AUSTRALIAN MEDICAL RESEARCH INSTITUTES – THE AAMRI REPORT 2020

aamri
Association of Australian
Medical Research Institutes

Association of Australian Medical Research Institutes Member Report

ABOUT AAMRI

The Association of Australian Medical Research Institutes (AAMRI) is the national peak body for medical research institutes. Our mission is to achieve positive outcomes for health and medical research in Australia. Our role is to represent organisations with a central focus on health and medical research through advocacy, information provision, relationship building and member services.

AAMRI represents 57 member organisations across Australia with a central focus on health and medical research. Our members include 42 independent medical research institutes as well as 15 university- and hospital-based institutes.

AAMRI's medical research institutes work on a broad spectrum of human health issues such as preventative health, chronic disease, mental health, immunology and Indigenous health. Their research ranges from fundamental biomedical discovery through to clinical research and the translation of research findings. Together, they aim to drive innovation in healthcare to improve the lives and livelihoods of people in Australia and globally.

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Cover: Telethon Kids Institute, Garvan Institute, South Australian Health and Medical Research Institute, Burnet Institute

Institute for Glycomics, Hudson Institute of Medical Research, Translational Research Institute (TRI), Florey Institute of Neuroscience and Mental Health

AAMRI'S MEMBERS: 57 MEDICAL RESEARCH INSTITUTES IN 2020

AAMRI has welcomed eight new members since the 2018 report: Doherty Institute (VIC), Institute for Glycomics (QLD), Griffith Institute for Drug Discovery (QLD), Asbestos Disease Research institute (NSW), Ear Science Institute Australia (WA), Turner Institute for Brain & Mental Health (VIC), Perron Institute (WA) and Illawarra Health and Medical Research Institute (NSW).

INTRODUCTION FROM PROFESSOR JONATHAN CARAPETIS AM, AAMRI PRESIDENT

Welcome to the 2020 AAMRI Member Report, a unique opportunity for us as a sector to benchmark and demonstrate the impact we have.

The collection and analysis of data for this report is completed every second year by AAMRI and involves many people from right across all our member institutes. I want to thank you all for taking the time to assist us in completing this critical piece of work.

In this year's report, we provide a snapshot of the medical research institute sector's ***workforce, revenue and expenditure, funding the full cost of research and research translation***.

As you navigate the report you will see we have viewed the data through the lens of our new COVID-19 world. Although the data collection was completed prior to COVID-19 entering Australia in large numbers, we are all acutely aware that our sector, and Australia, will not look the same again for some time to come. Therefore, we have taken this opportunity to create a pre-pandemic snapshot while also providing commentary on our current situation in 2020.

I know that 2020 has been a challenging year for everyone. Medical research institutes, their staff and their students are no exception. Through these difficult times it has been heartening to see the collaboration, sharing of information and support coming from AAMRI's member institutes.

Medical Research Institutes in 2020

Early evidence suggests that the impact of the pandemic on medical research institutes and medical researchers has been mixed. Economically, the impact has caused a severe drop in fundraising and commercial income, while government grants remain stable.

For research, the pandemic has delayed or halted many projects yet also demonstrated the agility and versatility of the medical research sector to respond to the health needs of the nation. Once the pandemic broke, medical research institutes across Australia immediately established new research projects to fight COVID-19. Within just two months around 100 new COVID-19 research projects were underway[1].

As we move into a new and very different world, we will be able to use this information to see where we have come from and map out our plans for the future.

1 AAMRI (2020) *COVID-19 Medical Research around Australia.* Available at: https://aamri.org.au/health-medical-research/covid-19-medical-research/

AUSTRALIA'S MEDICAL RESEARCH INSTITUTES: WHO THEY ARE AND WHAT THEY DO

Medical research institutes are unique research organisations that:

WORKFORCE

Centre for Eye Research Australia

THE MEDICAL RESEARCH INSTITUTE WORKFORCE IS DYNAMIC AND COMMITTED TO IMPROVING HEALTH OUTCOMES

- Medical research institutes bring together researchers, corporate leadership and support staff into a diverse and exciting workplace of professionals who are committed to medical research and improving human health.
- Research staff and students are supported by professional services teams with a diverse set of skills who contribute to this goal in areas such as business development, education, information technology, finances, and people and culture (human resources).

RESEARCHERS ARE 60% OF THE MEDICAL RESEARCH INSTITUTE WORKFORCE

41%
Research staff

Researchers of all career stages including junior postdoctoral staff to mid-career scientists through to senior medical researchers

19%
Research students

PhD and research Masters students (higher degree research students)

18%
Corporate and support staff

Professional staff in medical research institute services such as people and culture (human resources), IT, finance, business development

Executive staff

22%
Other staff and students

International staff and students

Visiting staff, including researchers and clinician-researchers

Undergraduate students on short-term research placements

RESEARCHERS ARE **60%** OF THE WORKFORCE

IMPACT OF THE COVID-19 PANDEMIC ON THE MEDICAL RESEARCH INSTITUTE WORKFORCE

The COVID-19 pandemic has already started to impact researchers and other staff within the sector.

Early observations on the broader research workforce have identified three different groups that are already being disproportionally impacted:

- **Early and mid-career researchers** – EMCRs are the next generation of research leaders. There is already a dearth of opportunities for those at the mid-career level and philanthropy has been an important funder. Falling philanthropy revenue caused by COVID-19 is likely to lead to reduced opportunities for this critical cohort.
- **Women researchers** – Women are carrying a greater share of caring responsibilities during the pandemic, particularly when isolating at home, reducing time available to undertake their work. Early evidence is showing that submissions to scientific journals by women is already down compared to men[2]. This will impact on their track record which is essential for advancing research careers.
- **International research staff** – While Australia's borders are closed, migration to Australia is not an option. This severely impacts Australia's participation in the global research community through exchange of talent.

2 Flaherty, C. (2020) *No Room of One's Own: Early journal submission data suggest COVID-19 is tanking women's research* productivity. Inside Higher Ed, April 21, available at: https://www.insidehighered.com/news/2020/04/21/early-journal-submission-data-suggest-covid-19-tanking-womens-research-productivity

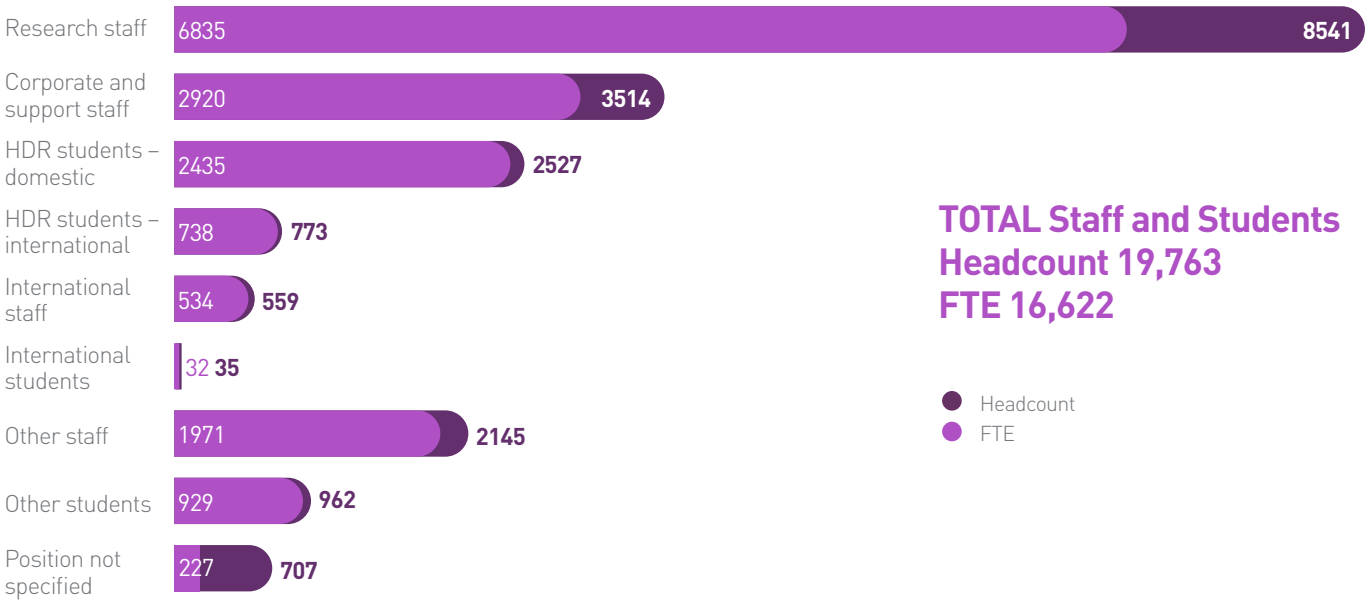
AUSTRALIA'S MEDICAL RESEARCH INSTITUTE SECTOR HAS NEARLY 20,000 STAFF AND STUDENTS, INCLUDING 11,841 RESEARCHERS.

60% of the total workforce are researchers, with higher degree research students making up 32% of the research workforce.

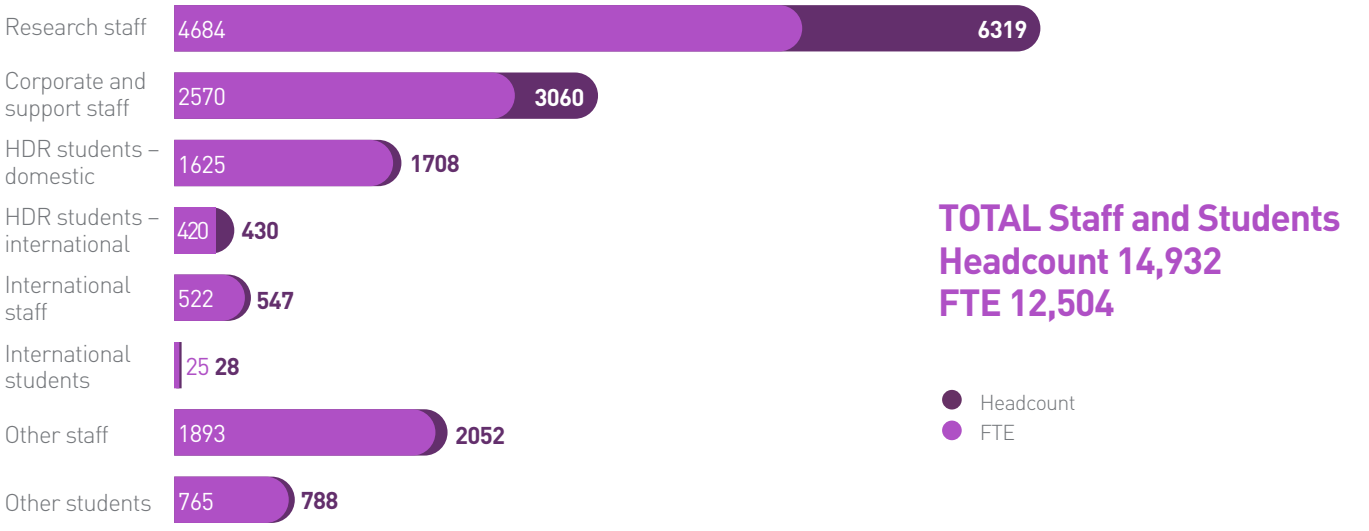
Three quarters (76%) of the medical research institute workforce are staff and students at independent medical research institutes.

