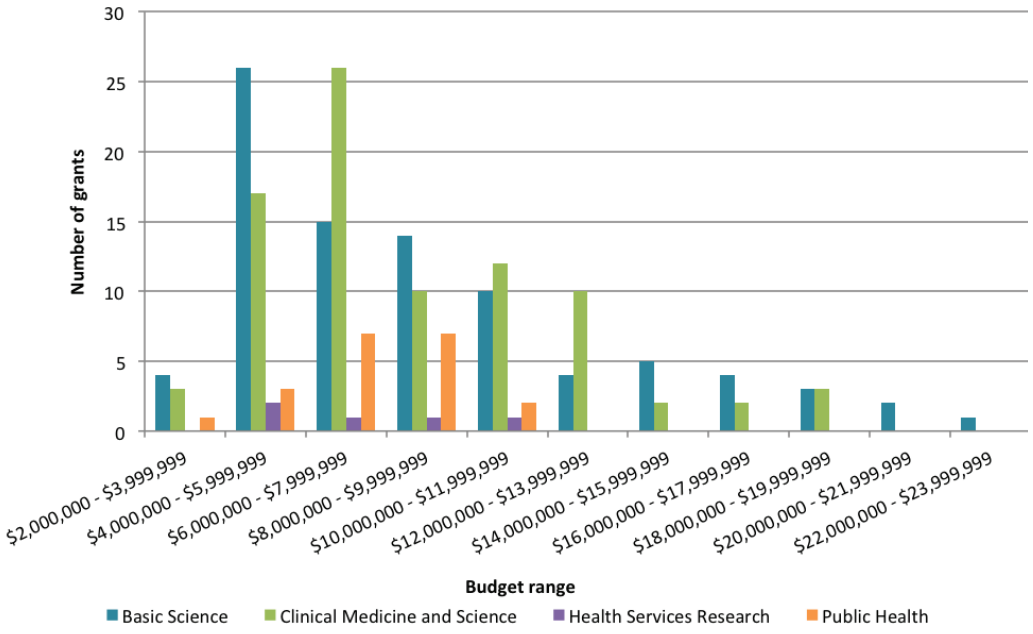
| Year | BASIC SCIENCE | | CLINICAL MEDICINE AND SCIENCE | | HEALTH SERVICES RESEARCH | | PUBLIC HEALTH | |
|---|---|---|---|---|---|---|---|---|
| | No. of apps | Funding rate | No. of apps | Funding rate | No. of apps | Funding rate | No. of apps | Funding rate |
| 2001 | 34 | 23.5% | 30 | 13.3% | 3 | 0.0% | 8 | 50.0% |
| 2002 | 21 | 38.1% | 17 | 41.2% | 3 | 33.3% | 4 | 0.0% |
| 2003 | 13 | 53.8% | 11 | 27.3% | 0 | - | 3 | 33.3% |
| 2004 | 16 | 56.3% | 13 | 61.5% | 1 | 0.0% | 7 | 42.9% |
| 2005 | 4 | 75.0% | 6 | 100.0% | 1 | 100.0% | 1 | 100.0% |
| 2006 | 12 | 66.7% | 12 | 33.3% | 0 | - | 1 | 0.0% |
| 2007 | 7 | 100.0% | 7 | 71.4% | 1 | 0.0% | 1 | 0.0% |
| 2008 | 20 | 50.0% | 28 | 42.9% | 3 | 33.3% | 7 | 57.1% |
| 2009 | 3 | 66.7% | 13 | 46.2% | 0 | - | 4 | 50.0% |
| 2010 | 8 | 75.0% | 5 | 40.0% | 0 | - | 2 | 50.0% |
| 2011 | 7 | 28.6% | 8 | 87.5% | 0 | - | 3 | 33.3% |
| 2012 | 10 | 50.0% | 9 | 66.7% | 2 | 100.0% | 3 | 0.0% |
| 2013 | 8 | 50.0% | 10 | 40.0% | 0 | - | 6 | 50.0% |
| 2014 | 8 | 50.0% | 14 | 50.0% | 2 | 0.0% | 3 | 0.0% |
| 2015 | 9 | 55.6% | 11 | 36.4% | 0 | - | 2 | 0.0% |

*Abbreviations*: apps–applications

## Grant budget size

As they are designed to support teams of researchers in conducting a major program of research, the budgets of Program Grants are some of the largest that NHMRC awards (Figure 4). The distribution of Program Grant budgets across the Broad Research Areas can be seen in Figure 20.

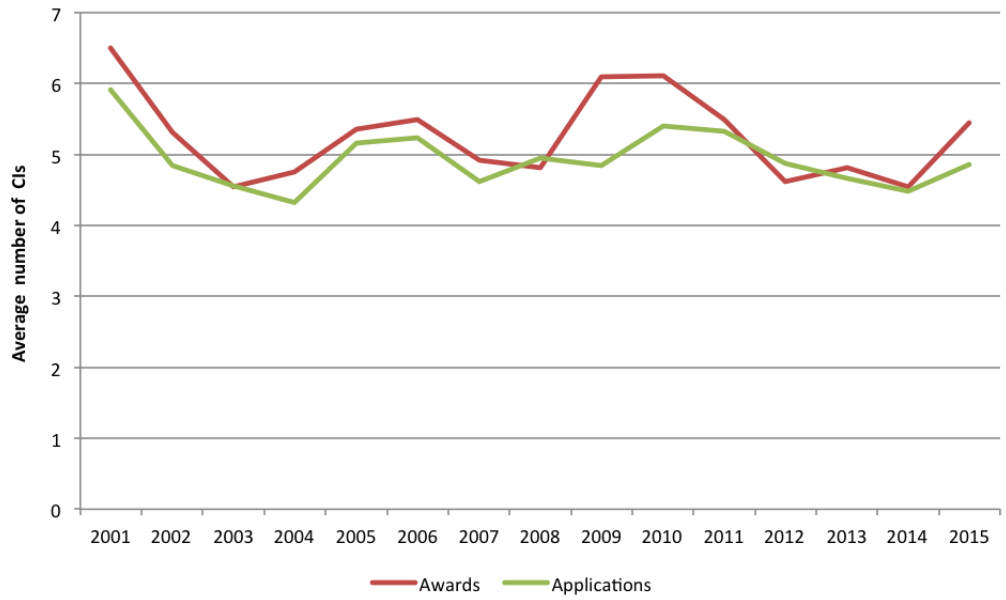
**Figure 20: Program Grants - distribution of budgets awarded by Broad Research Area, 2001–2015**




## Team size – Program Grants

There were on average 5.5 Chief Investigators per Program Grant awarded in 2015 (Figure 21). Since 2011, the rules for this scheme have required a minimum of 3 CIs and a maximum of 10 CIs.

