



Australian Government

National Health and Medical Research Council

www.nhmrc.gov.au



NHMRC

Summary

Analysis

End Of Grant Reports

*Results from end of grant reports received for
NHMRC funded awards that ended in 2004.*

4 May 2006



Australian Government

National Health and Medical Research Council

www.nhmrc.gov.au



Introduction

This analysis is based on a sample of the data received on end of grant reports for NHMRC funded grants that ended in 2004

It has been compiled primarily to report against the indicators in the NHMRC Performance Measurement Framework, and to report on the implementation of the strategic plan for 2003-2006

Much of this information has not been collected by the NHMRC before, and will be used as a foundation to measure performance over time



Purpose of the end of grant report

Final reports serve a dual purpose:

- Satisfy the accountability requirement of the Deeds of Agreement between the NHMRC and administering institutions
- Provide an essential source of information for communicating the achievements and outcomes of health and medical research to government and to the community

They allow the NHMRC to assess gains in:

- Knowledge
- Health
- Wealth



The Sample

- 400 end of grant reports are included in this sample - 77% of the 518 reports expected for grants ending in 2004
- The 400 reports included in this sample cover more than \$168.3 million of NHMRC funding
- Reports for Scholarships, Equipment grants and Transitional Block Funding grants are excluded.



The Sample

The sample is made up of end of grant reports from the following grant types:

– Project Grants	293
– Research Fellowships	53
– Training Awards	32
– Strategic Awards	14
– Program grants	7
– Career Development Awards	1
Total	400



Australian Government

National Health and Medical Research Council

www.nhmrc.gov.au



Research Achievements



Australian Government

National Health and Medical Research Council

www.nhmrc.gov.au



Research Achievements

Australia boasts some of the world's best health and medical researchers, and the data collected on end of grant reports helps the NHMRC to recognise their achievements.

The '*Ten of the best NHMRC funded health and medical research successes*' booklet helps showcase just a few of the outstanding research achievements demonstrated on final reports.

<http://www.nhmrc.gov.au/publications/synopses/thebest06.htm>





Research Achievements

- 43% of researchers (174/400) indicated that they did not complete all of the original research aims proposed. The top three reported reasons for this are:
 - Early findings or results led to a shift in research focus, which left later aims either unnecessary or impossible
 - Insufficient funding granted by NHMRC to complete all of the aims in their original application
 - Some aspects of the research took longer or were more complicated than originally anticipated
- However, 51% (203/400) reported additional research aims or hypotheses were developed, with over 400 new aims or hypotheses developed.



Australian Government

National Health and Medical Research Council

www.nhmrc.gov.au



Dissemination of results



Dissemination of results

- **73% (292/400) indicated that researchers have undertaken activities to promote awareness of the scientific results arising from their research, including:**
 - 1559 Presentations at conferences
 - 562 Speaker/addresses
 - 353 Poster displays
 - 289 Public presentations
 - 195 Key note addresses
 - 149 Open days
 - 185 Other



Media attention

27% of end of grant reports (109/400) indicated that the research attracted media attention

- From that there have been approximately 944 media stories, articles, interviews or features between 1999 – 2004, including:
 - 325 Newspaper articles
 - 257 Radio interviews
 - 174 Television stories
 - 93 Magazine articles/features
 - 49 Internet website articles
 - 46 Other media (local newsletters, promotional events)
- For each grant that attracted media attention, there was an average of 8.6 media features either in newspapers, magazines, radio, television or other media during 1999 - 2004



International media attention

- 17 end of grant reports indicated international media attention, resulting in approximately:
 - 8 international newspaper articles
 - 17 international TV stories
 - 10 international radio features
- Countries where these stories were shown include the United States, the UK, Canada and the Czech Republic.