The medical research institute workforce at 1 July, 2019, by personnel category[3].

AAMRI Members



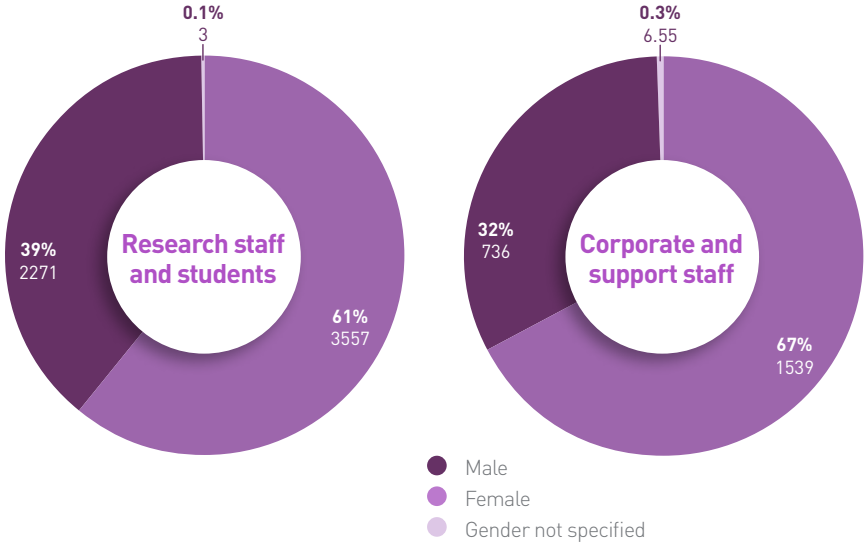
Independent Medical Research Institutes



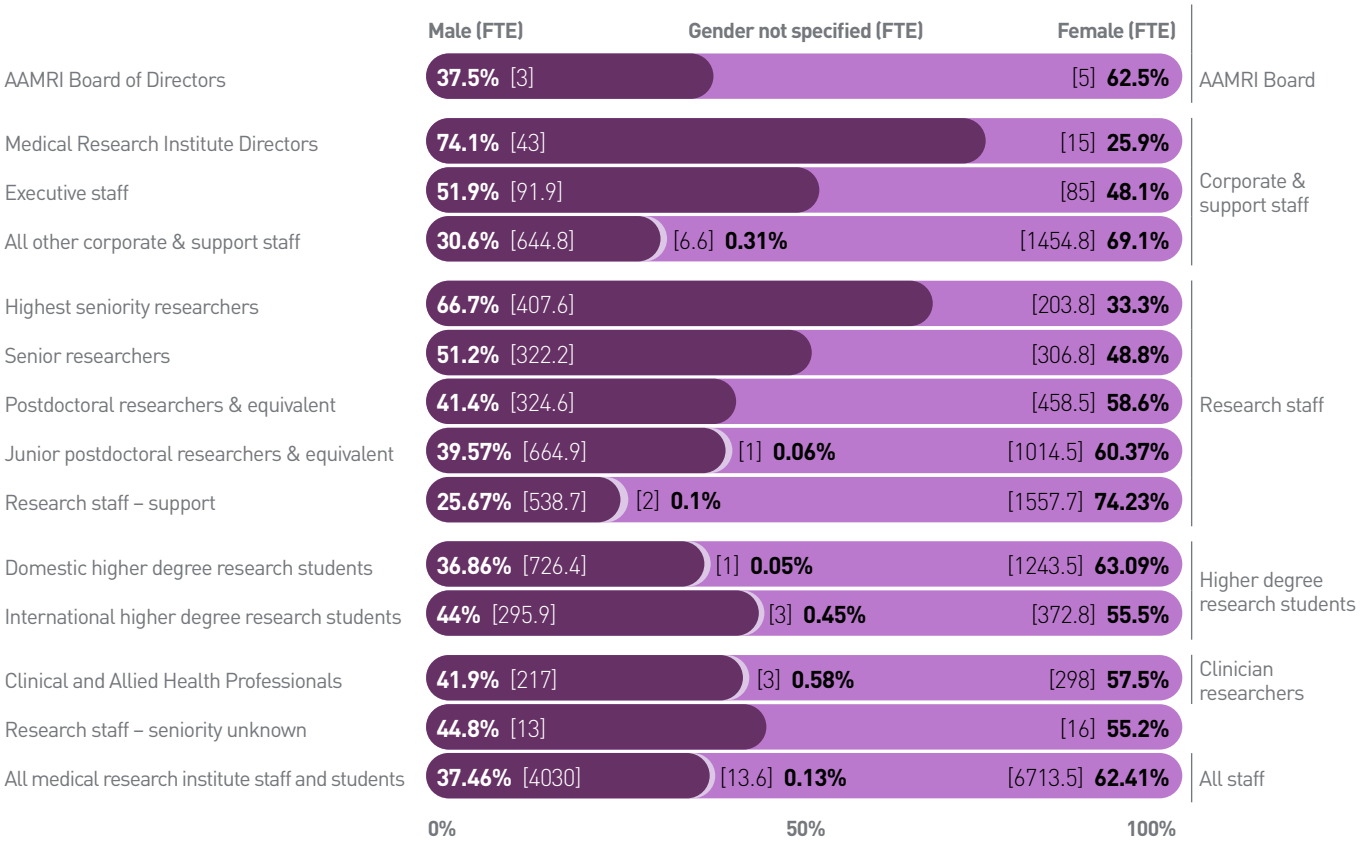
3 AAMRI data includes 56 (of 56) institutes by headcount or full time equivalent (FTE), as indicated. Definitions of workforce categories are given in page 31 to 32. "Researchers" includes Research Staff and Higher Degree Research Students, which is likely to be a conservative estimate as there may be staff or students in the categories "International staff, International students, Other Staff and Other Students" who are researchers.

GENDER EQUALITY AND THE MEDICAL RESEARCH INSTITUTE WORKFORCE

OVER 60% OF THE MEDICAL RESEARCH INSTITUTE WORKFORCE ARE WOMEN[4,5] AND 59% OF SENIOR POSITIONS AT MEDICAL RESEARCH INSTITUTES ARE HELD BY MEN[6]



Women hold the majority of postdoctoral and research support positions[7]. Five of the eight AAMRI Board Director positions are held by women.



4 Staff data includes 44 (of 56) institutes; higher degree research student data includes 43 (of 56) institutes.

5 "Senior positions" includes medical research institute Directors, Executive Staff, Highest Seniority Researchers, and Senior Researchers; Medical Research Institute Directors, by headcount; Executive Staff, Highest Seniority Researchers and Senior Researchers, by FTE.

6 Staff data includes 44 (of 56) institutes; higher degree research student data includes 43 (of 56) institutes. *indicates headcount, ^as at 28 November 2019.

7 By FTE. Women make up 60% of Junior Postdoctoral Researchers & Equivalent and 59% of Postdoctoral Researchers & Equivalent. Women make up 74% of Research Staff – Support (non academic) positions.

REVENUE & EXPENDITURE

Murdoch Children's Research Institute

MEDICAL RESEARCH INSTITUTE REVENUE COMES FROM A RANGE OF SOURCES

Depending on the source, revenue may be associated with certain conditions that restricts how it is spent. Narrow criteria for eligible expenditure on research grant income has driven research organisations to seek diverse sources of income to support and fully fund research.

Philanthropy is a vital component of medical research institute sector revenue as it provides more discretionary funding which can be invested in developing new and innovative blue-sky research projects that may not yet be competitive for larger government grant schemes. It can also be invested in institute activities that are vital to support and translate research to new drugs, devices and technologies.

Medical research institutes also generate commercial income through research collaboration with industry and commercialising intellectual property. Most independent institutes are charities and not-for-profit companies who direct this income towards supporting the institute's research and translation activities.

INSTITUTE REVENUE SOURCES

RESEARCH GRANTS	PHILANTHROPY	COMMERCIAL INCOME	OTHER INCOME	INCOME FOR INDIRECT COSTS
Competitive and non-competitive from government & charity sources	Fundraising, bequests, donations		including investments or providing research and clinical services	(from dedicated schemes)

INSTITUTE EXPENDITURE ON RESEARCH

RESEARCH (DIRECT) COSTS INCLUDING RESEARCH STAFF	INDIRECT COSTS OF RESEARCH
Directly related to conducting research	Costs of staff, services, maintenance and facilities that support research activities and translation

IMPACT OF THE COVID-19 PANDEMIC ON MEDICAL RESEARCH INSTITUTE REVENUE

The economic downturn brought on by the response to COVID-19 is causing financial stress for medical research institutes. The extent and timing of the economic impact on each institute is directly linked to where they source their revenue.

- **Philanthropy and donations are in decline.** Face to face fundraising ceased immediately during COVID-19 restrictions and past economic downturns have shown that philanthropic and gift giving revenue usually declines by 20%[8]. Philanthropic funding contributed about one quarter of total sector income in 2018 [9].
- **Commercial income and endowment returns are also in decline.** Broader economic downturn is reducing investment returns and there is likely to be less industry funding available for commercial partnerships. Commercial and investment income contributed almost 20% total sector income in 2018.
- **Government grant funding will drop in the next few years as grants run out.** Grant funding remains stable while the grant is active but new grants must be secured to continue the work. Many researchers whose work has been severely interrupted by COVID-19 restrictions are at risk of being less competitive for future funding.
- **Access to support from the Australian Government's JobKeeper program**[10]. Economic stimulus from the JobKeeper program has been provided to eligible charities and businesses in response to the COVID-19 pandemic. This program will help mitigate the financial impact on some medical research institutes but provides only temporary relief until a longer term solution can be found.