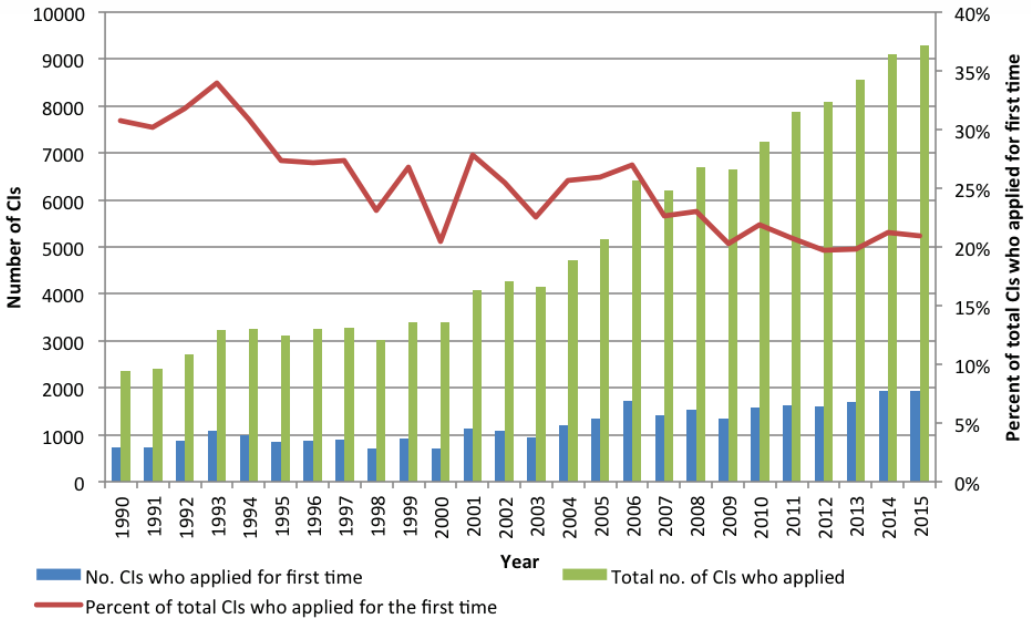
**Figure 21: Program Grants - average number of Chief Investigators on applications and awards, 2001–2015**



## E. RESEARCH WORKFORCE

NHMRC received applications from over 9,000 individual Chief Investigators in 2015. Of these, 21% were applying for a NHMRC grant for the first time (Figure 22).

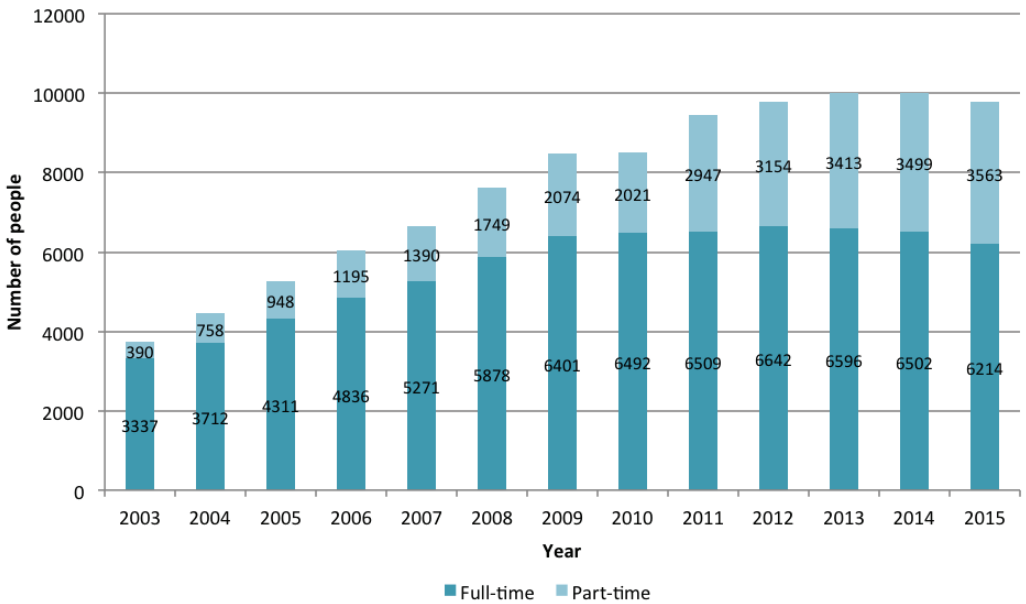
**Figure 22: Number and proportion of Chief Investigators applying for the first time on NHMRC grants, 1990–2015**




### Salary support

NHMRC provides salary support for an estimated 9777 people, with the majority receiving full-time support (Figure 23).

**Figure 23: Number of people who receive salary support from NHMRC, 2003–2015**




Notes: The chart represents individual people who are supported on active grants (fellowships and scholarships as well as estimates of people funded by Project, Program, Development Grants, CREs, and Targeted Calls). Supported personnel may include Chief Investigators, postdoctoral researchers, research assistants, clinicians, nurses, allied health professionals and others.

More people receive salary support via NHMRC's largest scheme (Project Grants) than through other schemes. The total number of people supported by Project Grants has increased, with more people receiving part-time support now than five years ago. The number of Fellows, including those receiving full-time support, has increased (Table 6).

**Table 6: Number of people (full-time and part-time individuals) supported with salary by NHMRC for Project Grants, Program Grants and Fellowships, 2011–2015**

| Year | PROJECTS | | PROGRAMS | | FELLOWS | | OTHER[1] | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. F/T | No. P/T | No. F/T | No. P/T | No. F/T | No. P/T | No. F/T | No. P/T | No. F/T | No. P/T |
| 2011 | 3069 | 1691 | 971 | 607 | 1198 | 138 | 1271 | 511 | 6509 | 2947 |
| 2012 | 3167 | 1922 | 934 | 584 | 1261 | 144 | 1280 | 504 | 6642 | 3154 |
| 2013 | 3245 | 2187 | 908 | 568 | 1202 | 143 | 1241 | 515 | 6596 | 3413 |
| 2014 | 3090 | 2336 | 887 | 554 | 1279 | 100 | 1246 | 509 | 6502 | 3499 |
| 2015 | 2806 | 2423 | 863 | 540 | 1372 | 103 | 1173 | 497 | 6214 | 3563 |

*Abbreviations*: F/T – Full-time; P/T – Part-time

Notes: The table represents individual people who are supported on active grants. Supported personnel may include Chief Investigators, postdoctoral researchers, research assistants, clinicians, nurses, allied health professionals and others.

1. Category 'Other' includes: Scholarships, CREs, Development Grants, International Collaboration, and Targeted Calls.

When applying for NHMRC grants, applicants may request a Personnel Support Package (PSP) to support the salaries of research staff. PSP1 is the smallest budget package (for technical support, non-graduate personnel) and PSP5 is the largest package (for senior postdoctoral researchers). The greatest proportion of PSPs are at the PSP3 level, for experienced graduate research assistant/junior postdoctoral research officer; or experienced graduate nurse, midwife or allied health professional; or experienced data manager/analyst (Table 7).