Australian Government

National Health and Medical Research Council

www.nhmrc.gov.au



Collaborations

70% of end of grant reports (278/400) indicated that the research involved collaborations



Collaborations

Number of awards involving collaborations:

• National (PMF target is 40%)	213 of 400	53%
• International (PMF target is 30%)	185 of 400	46%
• Total	278 of 400	70%

Total number of collaborations:

• National	491	56%
• International	367	42%
• Data not collected	21	2%
• Total	879	100%



Collaborations

Total funding leveraged:

• National	\$43,161,113	47%
• International	\$49,493,917	53%
• Total	\$92,655,030	100%

\$92.6m leveraged funding is a 55% return on the initial \$168.3m investment



International Collaborations

Collaboration type	Number of collaborations	Amount leveraged
Industry	47	\$ 18,735,323
Federal Government policy makers	3	\$ 10,055,000
International bodies (WHO etc)	19	\$ 7,186,124
Government research funding	14	\$ 5,732,000
Philanthropic funding organisations (eg Wellcome)	15	\$ 4,532,565
Academic Institutions	189	\$ 1,601,178
Consumer or patient support groups	1	\$ 823,682
Non government organisations	3	\$ 476,245
Medical Research Institutes	49	\$ 300,200
Other	27	\$ 51,600
Grand Total	367	\$ 49,493,917





International Collaborations

185 out of 400 awards involve international collaboration (46%)

Country Number of Collaborations

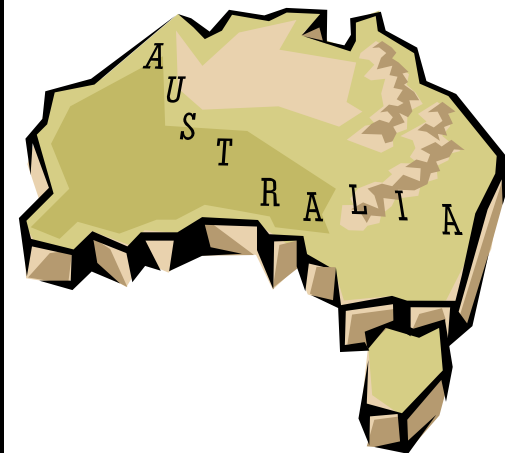
• USA	141	38%
• UK	40	11%
• Germany	25	7%
• Canada	18	5%
• France	14	4%
• Switzerland	12	3%
• Japan	11	3%
• The Netherlands	10	3%
• New Zealand	8	2%
• China	8	2%
• Denmark	6	2%
• Sweden	5	1%
• Other	33	9%
• Unspecified	37	10%
• Total International	368	100%





National Collaborations

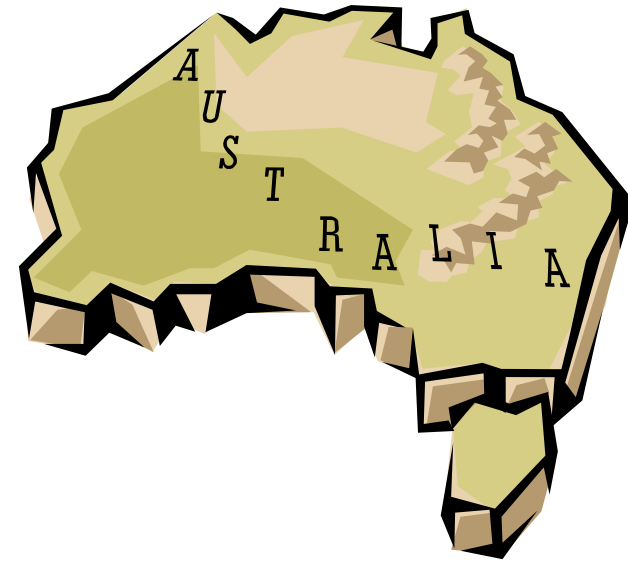
Collaboration type	Number of collaborations	Amount leveraged
Industry	35	\$ 11,047,300
Government research funding	35	\$ 9,400,377
Federal Government policy makers	4	\$ 3,545,086
Academic Institutions	179	\$ 3,496,172
Philanthropic funding organisations	27	\$ 3,267,155
Clinicians	27	\$ 3,125,000
CRCs	6	\$ 2,433,348
Hospitals and Health Centres	39	\$ 2,411,000
Medical Research Institutes	96	\$ 2,224,500
Non government organisations	18	\$ 867,057
State Government policy makers	5	\$ 552,118
Professional Bodies	4	\$ 405,000
Consumer or patient support groups	3	\$ 292,000
Other	13	\$ 95,000
Grand Total	491	\$ 43,161,113





National Collaborations

- 213 out of 400 awards involve national collaboration (53%)
- Number of collaborations in the **same state** as the administering institute:
306 (62%) \$26,695,040
- Number of **interstate** collaborations:
116 (24%) \$12,117,645
- Unspecified: 69 (14%) \$4,348,428
- **Total national: 491** \$43,161,113