8 Australian Government (2009) *Impact of the economic downturn on not-for-profit organisation management.* Available at: https://www.dss.gov.au/our-responsibilities/communities-and-vulnerable-people/publications-articles/impact-of-the-economic-downturn-on-not-for-profit-organisation-management

9 This includes income from fundraising, donations, bequests and competitive grant income from philanthropic sources (Trusts and Foundations Grants).

10 Australian Government (2020) *JobKeeper Payment* https://www.ato.gov.au/general/jobkeeper-payment/employers/ This scheme is a temporary subsidy for businesses significantly affected by coronavirus (COVID-19).

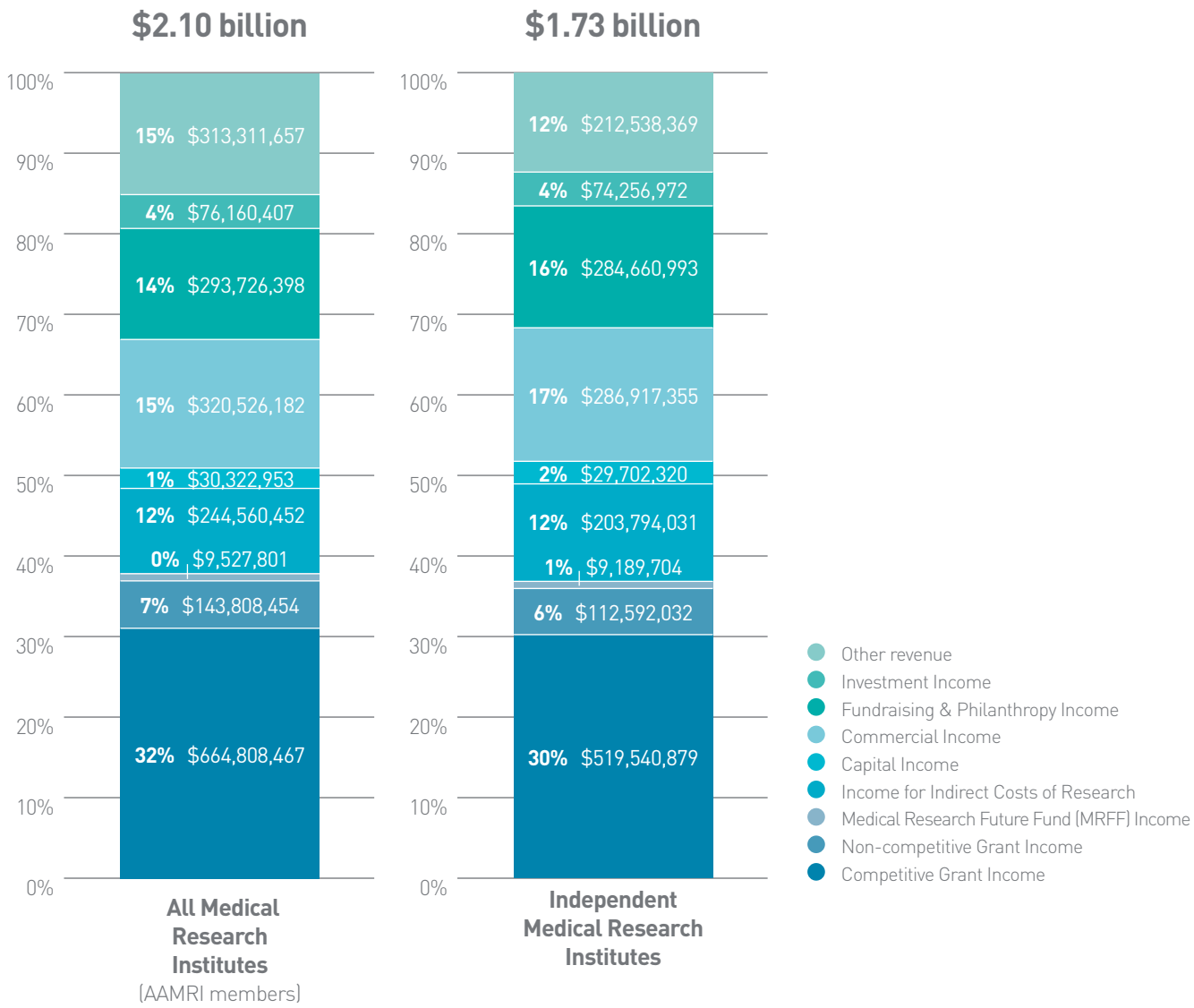
MEDICAL RESEARCH INSTITUTE SECTOR REVENUE IN 2018

THE MEDICAL RESEARCH INSTITUTE SECTOR REVENUE WAS $2.10 BILLION IN 2018.

Independent medical research institutes revenue was $1.73 billion.

Medical research institutes conduct research in a broad range of health areas, funded by a variety of different sources.

Revenue for the medical research institute sector and independent medical research institutes only in 2018, by funding source [11,12]



11 Data includes 49 (of 54) institutes for the medical research institute sector (AAMRI members) and 39 (of 41) independent medical research institutes. Definitions of revenue categories are provided on pages 32 to 33.

12 Please note that Medical Research Future Fund (MRFF) income has been reported for the medical research institute sector for the first time in this report. While it is currently less than 1% of total medical research institute revenue, it is expected that this will increase with the rapid growth of the total MRFF funding pool in the years to follow.

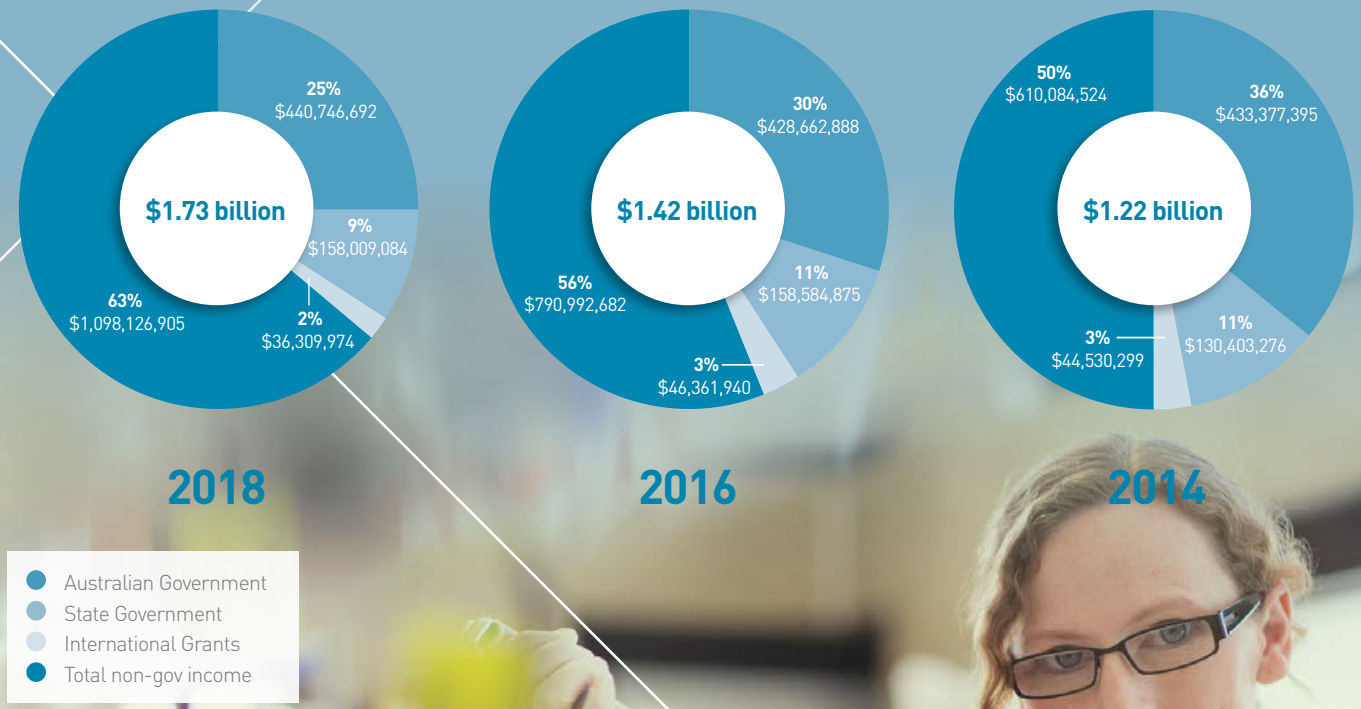
MORE THAN 60% OF TOTAL REVENUE FOR INDEPENDENT MEDICAL RESEARCH INSTITUTES IS FROM NON-GOVERNMENT SOURCES.

There has been a perception for some time that research organisations such as independent medical research institutes are funded primarily from government grants. However, analysis of the sector revenue tells a different story.

Independent medical research institutes have been drawing most of their revenue – now over 60% – from non-government sources for at least four years.

The main sources of non-government revenue are philanthropy and commercial income, contributing about one third of total income. In 2018, this was over $500 million.

Proportion of total independent medical research institute revenue from government sources in 2014, 2016 and 2018[13,14].



Menzies Institute for Medical Research

13 Data includes 39 independent medical research institutes (of 41) in 2018, 36 (of 38) independent medical research institutes in both 2016 and 2014. 2016 and 2014 differ by 1 institute. Please note that for 2018, values total to 99% due to rounding. Values to one decimal place are: Australian Government revenue is 25.4%, State Government revenue is 9.1%, International income is 2.1% and all other non-government revenue is 63.4% = 100%.

14 Includes capital income (% total independent medical research institutes revenue): 2018, 1.7%; 2016, 1.5%; 2014, 2.4%; 2012, none.