**Table 7: Project Grants – Percentage of full-time and part-time salaries by PSP Level, 2002–2015 (awarded grants)**

| | | APPLICATION YEAR | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PSP Level | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
| Full-time | PSP 1 | 6.2% | 5.5% | 6.1% | 6.7% | 4.6% | 5.8% | 5.0% | 5.5% | 5.4% | 3.7% | 2.7% | 3.0% | 3.3% | 1.8% |
| | PSP 2 | 27.2% | 34.3% | 29.0% | 24.1% | 23.1% | 23.1% | 23.1% | 22.6% | 22.6% | 23.4% | 22.2% | 21.0% | 21.3% | 22.3% |
| | PSP 3 | 44.5% | 35.0% | 40.3% | 45.1% | 44.0% | 39.1% | 43.9% | 39.4% | 41.6% | 47.1% | 46.4% | 43.5% | 43.5% | 45.7% |
| | PSP 4 | 13.3% | 16.5% | 16.3% | 16.1% | 19.5% | 21.4% | 20.6% | 25.3% | 24.6% | 20.8% | 24.4% | 26.9% | 26.7% | 26.1% |
| | PSP 5 | 8.8% | 8.7% | 7.9% | 7.2% | 8.1% | 7.9% | 5.9% | 7.1% | 5.8% | 4.9% | 4.3% | 5.5% | 5.2% | 4.2% |
| | PSP 6 | - | - | 0.4% | 0.8% | 0.7% | 2.5% | 1.5% | - | - | - | - | - | - | - |
| Full-time total | | 533 | 565 | 590 | 614 | 835 | 994 | 954 | 943 | 1020 | 1017 | 1004 | 887 | 727 | 674 |
| Percent of Total PSP | | 67% | 67% | 66% | 65% | 63% | 66% | 60% | 58% | 58% | 53% | 51% | 50% | 45% | 42% |
| Part-time | PSP 1 | 20.5% | 16.6% | 15.5% | 14.5% | 17.9% | 18.9% | 16.8% | 16.1% | 10.8% | 10.8% | 7.9% | 9.0% | 11.1% | 8.3% |
| | PSP 2 | 31.6% | 36.5% | 32.2% | 28.8% | 29.8% | 29.0% | 27.2% | 23.2% | 27.9% | 22.6% | 24.0% | 28.6% | 22.8% | 24.0% |
| | PSP 3 | 32.3% | 29.2% | 33.7% | 37.4% | 29.8% | 29.8% | 29.4% | 30.0% | 31.1% | 36.5% | 34.2% | 36.0% | 33.8% | 39.2% |
| | PSP 4 | 7.6% | 8.3% | 10.3% | 11.9% | 12.7% | 10.1% | 14.6% | 18.3% | 20.0% | 18.5% | 25.3% | 19.4% | 20.3% | 18.1% |
| | PSP 5 | 8.0% | 9.4% | 7.8% | 6.5% | 7.5% | 9.5% | 8.5% | 12.4% | 10.1% | 11.5% | 8.6% | 7.0% | 12.1% | 10.4% |
| | PSP 6 | - | - | 0.5% | 0.9% | 2.3% | 2.7% | 3.6% | - | - | - | - | - | - | - |
| Part-time total | | 263 | 277 | 307 | 337 | 480 | 514 | 637 | 677 | 739 | 892 | 946 | 875 | 903 | 913 |
| Percent of Total PSP | | 33% | 33% | 34% | 35% | 37% | 34% | 40% | 42% | 42% | 47% | 49% | 50% | 55% | 58% |
| Total PSP positions on awards | | 796 | 842 | 897 | 951 | 1315 | 1508 | 1591 | 1620 | 1759 | 1909 | 1950 | 1762 | 1603 | 1587 |

*Abbreviations*: PSP – personnel support package

Notes:

1. The full-time and part-time PSP totals in this table are based on PSP packages in grants awarded in each year. Multiple PSPs can be awarded per grant.
2. The PSP Level 6 was not available in 2002-3 and from 2009.

## Gender

While the overall funding rates of men and women are similar, fewer women apply for fewer grants, and women are awarded fewer NHMRC grants than men (Table 8). A detailed analysis of grant outcomes by gender in 2015 is available on the NHMRC website.[7]

**Table 8: Applications, grants and funded rate for all grant schemes by gender, 2006–2015**

| Year | FEMALE | | | MALE | | |
|---|---|---|---|---|---|---|
| | Applications | Grants | Funding rate | Applications | Grants | Funding rate |
| 2006 | 1,678 | 430 | 25.6% | 2,646 | 754 | 28.5% |
| 2007 | 1,713 | 500 | 29.2% | 2,494 | 772 | 31.0% |
| 2008 | 1,776 | 457 | 25.7% | 2,710 | 831 | 30.7% |
| 2009 | 1,835 | 441 | 24.0% | 2,808 | 733 | 26.1% |
| 2010 | 1,952 | 484 | 24.8% | 2,846 | 760 | 26.7% |
| 2011 | 2,049 | 517 | 25.2% | 2,979 | 817 | 27.4% |
| 2012 | 2,162 | 492 | 22.8% | 3,128 | 783 | 25.0% |
| 2013 | 2,261 | 454 | 20.1% | 3,315 | 730 | 22.0% |
| 2014 | 2,354 | 400 | 17.0% | 3,284 | 609 | 18.5% |
| 2015 | 2,445 | 434 | 17.8% | 3,343 | 614 | 18.4% |

Notes: A small number of individuals have not specified gender within RGMS. These individuals have been excluded from this analysis.

## Career disruption

A career disruption is a prolonged interruption to an applicant's capacity to work. Around 30% of NHMRC Chief Investigators report career disruption, over three times more women than men (Table 9).

**Table 9: Number and average length of career disruptions reported by Chief Investigators who applied in 2010–2014**

| | FEMALE | | MALE | | NOT STATED | |
|---|---|---|---|---|---|---|
| Career Disruption Type | No. of disruptions | Average length of disruption (months) | No. of disruptions | Average length of disruption (months) | No. of disruptions | Average length of disruption (months) |
| Carer Responsibilities | 1136 | 48.3 | 301 | 36.7 | 1 | 51.0 |
| Major Illness | 377 | 18.9 | 223 | 21.0 | 1 | 4.0 |
| Maternity/Paternity Leave | 3769 | 14.3 | 54 | 11.6 | 1 | 8.0 |

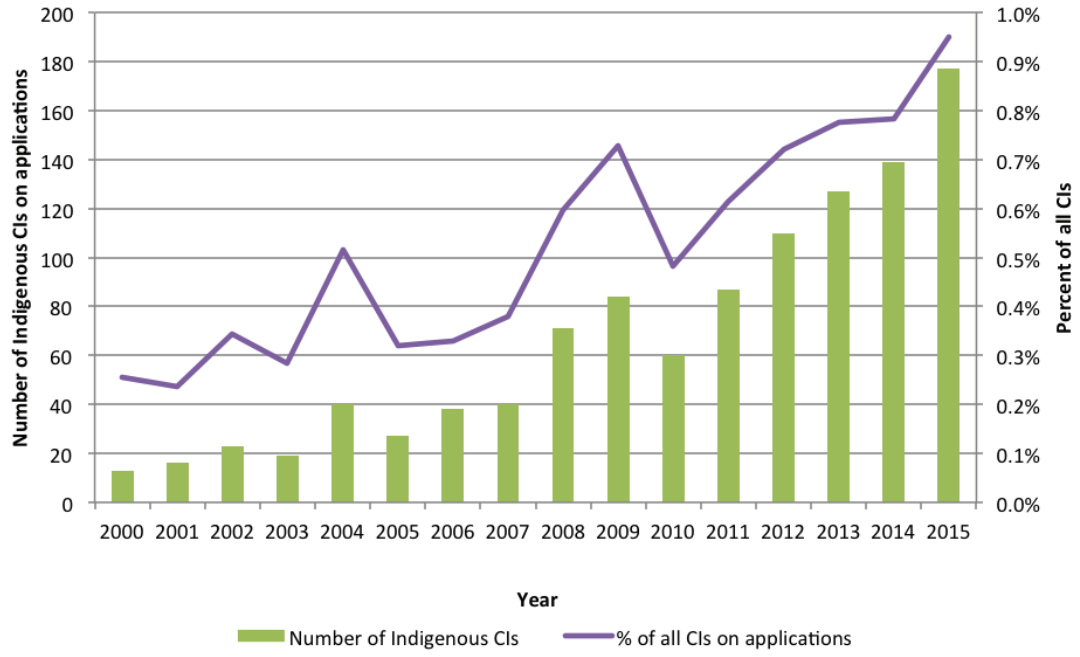
Notes: The career disruption(s) reported by the cohort of CIs in this table may have occurred at any time in their career.