All Collaborations

All collaborations by NHMRC grant type

Grant Type	# of grants	# involving collaborations	% of grants involving collaborations	Total # of collaborations	Collaborations per grant	Total amount leveraged
Project Grants	293	201	69%	530	2.6	\$ 39,107,046
Research Fellowships	53	38	72%	176	4.6	\$ 29,830,498
Program Grants	7	7	100%	57	8.1	\$ 15,367,707
Training Awards	32	21	66%	90	4.3	\$ 2,908,655
Strategic Awards (incl SRDC)	14	10	71%	25	2.5	\$ 5,441,124
Career Development Awards	1	1	100%	1	1.0	\$ -
Grand Total	400	278	70%	879	3.2	\$ 92,655,030



All Collaborations

All collaborations by new / intended

- **New means - the collaboration was formed during the course of the award.**
- **Intended means - the collaboration was planned at the time of application.**

New / Intended	Number of collaborations		Total amount Leveraged	
	#	%	\$	%
New	333	38%	\$ 30,442,903	33%
Intended	431	49%	\$ 47,723,161	52%
Not answered	115	13%	\$ 14,488,966	16%
Grand Total	879	100%	\$ 92,655,030	100%



Collaborations – In Kind

Of the 879 collaborations, 350 (40%) were reported to be some “In Kind” benefit.

Some of the most reported benefits were provision of, or access to:

- Personnel, or salary support
- Materials (chemicals, cell lines, antibodies, tissue etc)
- Equipment
- Facilities
- Animals, or animal models
- Data, studies or analysis
- Shared knowledge / Intellectual input / technical expertise
- New networks
- Reagents
- IP, or shared patents



Australian Government

National Health and Medical Research Council

www.nhmrc.gov.au



Research Training



Research Training

- 75% of end of grant reports (301/400) indicated that post graduate students contributed to their research.
- 737 post graduate students contributed overall, with 1074 joint submissions for publication
- 62% (252/400) reported that post doctoral researchers contributed to the research.
- 562 post doctoral researchers contributed overall, with 1020 joint submissions for publication
- 493 associated higher degree completions were reported
- 364 higher degree students with degree not yet awarded were also associated with these grants



Attracting Post Graduate or Post Doctoral researchers

52% of end of grant reports (208/400) indicated that post graduate or post doctoral researchers had been attracted to the institution. The total number attracted was 333.

Number attracted from within Australia: 143

- Same state (96)
- Interstate (32)
- Unspecified (15)

Number attracted from overseas: 121

- | | | |
|-------------------|--------------------|--------------|
| ➤ UK (21) | Germany (16) | USA (15) |
| ➤ China (9) | New Zealand (8) | Japan (6) |
| ➤ Switzerland (6) | France (5) | Canada (5) |
| ➤ Sweden (3) | Indonesia (3) | Spain (3) |
| ➤ Thailand (2) | Czech Republic (2) | Malaysia (2) |
| ➤ Brazil (2) | Finland (2) | Other (11) |

Unspecified: 69



Australian Government

National Health and Medical Research Council

www.nhmrc.gov.au



Researchers returned to Australia

- A reported **27** Australian researchers who were working overseas have returned to Australia as a result of these 400 awards. They returned from: the UK (11), the USA (9), Canada (1), China (1), Germany (1), Israel (1), New Zealand (1), Singapore (1) and Sweden (1).



Australian Government

National Health and Medical Research Council

www.nhmrc.gov.au



Access to External Infrastructure



Access to external infrastructure

36% of Chief Investigators (143/400) reported that they required access to external expertise, services, equipment, facilities or other infrastructure

Responses for the types of infrastructure used were extremely varied. The most commonly reported equipment and facilities required were:

EQUIPMENT

Mass spectrometer, Electron microscopy, Micro array facilities

FACILITIES

Animal facilities (various), Australian Genomics Research Facility
Australian Phenomics Facility, Synchrotron, Australian Stem Cell Centre



Access to external infrastructure

Examples of responses to the question - **Please comment on the cost, including financier?**

FINANCE (74 comments)

Costs covered or not required due to collaboration	43	58%
Paid out of the grant budget	14	19%
Service/equipment provided free of charge	7	10%
Covered by the institute / university	5	7%
Paid with non-NHMRC grant funds	4	5%
Paid for personally by the CIA	1	1%