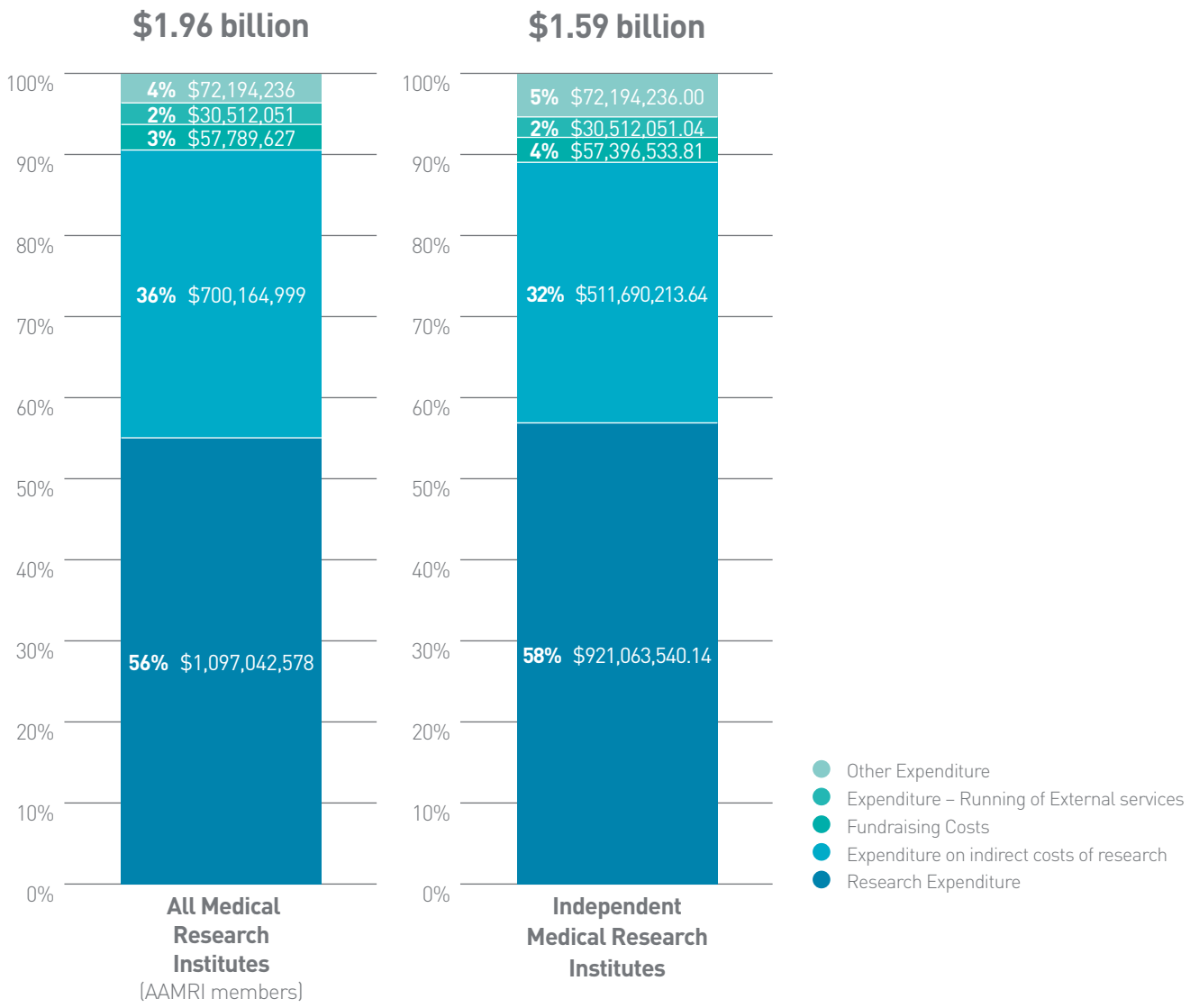
MEDICAL RESEARCH INSTITUTE SECTOR EXPENDITURE IN 2018

IN 2018 TOTAL EXPENDITURE WAS $1.96 BILLION FOR THE MEDICAL RESEARCH INSTITUTE SECTOR.

TOTAL EXPENDITURE FOR THE INDEPENDENT MEDICAL RESEARCH INSTITUTES WAS $1.59 BILLION.

Medical research institutes need to cover the full costs of research including research staff and reagents used in experiments (research or direct costs) as well as operational costs of the institute like electricity, research facilities and services, data management and IT, administration and support services (indirect costs).

Total expenditure for the medical research institute sector in 2018, by activity[15].



15 Data includes 49 (of 54) institutes; independent medical research institutes include 39 (of 41) institutes. Descriptions of expenditure categories are provided on page 35.

THE COST OF HEALTH AND MEDICAL RESEARCH IS RISING

Total expenditure increased for all medical research institutes (17%) and for independent medical research institutes (12%) in two years.

Year	Independent medical research institutes				All medical research institutes (AAMRI members)			
	Institutes	Expenditure – actual	Expenditure – adjusted for inflation	Trend (%)	Institutes	Expenditure – actual	Expenditure – adjusted for inflation	Trend (%)
2016	36	$1,372,260,188	$1,425,778,336	-	43	$1,616,813,051	$1,679,868,760	-
2018	39	$1,592,856,575	$1,592,856,575	12%	49	$1,957,703,490	$1,957,703,490	17%

Olivia Newton-John Cancer Research Institute

FUNDING THE FULL COST OF RESEARCH

South Australian Health and Medical Research Institute

FUNDING THE FULL COSTS OF RESEARCH FOR INDEPENDENT MEDICAL RESEARCH INSTITUTES

FOR EVERY DOLLAR SPENT ON RESEARCH, A FURTHER 56 CENTS IS NEEDED TO COVER THE INDIRECT COSTS OF RESEARCH

To provide the support service and facilities necessary to carry out research, medical research institutes incur substantial expenses. These "indirect costs of research" include operational costs such as building and maintenance costs, administration costs, equipment, data management, IT, HR, commercialisation costs and other core facilities.

THE CHALLENGE OF FUNDING THE FULL COSTS OF RESEARCH

Many funding sources tied to specific activities present ongoing challenges for medical research institutes as they continue to support world-class research. Australian Government grants for medical research only cover around 70% of the direct research costs and provide no support for the indirect costs associated with doing this research.

Indirect costs are partially supported through various dedicated government grant schemes but these fall short – only about 40% of indirect costs are covered. Medical research institutes must seek other funding sources such as philanthropy to bridge this gap. With the Medical Research Future Fund now providing new medical research funding to the sector, there are concerns about the additional pressure this will bring. There is currently no indirect costs support Medical Research Future Fund-funded research undertaken at independent medical research institutes.

IMPACT OF THE COVID-19 PANDEMIC ON FUNDING THE INDIRECT COSTS OF RESEARCH

The financial pressures caused by COVID-19 have placed major sources of indirect costs funding under threat. In the past medical research institutes have been able to bridge the indirect costs funding gap using untied revenue raised from philanthropy, commercial income and endowment returns.

The economic downturn caused by the COVID-19 pandemic has already seen a drop in these three sources of income. This will likely impact on the ability for research organisations to fund the full costs of research.

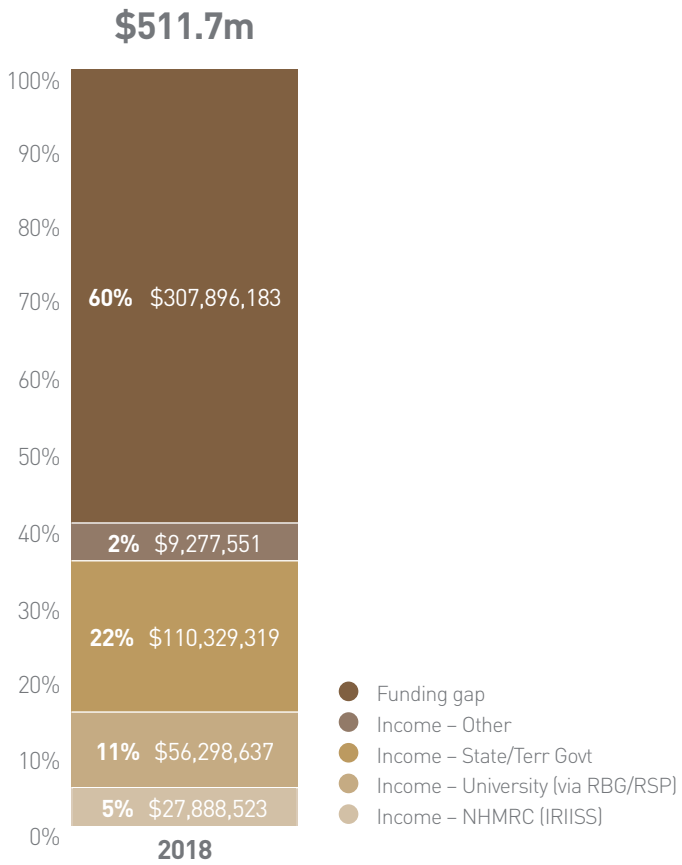
THE FUNDING GAP FOR INDIRECT COSTS IS GROWING

INDEPENDENT MEDICAL RESEARCH INSTITUTES HAD TO COVER A $308 MILLION FUNDING GAP FOR THE INDIRECT COSTS OF RESEARCH IN 2018.

Independent medical research institutes received only 40% of the funding required to cover the indirect costs of research in 2018.

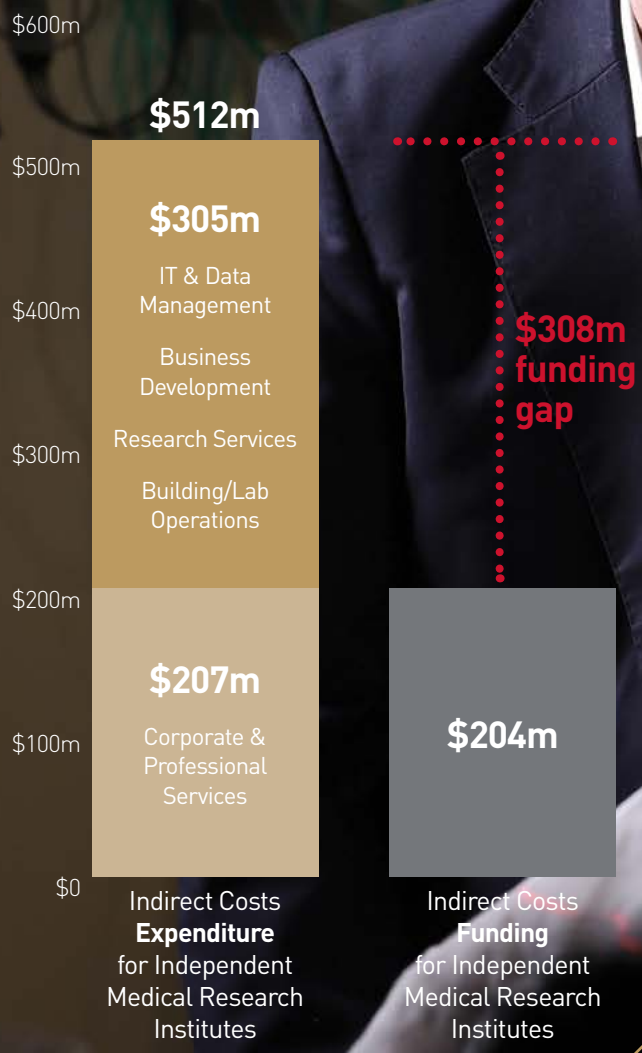
The funding gap for indirect costs in the independent medical research institutes sector has been growing in the last few years. This is most likely from a combination of factors, including increasing costs of doing research and the static levels of funding for indirect costs. While indirect cost expenditure has risen by 15% funding for indirect costs has increased by only 5%.