[7] NHMRC 2015 Funding Outcomes by Gender – available at http://www.nhmrc.gov.au/2015-funding-outcomes-gender-summary-findings (accessed, 17 April 2016).

## Aboriginal and Torres Strait Islander researchers

The proportion of Aboriginal and Torres Strait Islander Chief Investigators applying for NHMRC grants has increased from 0.2% in 2000 to almost 1.0% in 2015 (Figure 24). The Project Grants scheme has attracted the highest number of Aboriginal and Torres Strait Islander Chief Investigators over the last fifteen years, increasing from 10 in 2000 to 123 in 2015. There are more Aboriginal and Torres Strait Islander Chief Investigators applying for Early Career and Career Development Fellowships than for more senior fellowships (Research and Practitioner Fellowships).

**Figure 24: Number and proportion of Aboriginal and Torres Strait Islander Chief Investigators on all applications, 2000–2015** (referred to as Indigenous CIs in figure)

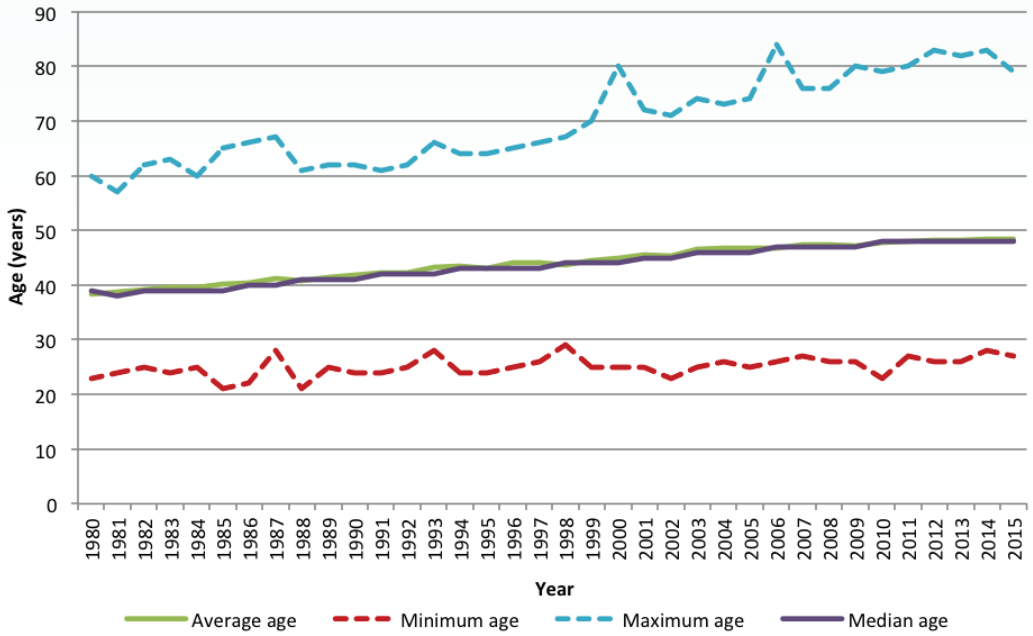



### *Research workforce – Project Grants*

When people apply for NHMRC grants, their application nominates Chief Investigator(s), with the lead investigator listed as Chief Investigator A (CIA).

The average and median ages of all Chief Investigators on Project Grants have risen from 39 to 48 years of age in the last twenty-five years (Figure 25).

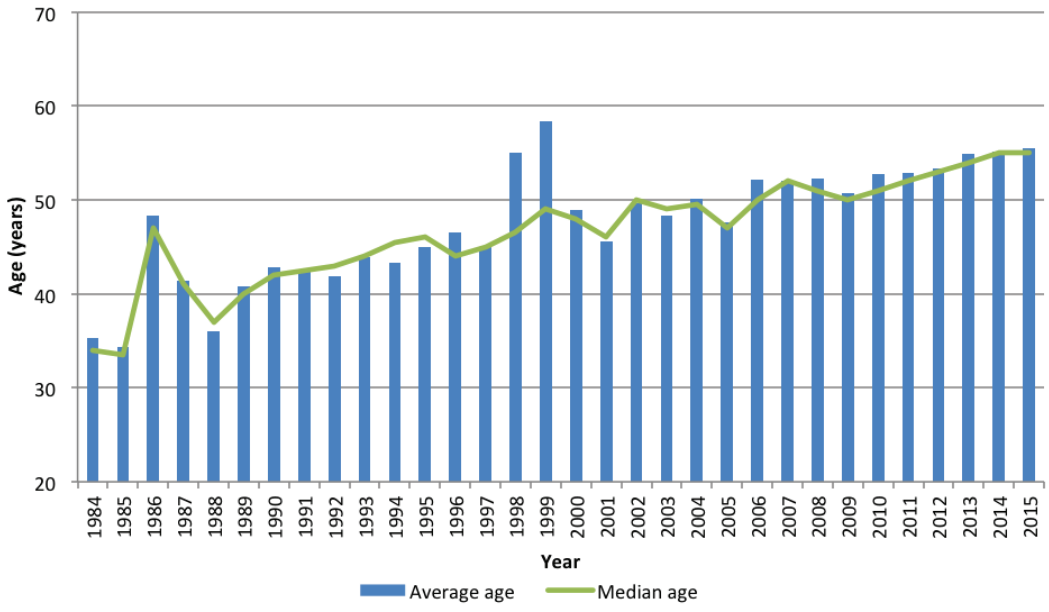
**Figure 25: Age of all Chief Investigators on Project Grants, 1980–2015**




## *Research workforce – Program Grants*

The average and median ages of Chief Investigators on Program Grants have also increased during the last twenty-five years (Figure 26).

**Figure 26: Age of all Chief Investigators on Program Grants, 1984–2015**




## *Research workforce - Fellowships*

NHMRC awards a range of fellowships to researchers at different stages of their careers. The majority of fellowships are awarded to early career researchers, followed by established researchers, and then by mid-career researchers (Table 10).