COSTS (23 comments)

Expensive / substantial	9	39%
Reasonable	11	48%
Minimal	3	13%



Access to external infrastructure

Examples of the responses to the question - Please comment on the ease of access, quality and location

ACCESS (42 comments)

Good	27	64%
Reasonable	10	24%
Poor	5	12%

QUALITY (27 comments)

Outstanding	3	11%
Good	14	52%
Poor	7	26%
Variable	3	11%

LOCATION (162 comments)

Within Australia	110	68%
International	52	32%



Australian Government

National Health and Medical Research Council

www.nhmrc.gov.au



Infrastructure not available in Australia

11% of Chief Investigators (42/400) reported that their research may have benefited by access to expertise, services, equipment, facilities or any other infrastructure not available in Australia.



Australian Government

National Health and Medical Research Council

www.nhmrc.gov.au



Ethics



Ethics comments

Please provide comment on useful approaches, impediments or concerns with matters related to ethics, including the process of obtaining ethics clearances (human or animal)

- **29% (115/400) of respondents provided comments that can be broadly put into two categories:**
 - 52% Current ethics processes are satisfactory
 - 48% Current ethics processes need improvement
- Many reported difficulties gaining approvals at more than one institution, or when changing institution.
- Note - The National Ethics Application Form, which is now available online, is expected to overcome some of these problems.



Australian Government

National Health and Medical Research Council

www.nhmrc.gov.au



Commercialisation



Commercialisation

28% (111/400) had results with commercial potential

Commercial actions arising*:

➤ Commercial potential still being tested or explored	15
➤ Development of scientific service(s)	7
➤ Development of therapeutic value	18
➤ Interest from commercial party	19
➤ Interest from the institutions commercial arm	11
➤ Joint ventures with commercial interests	14
➤ Knowledge gained used to support patent application	3
➤ Patents assigned or licensed	21
➤ Revenue generated from royalties	3
➤ Sales in products and therapies	1
➤ Start up company formed	12
➤ Successful clinical trials	4

*Some respondents selected more than one option



Commercialisation

To the question - **This research is likely to lead to FUTURE commercial outcomes?:**

Strongly agree	46	12%
Agree	116	29%
Undecided	92	23%
Disagree	67	17%
Strongly disagree	18	5%
Not answered	61	15%
Total	400	100%

41% agree that their research is likely to lead to future commercial outcomes



Commercialisation

Development Grants

17 of the 18 development grants included in this sample answered 'Yes' to commercial potential.

Commercial actions arising from development grants:

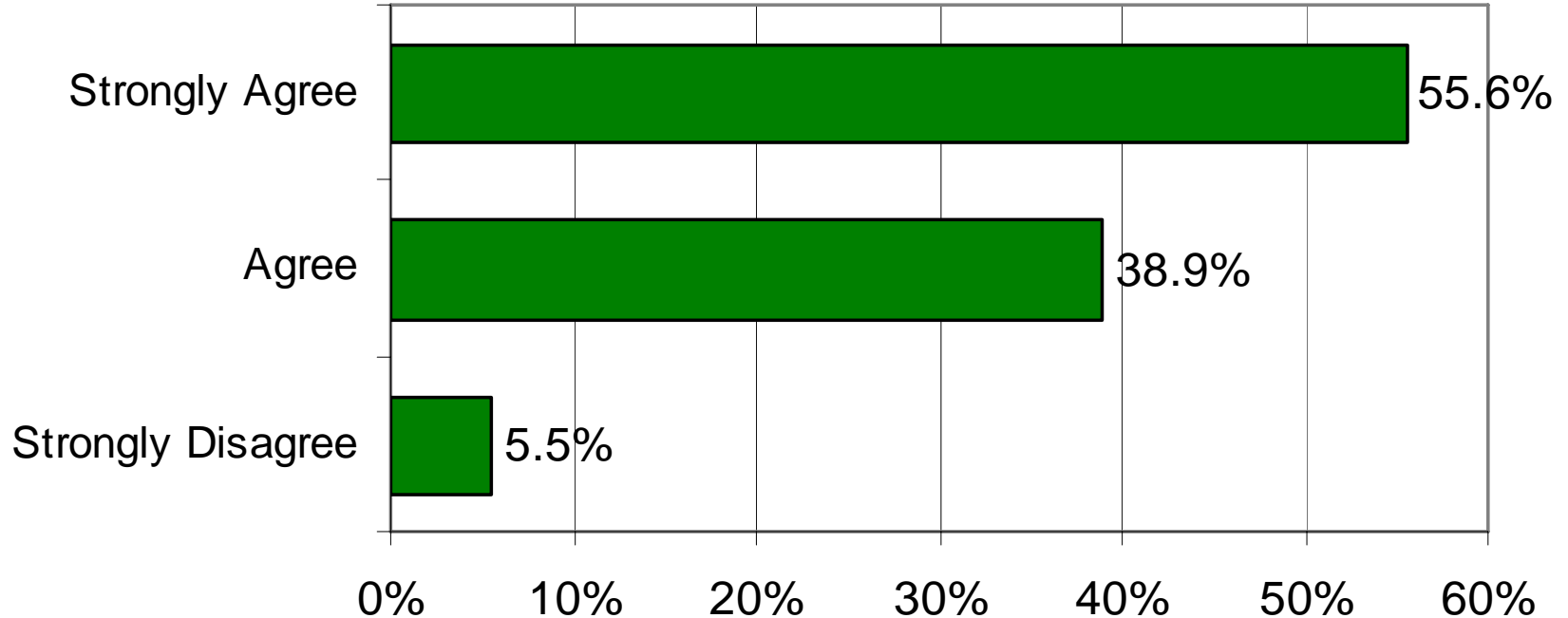
Attracted funding for clinical trials	1
Commercial potential still being tested or explored	3
Development of therapeutic value	4
Interest from commercial party	3
Patents assigned or licensed	3
Start up company formed	2
Successful blind studies	1