The funding gap for independent medical research institutes in 2018 ($) [16]



16 Data includes 39 (of 41) institutes. Definitions for each income category are listed on page 32 and expenditure for indirect costs on page 35. Data includes 36 independent medical research institutes for 2014 and 35 independent medical research institutes for 2016.

IN 2018, INDIRECT COSTS FUNDING WAS NOT SUFFICIENT TO COVER ESSENTIAL RESEARCH SUPPORT ACTIVITIES INCLUDING CORE RESEARCH SERVICES, RESEARCH COMMERCIALISATION, IT & DATA MANAGEMENT.



Hunter Medical Research Institute

COMPETITIVE GRANT INCOME FOR THE MEDICAL RESEARCH INSTITUTE SECTOR IN 2018

Research activities at medical research institutes are mostly funded from research grants. About one third of medical research institutes revenue has been from research grants since 2012. Most of these grants are primarily awarded through competitive schemes.

There are several major funding sources for competitive research grants including:

- Large Federal government schemes such as National Health and Medical Research Council (NHMRC) and the Australian Research Council (ARC)
- Smaller funding schemes from state governments and philanthropic sources such as trusts and foundations
- International funding schemes from a variety of sources e.g. large philanthropic organisations such as the Bill and Melinda Gates Foundation, Wellcome Trust.

As the major funder of health and medical research in Australia, the NHMRC grant schemes provide a substantial proportion of medical research institute funding for research projects. More than half of competitive grant income for the medical research institute sector is from NHMRC funding schemes.

A new, major source of funding from medical research is the Medical Research Future Fund (MRFF). MRFF funding for medical research started flowing in 2017 targeting areas of national priority in health, and reached its target of $20 billion in July 2020. It is expected that MRFF will form a more significant proportion of medical research institute income in coming years as more funding is available – over $500 million per year – particularly through competitive schemes.

IMPACT OF THE COVID-19 PANDEMIC ON COMPETITIVE GRANT FUNDING

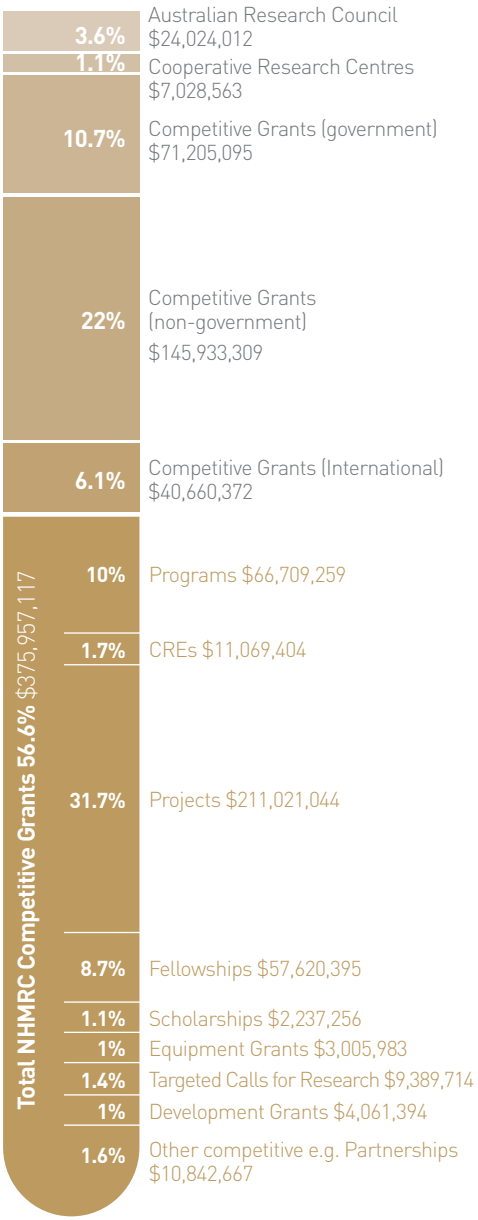
COVID-19 is likely to have an impact on competitive research grant funding in a several ways:

- **Interrupted research means that the track record of many researchers will be disrupted.** Most medical research institutes had to curtail all on-site activity for around ten weeks, with exceptions limited to COVID-19 related research. While some research is resuming on site, activity is still very limited and varies widely across the country. Disruption caused by COVID-19 has been particularly problematic for clinical trials, cohort studies and Aboriginal health research as it has been impossible to recruit and safely work with participants.
- **Philanthropic competitive grants (trusts and foundations) may dry up as the economic downturn from the pandemic takes its toll.**
- **Knock on effect of the pandemic on research collaborations and agreements between universities and medical research institutes.** There could be changes in the agreements that arise given that universities are having to shift their focus and funding strategies amid the pandemic and in anticipation of Australian Government plans to change the way higher education is funded.

MEDICAL RESEARCH INSTITUTES RECEIVED A TOTAL OF $665 MILLION IN COMPETITIVE GRANT INCOME IN 2018.

Nearly half (45%) of the total NHMRC competitive grant funding in 2018 went to medical research institutes ($376 million).

Total competitive funding to the medical research institute sector in 2018, by source[17,18].



17 Data includes 49 (of 54) institutes (39 independent medical research institutes and 10 university-based or hospital-based medical research institutes, joint venture medical research institutes and hubs). Definitions of funding sources are listed on page 34.

18 CRE, Centres of Research Excellence.

MEDICAL RESEARCH FUTURE FUND GRANTS AND FUNDING TO MEDICAL RESEARCH INSTITUTES IN 2018

MRFF research funding started flowing in 2017. The total amount of MRFF funding available has been growing as the MRFF has been building to full capitalisation. Now that the fund has reached its target of $20 billion, it will provide over $500 million per year for medical research. It is expected that MRFF income will be a significant source of competitive grant income for medical research institutes in the future.

The MRFF awards medical research funding in four streams – Patients, Researchers, Research Missions and Research Translation. Funding is directed through several initiatives that aim to address the MRFF Strategy and Priorities in each stream according to the 10 year investment plan[19].

53
grants were awarded to **20 Medical Research Institutes** in 2018

The total value of MRFF grants awarded to Medical Research Institutes in 2018 was
$64 million

MRFF grants and funding awarded to medical research institutes in 2018, by funding initiative[20].

MRFF Stream	MRFF Initiative	Number of grants	MRFF funding received by institutes in 2018	MRFF funding awarded to institutes in 2018
PATIENTS	Clinical Trials Activity	15	$3,111,051	$23,099,249
	Emerging Priorities and Consumer-Driven Research	2	$137,907	$1,053,453
	Global Health	1	$194,965	$1,904,511
RESEARCHERS	Clinician Researchers	13	$1,214,620	$3,752,012
RESEARCH MISSIONS	Australian Brain Cancer Mission	3	$2,002,023	$7,982,038
	Genomic Health Futures Mission	1	-	$20,400,000
RESEARCH TRANSLATION	Medical Research Commercialisation	2	$694,363	$1,624,814
	Preventive & Public Health Research	1	-	$1,237,016
	Rapid Applied Research Translation	15	$2,172,873	$2,897,544
	TOTAL	**53**	**$9,527,801**	**$63,950,637**

19 AMRAB (2016) *Australian Medical Research and Innovation Strategy*, available at: https://www.health.gov.au/resources/publications/australian-medical-research-and-innovation-strategy-2016-2021; AMRAB (2018) *Australian Medical Research and Innovation Priorities*, available at: https://www.health.gov.au/resources/publications/australian-medical-research-and-innovation-priorities-2018-2020; Department of Health (2019) *Medical Research Future Fund 10 year investment plan*, available at: https://www.health.gov.au/resources/publications/medical-research-future-fund-mrff-10-year-investment-plan

20 Descriptions of MRFF Streams and Initiatives are available at: https://www.health.gov.au/resources/publications/medical-research-future-fund-mrff-10-year-investment-plan

RESEARCH TRANSLATION

Perron Institute

TRANSLATING RESEARCH DISCOVERIES INTO HEALTH OUTCOMES

The research at Australian medical research institutes ranges from fundamental to translational research, providing unique opportunities to translate discoveries into practical health and economic outcomes. Medical research institutes translate their research discoveries through both non-commercial and commercial pathways into changes to clinical guidelines, policy and practice, new therapies, devices, diagnostics – in pursuit of improving human health.

Medical research institutes engage in activities across the research innovation pipeline

- Generating **novel intellectual property (IP)** through research discoveries.
- **Protection of IP** that has commercial potential, be that a product, technology, or process.
- Leveraging intellectual capital by **establishing spin-out companies** or **licensing IP** to commercial or government entities.
- Generating an evidence base for improvements in **clinical policy, guidelines and practice**.

To catalyse commercialisation and translation, medical research institutes engage with industry throughout the innovation pipeline.

IMPACT OF THE COVID-19 PANDEMIC ON RESEARCH TRANSLATION AND COMMERCIALISATION

Early indications are that there are both new challenges and opportunities for research commercialisation and industry engagement presented by the COVID-19 pandemic. While commercial income is declining, the immense research effort to find a vaccine, diagnostics, treatments and better patient care for COVID-19 to fight the virus has shown us a path to overcoming some of the existing barriers to translation.

Forming collaborations with industry and research organisations early in the research process, assisted by government investment, has been accelerated during the pandemic to speed up delivery of the final product. The benefits of these partnerships, including an increase in local manufacturing has the potential to bring positive financial outcomes in medical research, the broader medical technology and pharmaceuticals sector, as well as faster health outcomes for the population.

Full impact of COVID-19 is not yet known

Continuing decline in commercial deals, contracts and income is likely

Rapid research translation in response to the COVID-19 crisis has shown we can reduce barriers

Low levels of COVID-19 in Australia could make it a world destination for clinical trials

RESEARCH TRANSLATION IN THE MEDICAL RESEARCH INSTITUTE SECTOR

In 2018, medical research institutes were engaged in activities across the research innovation and commercialisation pipeline.