### Table 10: Number of fellowships awarded in 2015 by level of fellowship

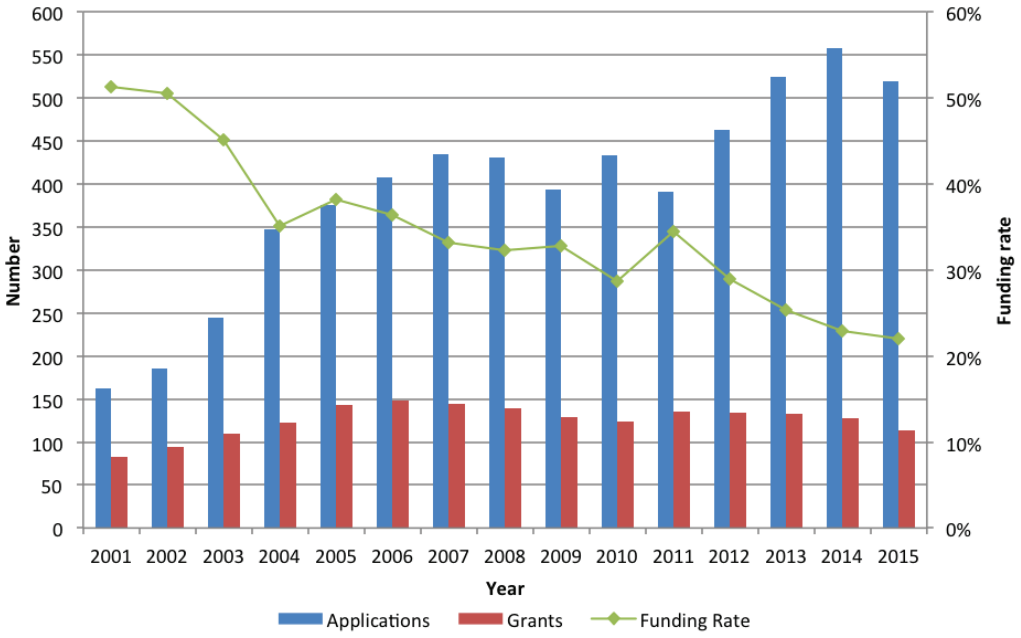
| Grant Type and Level of Fellowships | No. of Fellowships | Percent |
|---|---|---|
| Early Career Fellowships (ECF) | 114 | 42.9% |
| Translating Research into Practice (TRIP) Fellowships | 13 | 4.9% |
| Career Development Fellowships (CDF) | 57 | 21.4% |
| CDF 1 | 34 | 12.8% |
| CDF 2 | 23 | 8.6% |
| Practitioner Fellowships (PF) | 13 | 4.9% |
| PF 1 | 9 | 3.4% |
| PF 2 | 4 | 1.5% |
| Research Fellowships (RF) | 69 | 25.9% |
| SRF A | 18 | 6.8% |
| SRF B | 14 | 5.3% |
| PRF | 15 | 5.6% |
| SPRF | 22 | 8.3% |
| Total | 266 | 100.0% |

Notes: Eligibility in year of application and duration of award:

1. ECF: Has held PhD for ≤ 2 years, except for clinical and health professional ECFs (≤ 4 years); duration 4 years.
2. TRIP: Has completed a relevant tertiary qualification within the last 15 years; duration 2 years (part-time award, 0.5 FTE)
3. CDF 1: 2-7 years post-PhD; CDF 2: 7-12 years post-PhD; duration 4 years. Prior to 2008 only one level of CDF was offered and eligibility was 2-9 years post-PhD.
4. PF 1 and PF 2: Research must be linked to practice area. The difference in levels is seniority/experience of researcher; duration 5 years (part-time award, 0.4 – 0.7 FTE).
5. SRF A, SRF B, PRF, SPRF: PhD or equivalent research qualification. The difference between levels is seniority/experience of researcher; duration 5 years.

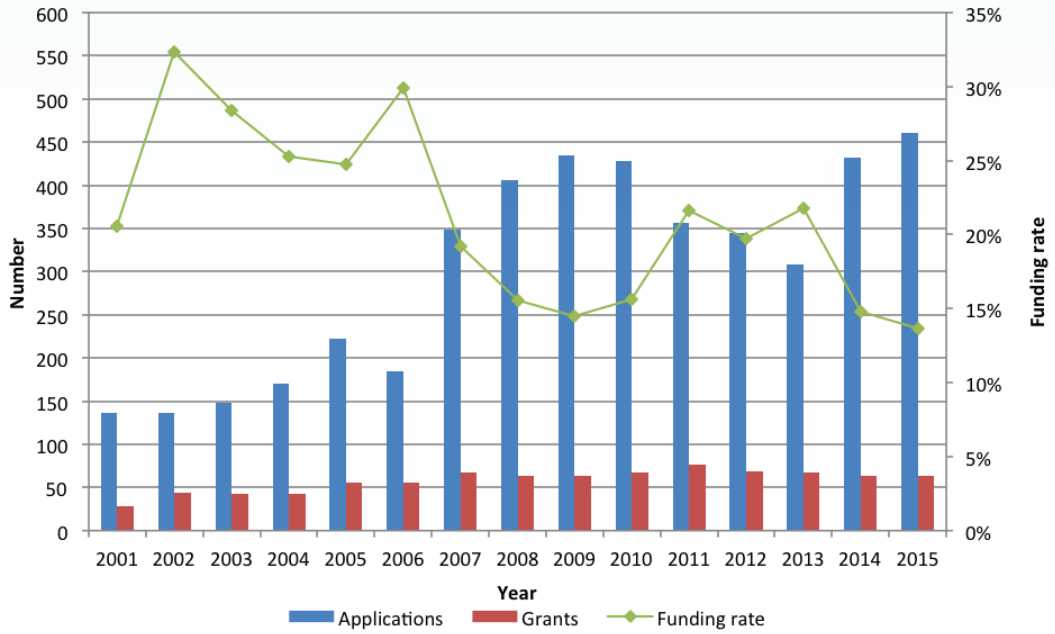
The funding rates for all types of fellowships have declined, with mid-career (Career Development Fellowships) at the lowest rate (Figures 27-29).

### Figure 27: Early Career Fellowships applications, grants and funding rates, 2001–2015



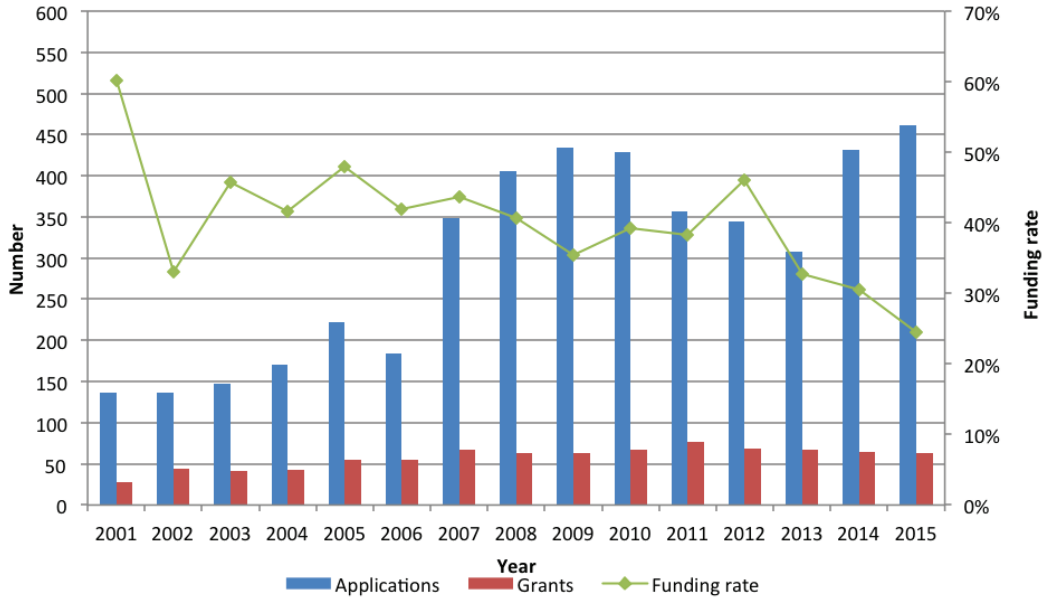

Notes: Data presented in the figure above are for the Early Career Fellowships scheme only.