Commercialisation

Development Grants - This research is likely to lead to **FUTURE** commercial outcomes?

Development grants future commercial potential





Australian Government

National Health and Medical Research Council

www.nhmrc.gov.au



Intellectual Property and Patents



Intellectual Property

- **23% OF Chief Investigators (91/400) reported that their research award resulted in the development of Intellectual Property (IP). Of that:**
 - 80 awards resulted in at least one patent
 - 159 patents were generated overall
 - 33 of which have been utilised
 - 7 awards resulted in copyrights
 - 1 award resulted in a Trade Mark
 - 3 awards reported the development of other unspecified intellectual property.



Patents

Number of patents arising:

Patent Type	Granted	Lapsed	Pending	Data not provided	Grand Total
Australian	5	3	2	6	16
International	19	2	18	8	47
PCT	11	2	33	4	50
Provisional	6	2	23	12	43
Data not provided			1	2	3
Grand Total	41	9	77	32	159



Australian Government

National Health and Medical Research Council

www.nhmrc.gov.au

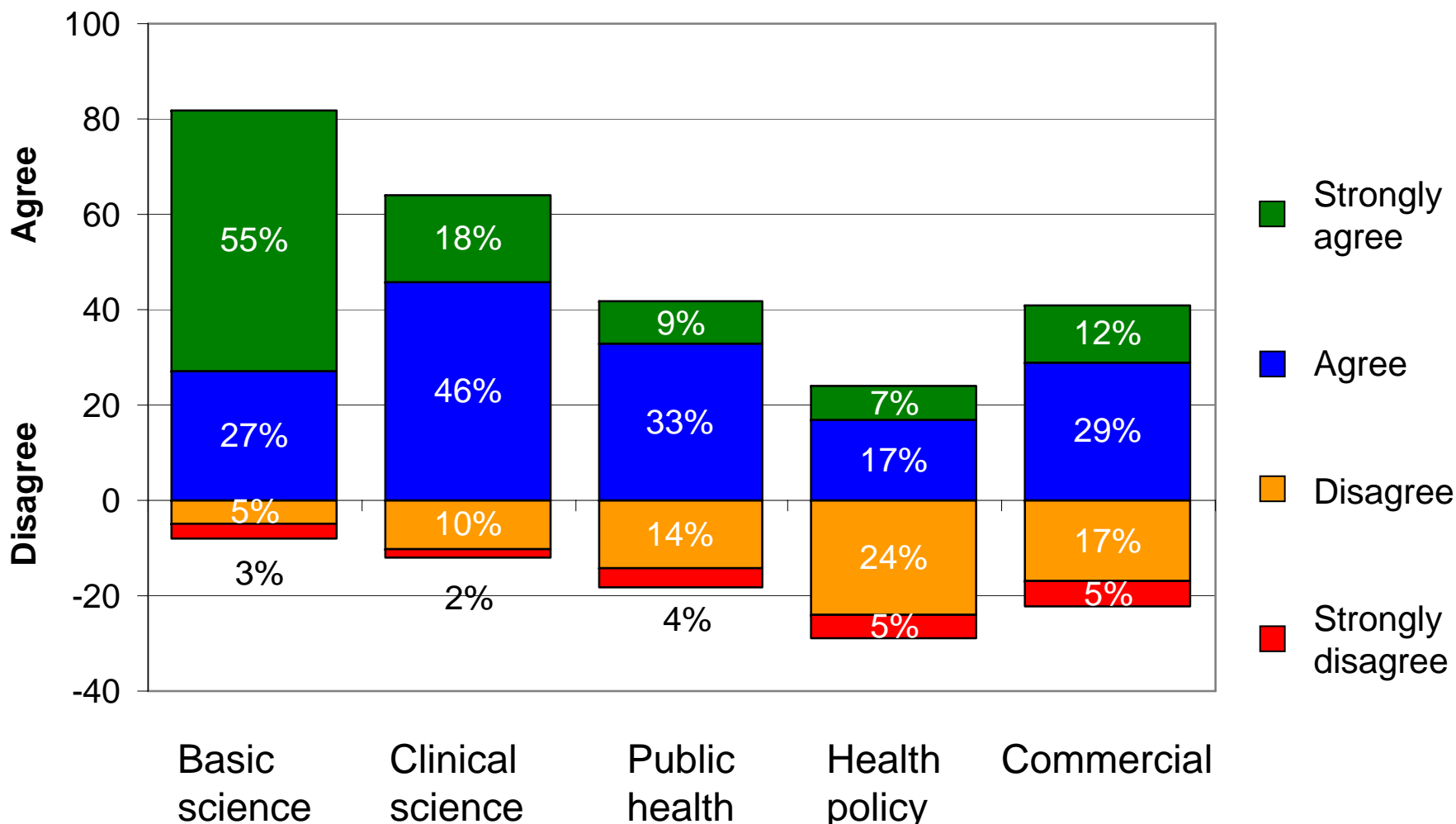


Future outcomes



Expected Future Outcomes

This research is likely to lead to **FUTURE** outcomes in:





Australian Government

National Health and Medical Research Council

www.nhmrc.gov.au



Publications



Publications

Based on the data extracted from the 400 end of grant reports included in this sample:

- 4215 publications were produced including:
 - 29 Books
 - 382 Book Chapters
 - 3804 Journal Articles
- In addition, 1616 conference publications were reported
- 51 grants indicated no publications, however it is not the primary intention of all funding schemes included in this sample to produce publications