KNOWLEDGE CREATION

14 institutes were awarded grants to advance commercialisation of their research discoveries

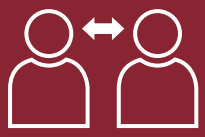
PROTECTING INTELLECTUAL PROPERTY

112 provisional patents filed

106 national phase patents filed

78 patents awarded

TECHNOLOGY TRANSFER



10 new spin-out companies from 8 institutes

323 active licences, options and assignments (LOAs)

CLINICAL ASSESSMENT

Medical research institutes were involved in a total of **1329** clinical trials

ENGAGING INDUSTRY

11 institutes reported significant commercial deals with industry

665 clinical trials established through research-industry collaborations

COMMERCIAL VALUE AND RETURNS

Industry collaborations and partnerships generated

$70.3 million commercial revenue from research intellectual property

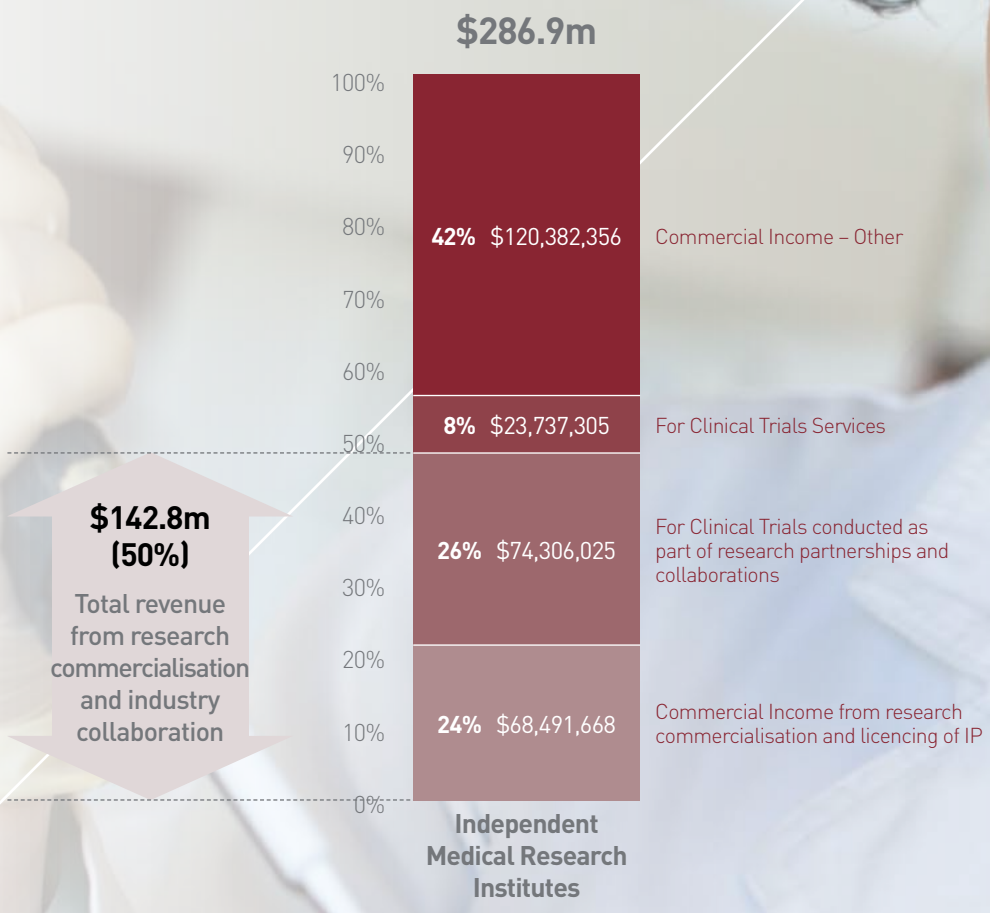
$24.1 million generated from licences, options and assignments from 24 institutes

$98.5 million in commercial revenue for clinical trials

INDEPENDENT MEDICAL RESEARCH INSTITUTES HAD $290 MILLION IN COMMERCIAL REVENUE IN 2018

36 independent institutes reported total commercial income ranging from $15k to almost $50m per institute.

Commercial revenue for Australian independent medical research institutes in 2018[21].



Asbestos Disease Research Institute

21 Data includes 39 (of 41) independent medical research institutes. Only 3 (of 39) independent medical research institutes reported zero commercial income (two independent medical research institutes did not provide data in the 2019 survey).

10 NEW SPIN-OUT COMPANIES WERE ESTABLISHED FROM DISCOVERIES AND TECHNOLOGIES DEVELOPED AT EIGHT MEDICAL RESEARCH INSTITUTES IN 2018

MEDICAL DEVICES
that monitor seizure activity and frequency over an extended period to improve management of the condition.

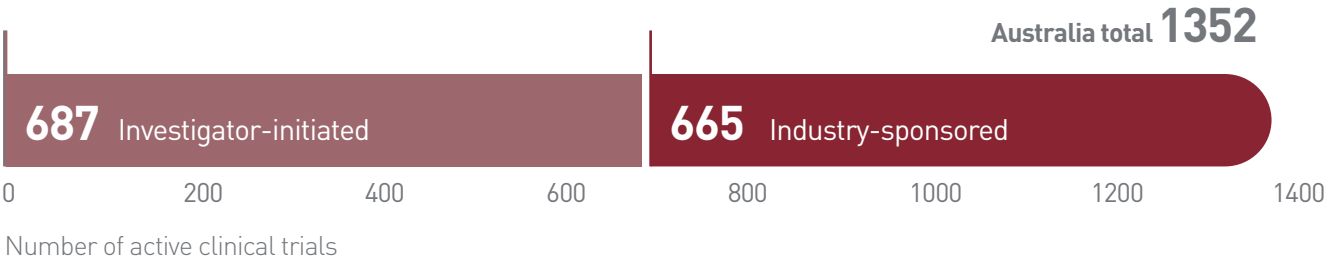
NEW THERAPIES
for treatment of fibrosis, inflammatory disease, lung disease, and conditions associated with cancer.

NON-INVASIVE DIAGNOSTICS
to diagnose neurological disease using cutting-edge imaging technologies.

MANAGEMENT OF PATIENT CARE
by integrating cutting-edge AI, data science, and genomics into patient engagement, information collection, and data analysis.

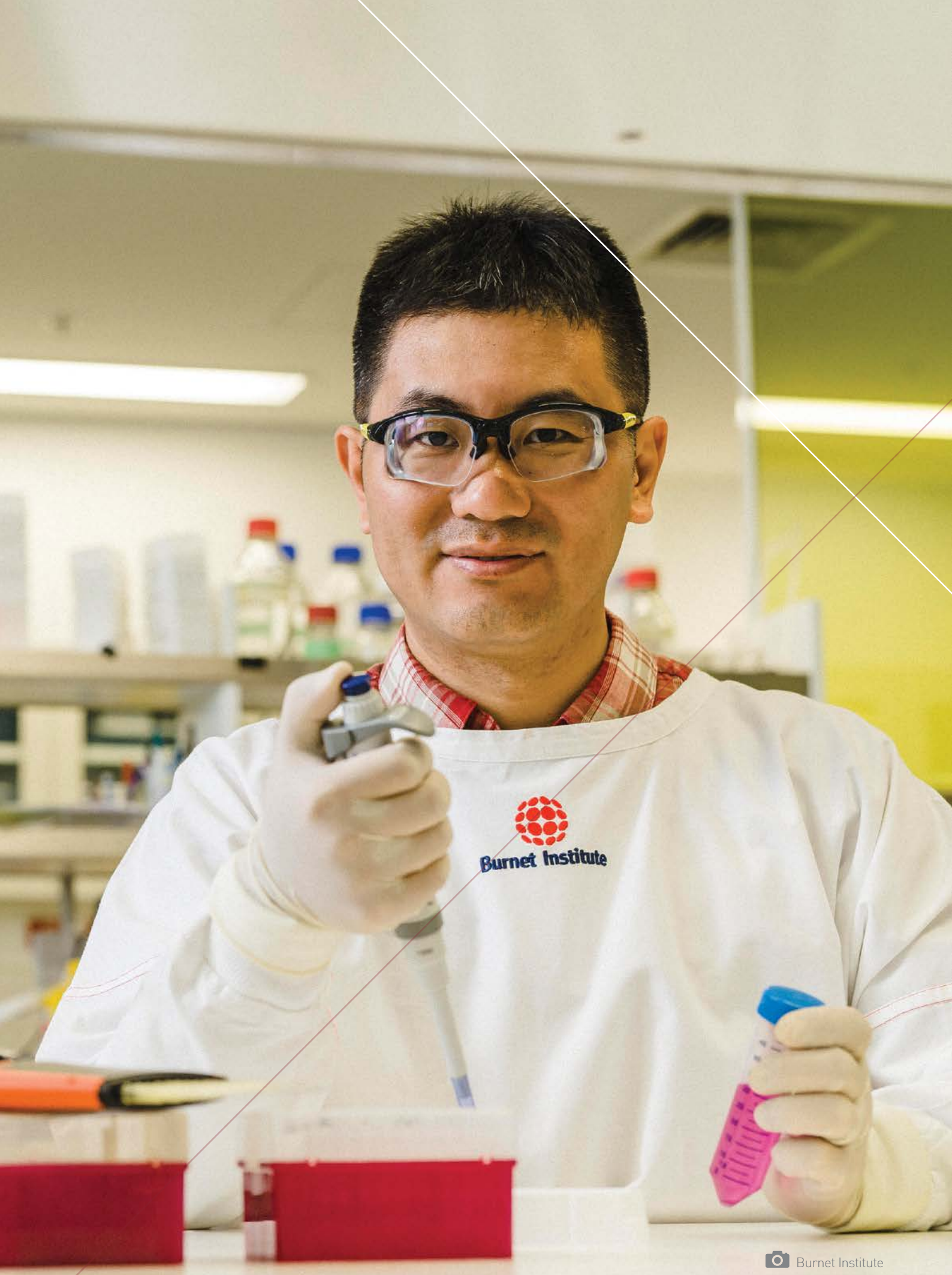
70% OF MEDICAL RESEARCH INSTITUTES WERE ENGAGED IN OVER 1000 ACTIVE CLINICAL TRIALS IN 2018.

Active clinical trials at medical research institutes in 2018, by institute location [22,23].



22 Data includes 49 (of 54) institutes.

23 Some clinical trials involve more than 1 medical research institute. 33 industry-sponsored trials and 41 investigator-initiated trials involved at least one other medical research institute.