## Figure 28: Mid-career Fellowship applications, grants and funding rates, 2001–2015




Notes: Data are presented using the grant type classification 'Mid-career Fellowships'. It includes Career Development Fellowships (current) and the historical Career Development Awards.

## Figure 29: Research Fellowships applications, grants and funding rates, 2001–2015

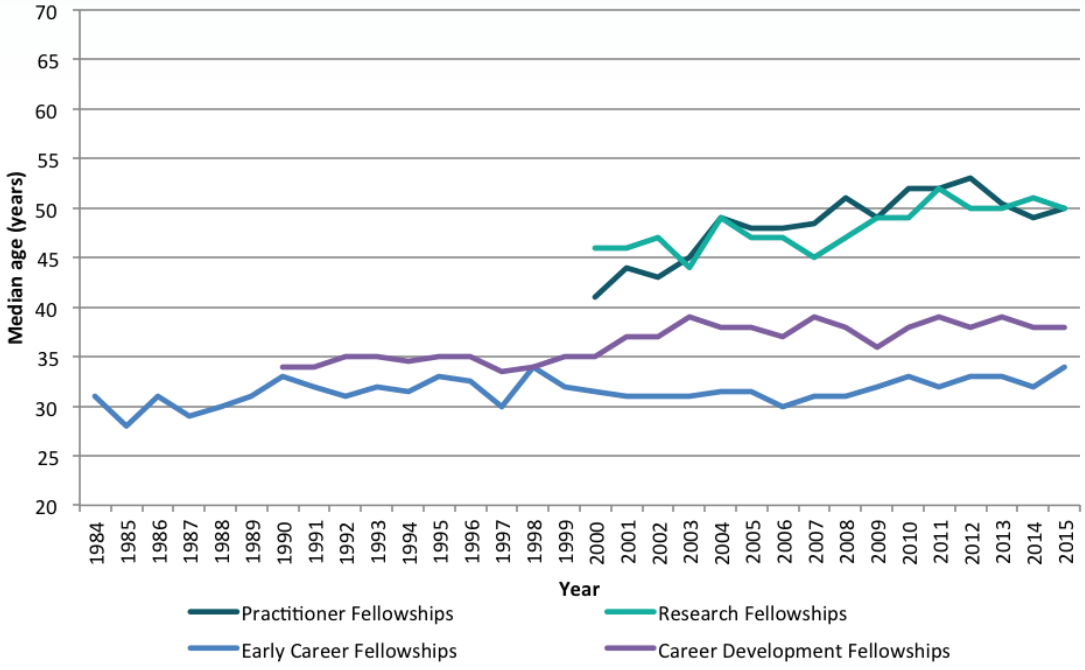



Notes: Data presented in the figure above are for the Research Fellowships scheme only.

## Age of fellows

The median age of fellows has also increased across all stages of career (Figure 30).

**Figure 30: Median age of fellows, 1984–2015**

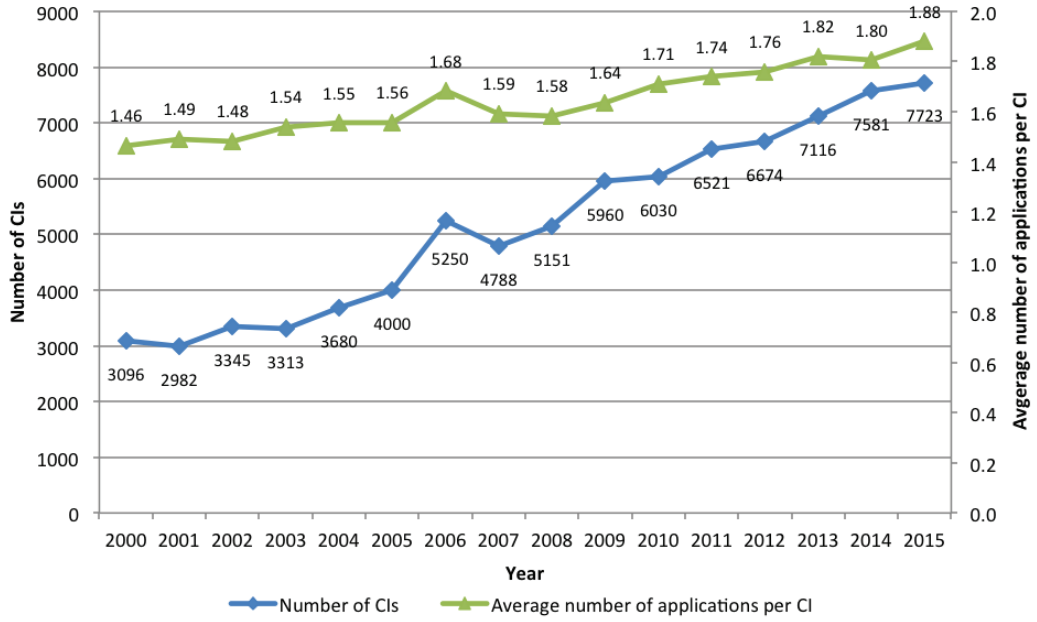


# F. MULTIPLE APPLICATIONS AND GRANTS

## Multiple applications

Many researchers apply for more than one NHMRC grant in one year. The average number of Project Grant applications per applicant has increased from 1.46 in 2000 to 1.9 in 2015 (Figure 31). In 2015, the majority of applicants (55%) applied for one grant, 20% applied for two grants, 11% applied for three grants, and around 14% applied for four or more grants.

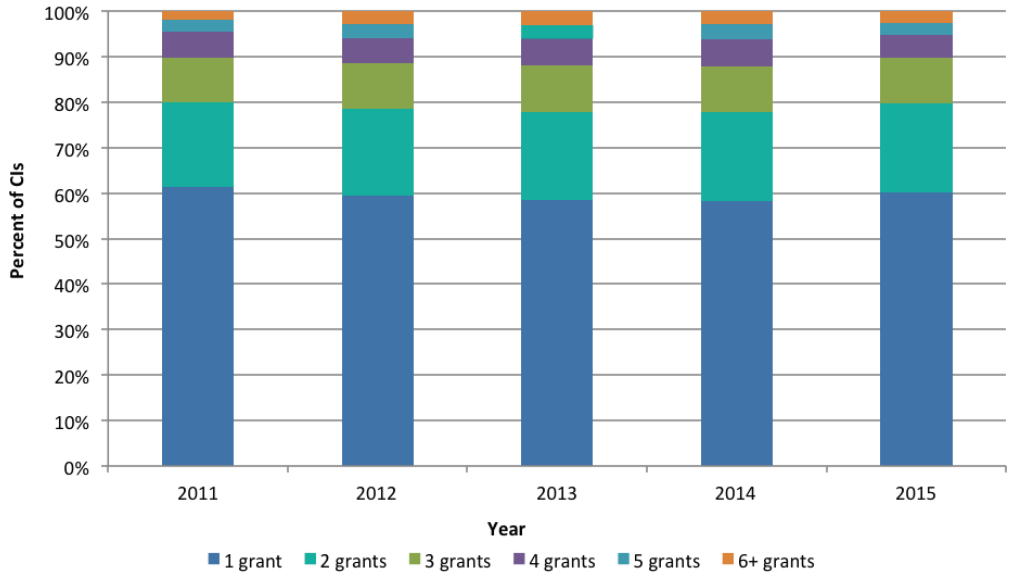
**Figure 31: Project Grants - average number of applications per Chief Investigator 2000-2015**




## Multiple grants

About 60% of those who hold NHMRC grants hold just one grant, with the remainder holding two or more (Figure 32).