Publications

Published academic output to date from NHMRC grants ending in 2004

Unit Type	Number of awards	Total budget	Number of publications	Outputs per grant
Program Grants	7	\$ 35,462,188	610	87.1
Research Fellowships	53	\$ 22,254,119	1660	31.3
Career Development Awards	1	\$ 248,750	14	14.0
Training Awards	32	\$ 9,332,114	343	10.7
Project Grants	293	\$ 97,324,887	1564	5.3
Strategic Awards (incl SRDC)	14	\$ 3,708,669	24	1.7
Grand Total	400	\$ 168,330,727	4215	10.5

Includes only “published” or “in press” publications as reported in final reports submitted within six months of the research project being completed. Includes books, book chapters and journal articles.



Australian Government

National Health and Medical Research Council

www.nhmrc.gov.au



Workforce



Workforce

- Approximately 600 full time and 260 part time personnel were directly supported in 2004 by these 400 awards
- 85% (340/400) indicated that either postgraduate students or postdoctoral researchers contributed to their research, with:
 - 737 post graduate students
 - 562 post doctoral researchers contributing
- 493 higher degree completions were reported
- At least 27 Australian researchers who were working overseas were attracted back to Australia



Australian Government

National Health and Medical Research Council

www.nhmrc.gov.au



Continuation of research



Continuation of Research

- 31% of the research awards (125/400) were a continuation from previous NHMRC funded research
- 42% of Chief Investigators (168/400) indicated that their research, or elements of it, has continued to be funded. Of that, the funding source is:

■	NHMRC	130	77%
■	Non NHMRC	38	23%