Burnet Institute

AAMRI MEMBERS IN 2018 AND 2019 WHO CONTRIBUTED DATA USED IN THIS REPORT

INDEPENDENT MEDICAL RESEARCH INSTITUTES

ANZAC Research Institute	NSW
Asbestos Disease Research Institute	NSW
Baker Heart and Diabetes Institute	VIC
Bionics Institute	VIC
Black Dog Institute	NSW
Brien Holden Vision Institute	NSW
Burnet Institute	VIC
Centenary Institute of Cancer Medicine and Cell Biology	NSW
Centre for Eye Research Australia	VIC
Children's Cancer Institute	NSW
Children's Medical Research Institute	NSW
Ear Science Institute Australia	WA
Garvan Institute of Medical Research**	NSW
Harry Perkins Institute of Medical Research	WA
The Heart Research Institute	NSW
Hudson Institute of Medical Research	VIC
Hunter Medical Research Institute	NSW
Ingham Institute for Applied Medical Research	NSW
Institute for Breathing and Sleep	VIC
Lions Eye Institute*	WA
Mater Research	QLD
Melanoma Institute Australia	NSW
Menzies School of Health Research**	NT
Murdoch Children's Research Institute	VIC
National Ageing Research Institute	VIC
Neuroscience Research Australia	NSW
Olivia Newton-John Cancer Research Institute	VIC
Orygen	VIC
Perron Institute*	WA
Queensland Institute of Medical Research (QIMR Berghofer)	QLD
Queensland Eye Institute	QLD
South Australian Health and Medical Research Institute	SA
St Vincent's Institute of Medical Research	VIC
Telethon Kids Institute	WA
The Florey Institute of Neuroscience & Mental Health	VIC
The George Institute for Global Health	NSW
Wesley Medical Research*	QLD
Victor Chang Cardiac Research Institute	NSW
Walter & Eliza Hall Institute of Medical Research	VIC
The Westmead Institute for Medical Research	NSW
Woolcock Institute of Medical Research	NSW
Peter MacCallum Cancer Centre[24]	VIC

24 Peter MacCallum Cancer Centre is a hospital but has been included as an independent medical research institute for the purposes of this report.

UNIVERSITY-BASED MEDICAL RESEARCH INSTITUTES

Australian Regenerative Medicine Institute*	VIC
The Peter Doherty Institute for Infection and Immunity*	VIC
Griffith Institute for Drug Discovery (GrIDD)*	QLD
Institute for Glycomics	QLD
John Curtin School of Medical Research	ACT
Kirby Institute	NSW
Menzies Institute for Medical Research	TAS
Monash Biomedicine Discovery Institute	VIC
Turner Institute for Brain and Mental Health	VIC
Robinson Research Institute	SA

HOSPITAL-BASED MEDICAL RESEARCH INSTITUTES, JOINT VENTURES (UNIVERSITY/HOSPITAL) AND HUBS

Kolling Institute of Medical Research*	NSW
Centre for Cancer Biology	SA
Hanson Institute (SA Pathology)*	SA
Translational Research Institute	QLD

EXPLANATORY NOTES FOR DATA PRESENTED IN THIS REPORT

Member data included in this report

This report is based on information collected from AAMRI members in October 2019 to February 2020. Data sets were received from 49 of 54 AAMRI members in 2019 (39 of 41 independent medical research institutes), and partial data sets were provided the remaining 5 institutes (2 independent medical research institutes). Two new members who joined AAMRI in late 2019/early 2020 have been included in workforce data only.

Workforce data in this report refers to staff and students at AAMRI institutes as at 1 July, 2019. Data presented in the workforce section includes 56 of 56 members for most data. For the gender analysis, only 44 of 56 institutes provided these data for their workforce.

Financial data collected by AAMRI was supplemented by information from publicly available medical research institute annual financial reports in several cases. In cases where data from an medical research institute required for analysis was unavailable, incomplete, or in some cases causing a misrepresentation of the group, the medical research institute was omitted from that particular analysis where indicated. This may have resulted in minor discrepancies throughout the report, depending on whether medical research institutes were omitted from one or other analysis. Rounding of figures presented in Figures and Tables may have resulted in minor inconsistencies in totals.

Workforce and financial data is presented for either the medical research institutes sector (including data from all AAMRI members, independent and non-independent) or specifically for the independent medical research institutes sector, as indicated throughout the report.

Data reporting period

Financial and research translation data refer to either the calendar year of 2018, or the financial year 2018–2019 for those medical research institutes that have a standard financial reporting period. NHMRC grant funding data refers to total grant funding received for financial reporting period by the organisations *performing* the research, rather than the organisation *administering* the NHMRC grant. Publicly available data for NHMRC expenditure by sector indicates only the administering organisations and underrepresents the expenditure for grants to the medical research institute sector. MRFF data is also represented by performing institute.

Commercialisation data collected by AAMRI corresponds to the financial reporting year of the institute and is either calendar year 2018 or the financial year 2018–2019.

CONTACT FOR THIS REPORT

Please direct enquiries about this report to the Association of Australian Medical Research Institutes:

communications@aamri.org.au

CATEGORY DEFINITIONS USED IN THIS REPORT

WORKFORCE

Staff categories used in this report	Definitions and Examples
RESEARCH STAFF	Staff employed to perform research at the institute. Includes paid or seconded staff only; 'Research Staff' includes research support staff that could potentially be paid from a research grant (e.g. NHMRC grant); Please note that staff do not need to hold the fellowships described below to be included in the staff count. The levels are to communicate levels of seniority only. Excludes: visiting researchers and honorary appointees or affiliates, volunteers, and staff based at satellite organisations overseas who are captured in separate categories below.
Highest Seniority Researchers	Similar to "Above Academic Level C (Above Senior Lecturer)" used by the Department of Education, and/or NHMRC Senior Principal Research Fellowship (SPRF), Principal Research Fellowship (PRF), Practitioner Fellowship Level 2; (~$140K/yr and above). Examples: Senior research staff in leadership positions within the institute e.g. Heads of Divisions, Centres or Programs within the institute.
Senior Researchers	Similar to "Academic Level C (Senior Lecturer)" used by the Department of Education and/or NHMRC Senior Research Fellowship (SRF) A or B, Career Development Fellowship (CDF) Level 2, Practitioner Fellowship Level 1 (~$120–140K/year). Examples: Senior research staff who lead a research group e.g. Head of a research group such as a project group or lab group.
Postdoctoral Researchers & equivalent	Similar to "Academic Level B (Lecturer)" used by Department of Education and/or NHMRC Fellowships – Career Development Fellowship Level 1 (~$100–120K/year). Examples: Staff within research groups that do independent research and often have a more senior role within a group, and assist running of the groups/labs, e.g. Senior postdoctoral research Officer (SRO).
Junior Postdoctoral Researchers & equivalent	Similar to "Academic Level A (Below Lecturer, Postdoc)" used by the Department of Education, and/or NHMRC Early Career Fellowship (ECF) Training Support Package (←$100K/year). Examples: Postdoctoral research staff (e.g. RO) and other research staff at similar level that may or may not hold Masters or PhD.
Research Staff – Support (non-academic)	Non-academic research staff classification group; Technical support staff. Examples: Research Assistants and other technical support staff that could be supported by a research grant (NOT core facilities staff/clinical trials support).
RESEARCH HIGHER DEGREE (RHD) STUDENTS	Research Higher Degree students conducting research and enrolled in a PhD and Masters by research program.
Domestic	Research higher degree students with Australian or New Zealand Citizenship or are an Australian Permanent Resident.
International	Research higher degree students without Australian or New Zealand Citizenship or are not an Australian Permanent Resident.
CORPORATE & SUPPORT STAFF (ALSO REFERRED TO AS "SUPPORT STAFF")	Includes paid or seconded staff and non-research support staff. Excludes staff performing functions of the institute that are non-research related (e.g. admin staff related to clinical services provided by the institute), honorary appointees or affiliates, volunteers, and staff based at satellite organisations overseas.
Executive Staff	Non-research executive staff, including the director or Chief Executive Officer (CEO). Examples: CEO, COO, CFO, CTO, CSO, CIO, any other executive management positions.
Other corporate & support staff	Managers, Finance, HR, Admin, Grants, Fundraising, IT, PR, OH&S, animal house, laboratory support staff and facilities/maintenance staff.

CATEGORY DEFINITIONS USED IN THIS REPORT CONT.

Staff categories used in this report	Definitions and Examples
OTHER STAFF & STUDENTS	Staff and students not included in Research Staff, Corporate & Support Staff or Research and Higher Degree Students (domestic and international, defined above).
International staff	Includes paid or seconded expat or national staff only who are based at satellite organisations overseas.
International students	Research higher degree students based at satellite organisations overseas.
Other staff	Staff at the institute that are not included elsewhere. Examples: Honours students, under-graduate students.
Other students	Students at the institute that are not included elsewhere.
TOTAL WORKFORCE	Sum of Research Staff, RHD students, Support staff, International Staff, International Students, Other staff and Other students.
RESEARCHERS OR RESEARCH WORKFORCE	Sum of Research Staff and RHD students. Please note that this total is a conservative estimate of researchers at medical research institutes, as many of the international or other staff and students (often visiting research staff and students) are also researchers but not included in this total.
DIRECTORS, MEDICAL RESEARCH INSTITUTES	Director or Chief Executive Officer (CEO) of medical research institutes, most senior executive position at the institute.
CLINICAL AND ALLIED HEALTH PROFESSIONALS	Research staff or students who are active clinical or allied health professionals, i.e. Staff & students who are both researchers and also run or are involved in non-research clinical work. Examples: Clinicians, Allied Health Professionals, Genetic Counsellors, Nurses, Psychologists, Dieticians / nutritionists.

REVENUE

Source	Definitions and Examples
COMPETITIVE AND NON-COMPETITIVE GRANT INCOME	received from federal, state/territory and local governments, trusts and foundations grants, and international sources (includes ACGR and non-ACGR grants).
INCOME FOR SYSTEMIC COSTS OF RESEARCH (INDIRECT COSTS)	funding received from all schemes specifically for costs associated with supporting research activities.
NHMRC IRIISS	NHMRC Independent Research Institute Infrastructure Support Scheme (IRIISS), a Federal Government scheme providing support for systemic costs of research associated with NHMRC competitive research grants.
University Research Block Grants/Research Support Program	Income for indirect costs from affiliated universities through Research Block Grants (RBGs) or Research Support Program (RSP). RBG/RSP funds are awarded to universities from the Australian Government Department of Education. All RBG schemes and were replaced by the Research Support Program and Research Training Program in 2017. Medical research institutes cannot receive funds directly from these schemes.
Income from State Government for systemic costs of research	Some medical research institutes receive state government support specifically for the systemic costs of research either through a direct agreement with the medical research institute or through a state government scheme (e.g. Victorian Government Operational Infrastructure Support Program; NSW Government Medical Research Support Program).
Other income for the systemic costs of research	All other income for systemic costs of research not from the Federal or State governments e.g. Some contract research or philanthropic grants include a proportion of funds for systemic costs of research associated with the project/work.