**Figure 32: Proportion of Chief Investigators holding multiple NHMRC grants, 2011–2015**



Of those investigators who hold two NHMRC grants, around half have two Project Grants (Table 11). Of those holding three grants, a third have three Project Grants (Table 12).

**Table 11: Grant combinations for Chief Investigators holding two NHMRC grants, 2015**

| Grant combinations for those holding two NHMRC grants | Number of individual investigators | Percent individual investigators holding two NHMRC grants (N=1235) |
|---|---|---|
| 2 Project Grants | 635 | 51.4% |
| 1 Early Career Fellowship, 1 Project Grant | 87 | 7.0% |
| 1 Centre of Research Excellence, 1 Project Grant | 78 | 6.3% |
| 1 Partnership Project, 1 Project Grant | 77 | 6.2% |
| 1 Career Development Fellowship, 1 Project Grant | 52 | 4.2% |
| 1 Project Grant, 1 Research Fellowship | 46 | 3.7% |
| 1 Program Grant, 1 Research Fellowship | 31 | 2.5% |
| 1 Development Grant, 1 Project Grant | 30 | 2.4% |
| 1 Program Grant, 1 Project Grant | 29 | 2.4% |
| 1 Centre of Research Excellence, 1 Partnership Project | 23 | 1.9% |
| 2 Partnership Projects | 21 | 1.7% |
| 1 Project Grant, 1 Targeted Call for Research | 15 | 1.2% |
| *Subtotal* | 1124 | 91.0% |
| Other combinations | 111 | 9.0% |
| **Total** | **1235** | **100.0%** |

Notes: 'Other combinations' are all unique.

**Table 12: Grant combinations for Chief Investigators holding three NHMRC grants, 2015**

| Grant combinations for those holding three NHMRC grants | Number of individual investigators | Percent individual investigators holding three NHMRC grants (N=619) |
|---|---|---|
| 3 Project Grants | 206 | 33.3% |
| 2 Project Grants, 1 Research Fellowship | 58 | 9.4% |
| 1 Program Grant, 1 Project Grant, 1 Research Fellowship | 50 | 8.1% |
| 1 Centre of Research Excellence, 2 Project Grants | 49 | 7.9% |
| 1 Career Development Fellowship, 2 Project Grants | 43 | 7.0% |
| 1 Partnership Project, 2 Project Grants | 21 | 3.4% |
| 1 Centre of Research Excellence, 1 Partnership Project, 1 Project Grant | 21 | 3.4% |
| 1 Early Career Fellowship, 2 Project Grants | 19 | 3.1% |
| 1 Development Grant, 2 Project Grants | 12 | 1.9% |
| 1 Centre of Research Excellence, 1 Project Grant, 1 Research Fellowship | 11 | 1.8% |
| *Subtotal* | 490 | 79.2% |
| Other combinations | 129 | 20.8% |
| **Total** | **619** | **100.0%** |

Notes: 'Other combinations' are all unique.

There are some specific rules relating to the number of Project Grants that can be applied for and held. Chief Investigators cannot apply for more than six Project Grants in any year, less the number of Project Grants scheduled to continue in the year following the application year. Program Grant Chief Investigators cannot hold, or apply for, more than one Project Grant. Of those investigators who hold six NHMRC grants, three percent hold all Project Grants. Others hold a variety of combinations of grant types (Table 13).

**Table 13: Grant combinations for Chief Investigators holding six NHMRC grants, 2015**

| Grant combinations for those holding six NHMRC grants | Number of individual investigators | Percent individual investigators holding six NHMRC grants (N=95) |
|---|---|---|
| 5 Project Grants, 1 Research Fellowship | 13 | 13.7% |
| 1 Career Development Fellowship, 1 Centre of Research Excellence, 4 Project Grants | 7 | 7.4% |
| 1 Career Development Fellowship, 5 Project Grants | 6 | 6.3% |
| 1 Centre of Research Excellence, 5 Project Grants | 6 | 6.3% |
| 2 Centres of Research Excellence, 4 Project Grants | 3 | 3.2% |
| 1 Centre of Research Excellence, 1 Practitioner Fellowship, 4 Project Grants | 3 | 3.2% |
| 1 Centre of Research Excellence, 1 Partnership Project, 3 Project Grants, 1 Research Fellowship | 3 | 3.2% |
| 6 Project Grants | 3 | 3.2% |
| 2 Centres of Research Excellence, 1 Practitioner Fellowship, 3 Project Grants | 2 | 2.1% |
| 1 Partnership Project, 5 Project Grants | 2 | 2.1% |
| 1 International Collaboration, 4 Project Grants, 1 Research Fellowship | 2 | 2.1% |
| 1 Centre of Research Excellence, 1 International Collaboration, 1 Partnerships, 1 Practitioner Fellowship, 2 Project Grants | 2 | 2.1% |
| 2 Centres of Research Excellence, 1 Development Grant, 1 Practitioner Fellowship, 2 Project Grants | 2 | 2.1% |
| 1 Centre of Research Excellence, 4 Project Grants, 1 Research Fellowship | 2 | 2.1% |
| 1 Career Development Fellowship, 1 Development Grant, 4 Project Grants | 2 | 2.1% |
| 1 Centre of Research Excellence, 4 Project Grants, 1 Targeted Calls for Research | 2 | 2.1% |
| 1 Career Development Fellowship, 1 International Collaboration, 4 Project Grants | 2 | 2.1% |
| *Subtotal* | 62 | 65.3% |
| Other combinations | 33 | 34.7% |
| **Total** | **95** | **100.0%** |

Notes: 'Other combinations' are all unique.

Of NHMRC Fellows, most senior Fellows hold other NHMRC grants (mainly Project Grants) while three-quarters of Early Career Fellows do not hold other NHMRC grants (Table 14).

**Table 14: Average proportion of NHMRC Fellows concurrently holding research grants as a Chief Investigator, 2011–2015**

| Fellowship | Number active | Nil research grants | Project Grants | Programs | Centres of Research Excellence | Targeted Calls | Partnerships | Development Grants |
|---|---|---|---|---|---|---|---|---|
| ECF[1] | 1067 | 75.8% | 22.2% | 0.0% | 2.1% | 0.7% | 2.8% | 0.2% |
| CDF 1 | 379 | 19.2% | 75.9% | 0.3% | 11.4% | 5.8% | 6.9% | 1.9% |
| CDF 2 | 157 | 11.5% | 80.2% | 1.8% | 11.9% | 7.2% | 9.4% | 2.2% |
| PF 1 | 74 | 8.0% | 83.5% | 12.7% | 29.7% | 4.7% | 17.5% | 5.2% |
| PF 2 | 71 | 4.3% | 83.0% | 30.3% | 38.8% | 4.3% | 14.4% | 5.3% |
| SRF A | 244 | 6.2% | 88.2% | 13.5% | 14.8% | 5.2% | 6.4% | 3.1% |
| SRF B | 179 | 5.0% | 88.9% | 20.6% | 13.5% | 6.1% | 6.3% | 4.6% |
| PRF | 161 | 5.5% | 80.3% | 35.5% | 12.6% | 4.4% | 5.5% | 5.1% |
| SPRF | 136 | 1.5% | 81.3% | 50.5% | 18.4% | 11.1% | 7.1% | 6.6% |
| AF[2] | 36 | 5.5% | 69.3% | 64.6% | 10.2% | 11.8% | 5.5% | 4.7% |

*Abbreviations*: ECF–Early Career Fellowships; CDF 1&2–Career Development Fellowships (levels 1 & 2); PF–Practitioner Fellowships (levels 1 & 2); SRF A&B –Senior Research Fellowships (Levels A and B); PRF – Principal Research Fellowship; SPRF–Senior Principal Research Fellowship

Notes: A Fellow may hold more than one research grant, therefore rows do not sum 100%.

1. Excludes TRIP Fellowships.
2. Australia Fellowships were awarded in years 2007 to 2011 only.

## G. IMPACT ON APPLICANTS AND PEER REVIEWERS

The number of grant review panels and peer review panel members required to assess applications for our largest grant scheme, Project Grants, has almost doubled during the last fifteen years (Table 15). The workload of managing applications and peer review and the demand on a limited pool of peer reviewers for multiple schemes limit capacity to offer more than one funding round per annum for each scheme.

**Table 15: Project Grants: numbers of peer review panels, members and applications, 2000–2015**

| Application year | No. of Panels | No. of Panel Members | Average no. of members per Panel | No. of applications | Average no. of applications per Panel | Average no. of applications per Primary Spokesperson |
|---|---|---|---|---|---|---|
| 2000 | 20 | 226 | 11 | 1799 | 94 | 9 |
| 2001 | 19 | 223 | 12 | 1725 | 91 | 9 |
| 2002 | 19 | 233 | 12 | 1860 | 98 | 9 |
| 2003 | 20 | 226 | 11 | 1883 | 94 | 9 |
| 2004 | 20 | 236 | 12 | 1982 | 99 | 9 |
| 2005 | 24 | 281 | 12 | 2169 | 90 | 8 |
| 2006 | 49 | 648 | 13 | 2883 | 59 | 5 |
| 2007 | 39 | 513 | 13 | 2487 | 64 | 5 |
| 2008 | 42 | 519 | 12 | 2697 | 64 | 6 |
| 2009 | 45 | 600 | 13 | 3110 | 69 | 6 |
| 2010 | 32 | 440 | 14 | 3231 | 94 | 7 |
| 2011 | 35 | 513 | 15 | 3379 | 94 | 7 |
| 2012 | 36 | 564 | 16 | 3587 | 100 | 7 |
| 2013 | 43 | 605 | 14 | 3827 | 89 | 7 |
| 2014 | 37 | 574 | 16 | 3710 | 100 | 7 |
| 2015 | 37 | 542 | 15 | 3758 | 102 | 7 |
| **Total** | **517** | **6943** | **13** | **44087** | **85** | **7** |

Note: The specific duties and responsibilities of the Primary Spokesperson (1SP) are available in the NHMRC Guide for Peer Review.[8]

The submission of multiple grant applications per applicant results in their track records being considered by peer reviewers multiple times in one year (Table 16).

**Table 16: Track record reviews: number of grant applications and number of applicants who applied in 2015**

| Number of grant applications in 2015 | Number of applicants | Percent of total applicants | Total number of track record reviews | Number of extra track record reviews |
|---|---|---|---|---|
| 1 | 5055 | 54.7% | 5055 | 0 |
| 2 | 1754 | 19.0% | 3508 | 1754 |
| 3 | 991 | 10.7% | 2973 | 1982 |
| 4 | 687 | 7.4% | 2748 | 2061 |
| 5 | 402 | 4.4% | 2010 | 1608 |
| 6 | 222 | 2.4% | 1332 | 1110 |
| 7 | 83 | 0.9% | 581 | 498 |
| 8+ | 46 | 0.5% | 414 | 368 |
| **Total** | **9240** | **100.0%** | **18621** | **9381** |

[8] NHMRC Guide to Peer Review 2015 – available at: https://www.nhmrc.gov.au/book/guide-nhmrc-peer-review-2015/6-peer-review-participants (accessed, 31 May 2016).

Attachment B

# Scope and Conduct of the Structural Review of NHMRC's Grant Program

**ATTACHMENT B:**

# Scope and Conduct of the Structural Review of NHMRC's Grant Program

## SCOPE

The Review will examine and provide advice to the CEO of NHMRC on:

1. the structure of the grant program, including:
   - the impact of the grant program on the health and medical research sector;
   - the flexibility of the grant program to meet future needs for health and medical research in Australia; and
2. alternative models and their potential to overcome the current challenges.

The Review will consider relevant overseas experience with medical research grant programs. NHMRC will also consider feedback provided in response to its 2015 consultation about the Fellowship schemes.

The review is focussed on the structure of NHMRC's grant program. Accordingly, it is not considering the details of the peer review process, allocation of funding between investigator-initiated and priority-driven research or the effects of the Medical Research Future Fund on NHMRC's funding strategy. Any refinements to peer review processes would be considered once the structure of the grant program is determined.

## CONDUCT

The Review is being conducted by the Office of NHMRC, reporting to the CEO. An Expert Advisory Group was established to provide advice and assistance to NHMRC in examining the current grant program and possible alternative models. This Group, chaired by Professor Steve Wesselingh, is comprised of members from diverse fields and institutions and with a range of perspectives.

| Membership of the Expert Advisory Group | |
|---|---|
| Professor Steven Wesselingh (Chair) | Professor Kathryn North |
| Professor Philip Clarke | Professor Robyn Owens |
| Professor Jonathan Craig | Dr Phoebe Phillips |
| Professor Gemma Figtree | Professor Rodney Phillips |
| Ms Christine Gunson | Professor Robert Ramsay |
| Associate Professor Noel Hayman | Professor Debra Rickwood |
| Professor Doug Hilton | Professor Melanie Wakefield |

The expertise of this Group was supplemented by advice from a group of early and mid-career researchers. An International Reference Group is also being established to assist in the consideration of alternative models drawing on the experience of other national funding agencies facing similar pressures.

The CEO is also drawing on the advice of the NHMRC Research Committee, as well as NHMRC Council, the Health Translation Advisory Committee, the Health Innovation Advisory Committee and the Principal Committee Indigenous Caucus.

In addition to seeking submissions from the research sector in response to this Consultation Paper, NHMRC will conduct a number of open forums in July in various locations across Australia for researchers and organisations to provide feedback. Information about these forums is available here.

It is intended that recommendations to the CEO will be made by December 2016. If the Review results in changes to the structure of NHMRC's grant program, implementation would begin in 2017. The lead time for implementing significant changes (if any) means that these would not be seen until 2018.

Australian Government

National Health and Medical Research Council

NHMRC