Source	Definitions and Examples
PHILANTHROPY	(also referred to as "Fundraising & Philanthropy") includes revenue from bequests, donations and fundraising activities (excludes Trusts and Foundations grants).
COMMERCIAL INCOME	includes total commercial income (sum of all subcategories below).
Research	Raised as a direct result of intellectual property (IP) generated by research at the institute e.g. licences, royalties, options or industry funding for research activities through collaboration (Excludes clinical trials which are included below).
Clinical Trials – Research	Commercial income for clinical trials through industry collaboration.
Clinical Trials – service	Commercial income from providing clinical trials as a service.
Other	Commercial income from other sources that are not based on institute-generated IP or direct research activities. e.g. renting floor space.
INVESTMENT INCOME	Income generated from investments e.g. interest.
CAPITAL INCOME	Funding received for major buildings projects.
OTHER INCOME	Other miscellaneous income not elsewhere classified.
MEDICAL RESEARCH FUTURE FUND (MRFF) FUNDING	Income reported by the institute to be from the Medical Research Future Fund initiatives and grants (competitive or non-competitive). MRFF began funding research in 2017.

REVENUE – GOVERNMENT AND NON-GOVERNMENT SOURCES

Source	Definitions and Examples
AUSTRALIAN GOVERNMENT	Funding received from Australian Government schemes for research activities and indirect costs of research as well as any other purpose. Includes income from the Australian Government grant schemes, both competitive (e.g. NHMRC, ARC, CRC) and non-competitive (e.g. NHMRC IRIISS, any funds received indirectly from the Department of Education Research Support Program – RSP not accessible to medical research institute directly, rather it is received through agreements with affiliated universities), Medical Research Future Fund income (competitive or non-competitive) and any other grants funding from the Australian Government. May also include capital income from the Australian Government.
STATE/TERRITORY GOVERNMENT	Funding received from any Australian state or territory government for research activities and indirect costs of research as well as any other purpose. Includes income from the State Government grant schemes, both competitive and non-competitive and any other grants funding from the state and territory governments. May include capital income from state or territory governments.
INTERNATIONAL SOURCES	Revenue from competitive and non-competitive grants from international sources. This income may come from governments of other countries (e.g. funding from National Institutes of Health in the USA is a government funding scheme). NB In analyses of government and non-government revenue, international is included in "non-government" revenue because the objective is to identify income from Australian governments.
NON-GOVERNMENT REVENUE SOURCES	All other revenue not reported as international or from government sources. Examples include non-government grants (Trusts and Foundations), fundraising and donations (Philanthropy), commercial income, investment income.

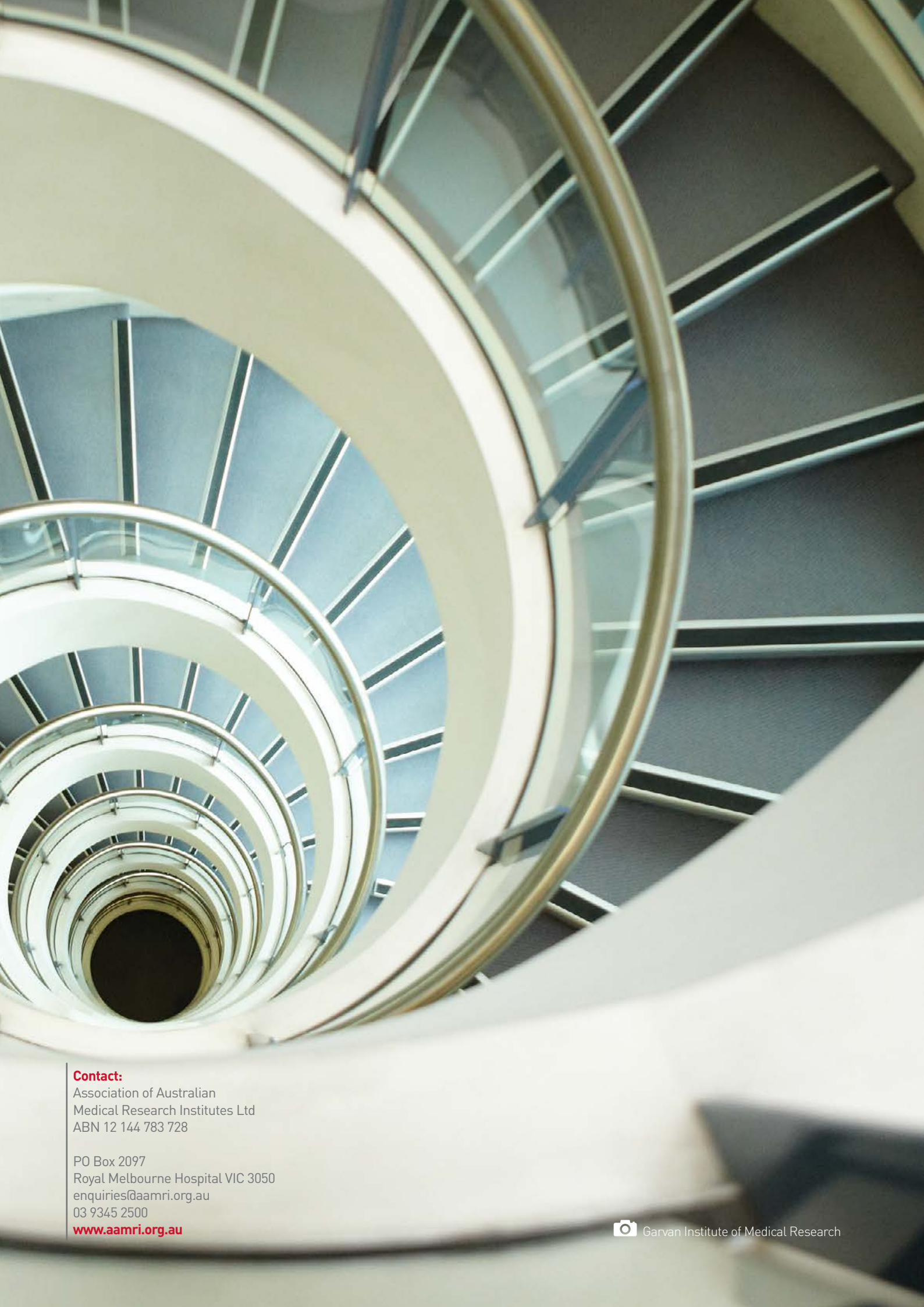
CATEGORY DEFINITIONS USED IN THIS REPORT CONT.

COMPETITIVE FUNDING SCHEMES

Source	Definitions and Examples
NATIONAL HEALTH AND MEDICAL RESEARCH COUNCIL (NHMRC) FUNDING	funding received by independent medical research institute from NHMRC and from other administering organisations, regardless of award year for the grant. https://www.nhmrc.gov.au/funding/find-funding
Program Grants	Support for teams of high calibre researchers to pursue broad based, multi-disciplinary and collaborative research activities. Teams will be expected to contribute to new knowledge at a leading international level in important areas of health and medical research. The scheme is available for all research approaches relevant to better health – biomedical, clinical, public health or health services research and is typically for five years.
CREs	Centres of Research Excellence; support for teams of researchers to pursue collaborative research and develop capacity in clinical, population health and health services research in three streams: clinical, health services and population health.
Project Grants	Support for research that describes the investigation of a new research ideas. Single investigators or teams of up to ten Chief Investigators (CIs) are supported as well as New Investigators (NI) or early career investigators.
Fellowships	Includes all NHMRC Fellowship schemes – Research Fellowships, Career Development Fellowships, Early Career Fellowships, Clinician Fellowships, Practitioner Fellowships, Translating Research into Practice.
Scholarships	Includes all NHMRC PhD Scholarships.
Equipment Grants	Funding to NHMRC approved Administering Institutions to facilitate the procurement of equipment designed to support high quality health and medical research, as supported by the NHMRC or other competitive grant support.
Targeted Calls for Research	Includes income in 2016 from any Targeted Call.
Development Grants	Financial support to individual researchers and/or research teams to undertake health and medical research within Australia at the proof-of-concept stage that specifically drives towards a commercial outcome within a foreseeable timeframe.
Other	Any NHMRC income for competitive grants not elsewhere included. Excludes IRIISS funding (this is included in income for indirect costs of research).
COOPERATIVE RESEARCH CENTRES (CRCS)	Federal Government scheme involving research-industry partnerships of multiple organisations.
AUSTRALIAN RESEARCH COUNCIL (ARC)	Includes Future Fellowships, ARC Linkage Grants, and ARC grants on which a medical research institute was a partner organisation. Medical research institutes sometimes receive funds from ARC competitive schemes through collaboration as they could not directly administer ARC grants in 2016.
Discovery	Income from any grant in the Discovery scheme.
Linkage	Income from any grant in the Linkage scheme.
OTHER AUSTRALIAN COMPETITIVE GRANTS REGISTER (ACGR) FUNDING	Includes any income from other Australian Competitive grant schemes not elsewhere classified.
INTERNATIONAL COMPETITIVE GRANTS	Includes funding from any competitive scheme administered by an international body.
OTHER COMPETITIVE GRANTS	All other competitive grants from Federal Government, State/Territory Government and other sources including Trusts and Foundations grants from philanthropic sources.

EXPENDITURE CATEGORIES

Activity	Definitions and Examples
Research Expenditure (ie Direct Research Costs)	This category of expenditure includes direct research staff salaries, on-costs and salary package items; research consumables; specialised equipment purchases for research projects (included in grants); travel expenditure associated with the grants or fellowships; and scholarships provided by the medical research institute.
Indirect Costs of Research (ie Systemic Costs of Research)	Costs incurred by the medical research institute that are not directly related to the outcome of the grant projects but are operational activities required to support research. Expenditure on research support services, staff and other expense categories from activities that are necessary to support your institute's research. *Please note that expenditure for activities that generate income was included in "other" expenditure (e.g. Fundraising, external services run by the institute). In the 2018 AAMRI Member Report, the term "Systemic costs of research" was used to describe indirect costs.
Fundraising Costs	Costs incurred for fundraising activities (including staff salaries).
Costs of running an external service (to raise revenue)	Costs associated with running services that are housed at the medical research institute (e.g. clinical services, fee-for-service facilities for external clients).
Other Expenditure	All other expenditure not otherwise classified.



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