NON-GOVERNMENT FUNDING FOR VICTORIAN HEALTH AND MEDICAL RESEARCH



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ENGAGE Australia in a conversation about the health benefits and economic value of its investment in health and medical research.

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GLOSSARY

ACNC	Australian Charities and Not-for-profits Commission
CAH	Charity Advancing Health - a subtype of charity, used by the ACNC to register charities
GDP	Gross Domestic product - a measure of value of economic activity
HPC	Health Promotion Charity - a subtype of charity, used by the ACNC to register charities.
HMR	Health and Medical Research
MRI	Medical Research Institute
NFP	Not for Profit
PAF	Private Ancillary Fund
PBI	Public Benevolent Institution - a subtype of charity, used by the ACNC to register charities
PuAF	Public Ancillary Fund
R&D	Research and Development
SME	Small to Medium Enterprise
VC	Venture Capital





TABLE OF CONTENTS

GLOSSARY 4
INTRODUCTION 6
KEY FINDINGS 8
WHAT IS HEALTH AND MEDICAL RESEARCH? 10
AN OVERVIEW OF HMR IN VICTORIA 12
WHO UNDERTAKES HMR IN VICTORIA? 14
- Private sector HMR 14
- Government HMR 14
- Non-profit HMR 15
- Total expenditure on HMR in Victoria 15

INVESTING IN PRIVATE SECTOR HMR 16
- Venture Capital in Australia 17
- Government co-investment and facilitating private sector investment 22
- Encouraging Venture Capital investment 24
- Supporting commercialisation of HMR – more than money is needed 28

FUNDING NON PROFIT HMR 31
- Charities 31
- Competitive grants and targeted funding from charitable organisations 34
- Crowdsourcing 39
- Donations and bequests 40
- Overseas philanthropy 44
- Universities' own funds 46
- Corporate Philanthropy 47
- Leveraging government funding to encourage philanthropy 52

CONCLUSION 54

INTRODUCTION

The purpose of this report is to describe the environment for non-government financial support for health and medical research (HMR) in Victoria.

The term 'financial support' is used to describe the whole continuum from untied donations, through directed grants, to mixed grant/investment models and purely commercial investment. The report identifies what HMR is and where in Victoria it is occurring.

It also identifies who is providing financial support and, where possible, the quantum of this financial support. It also places non-government funding for Victorian HMR in a national context.

Funding for HMR comes from a range of different funding sources, including various Commonwealth, State and Territory government programs, philanthropy and private sector investment. All these different components are inter-related and co-dependent. While government funding is not the subject of this report, the report describes initiatives by government to encourage and/or facilitate non-government financial support for HMR.

HMR is undertaken in a complex ecosystem, with private sector, not for profit and public sector involvement in the conduct and funding of

Funding the health and medical research pipeline



research. Non-government funding is not only a significant source of funds but plays an important role in linking different parts of this ecosystem. While primarily describing the existing situation, this report identifies several ways in which this contribution can be strengthened and expanded.

This report defines HMR and provides an overview of who is undertaking HMR in Victoria before making a detailed examination of the sources of non-government funding from both the private and not-for-profit sectors.



KEY FINDINGS

- Venture capital is an important source of funding for the commercialisation of Victorian HMR, with Victoria accounting for 45% of venture capital investments in Australian healthcare and biotechnology companies in 2016-17.

- Recent experience suggests that while a lack of venture capital was previously a constraint on the commercialisation of Australian health and medical research, this is no longer so strongly the case. There are significant volumes of venture capital looking to invest in Australian products and innovations, including in health and medical research.

- While Victoria and Australia have built significant capacity in commercialisation expertise, more is needed if we are to utilise the increased venture capital available.

- There are many charities that actively support HMR, but there is also scope to increase the level of support for HMR from all sources of philanthropy.

- Donations directly to universities and medical research institutes are a significant but relatively small source of funding for HMR.

- In addition to receiving grants and funding which is specifically targeted to research, universities choose to invest significant amounts of their own revenue into conducting research (including health and medical research) giving them significant control over their own research agendas.

- The relationships between different research organisations and different sources of funding are complex, with the private sector raising funds for public research, and public research organisations undertaking commercial research activities. This provides significant opportunities for collaboration and cooperation between public, private and not-for-profit funding sources to support health and medical research and deliver better health, social and economic outcomes.



WHAT IS HEALTH AND MEDICAL RESEARCH?

HMR aims to improve the health and wellbeing of people. It draws on our knowledge of the human body and mind and the world around us to find ways to:

- identify, cure and prevent disease;
- reduce injury and disability;
- improve the delivery of health services; and
- help us lead healthier lives.

HMR embraces a range of different disciplines including biology, physiology, pharmacology, chemistry, engineering, biotechnology, epidemiology, medicine, psychology, nursing, allied health, population studies, IT, mathematics and economics. It is concerned with:

- how our bodies and minds function and how they respond to disease;
- the development of new drugs, devices, diagnostics, therapies and models of care;
- how to influence behaviour to improve health; and
- how to make our health services more effective and efficient.

Research takes place in our universities and hospitals, medical research institutes and companies, as well as in the community. The researchers include scientists, medical specialists, nurses, GPs and allied health professionals, to name a few. Some are full time researchers and others undertake research as a part of their clinical work.

Australian HMR is supported by Commonwealth and State governments, companies and the not for profit sector. In total Australia spends around $6.5 billion per year on HMR.[1]

Australians can, and do, support HMR through philanthropy and other types of donations and participating in clinical trials to test the effectiveness of new drugs and therapies. Increasingly patient groups are becoming involved in all stages of the research process, from the board room to the clinic.

For the purposes of this report, ‘HMR’ is used to describe the whole pipeline of activity from basic research through to the translation of new practices and models of care into practice and the commercial development of new therapies. (The latter is often identified as Research and Development, or R&D).

1 Analysis by Research Australia, using Australian Bureaus of Statistics data on R&D Expenditure, available at https://researchaustralia.org/category/hmr-facts/



AN OVERVIEW OF HMR IN VICTORIA

This section provides a summary of the location, value and funding sources of HMR in Victoria.

Victoria in a national context

Comparisons are made in this report with other states and with total Australian activity. For the purposes of national comparison, it is important to understand Victoria's relative size.

26% of Australia's population live in Victoria, and Victoria generates 24% of Australia's Gross Domestic Product (GDP)- roughly one quarter on each measure.

NSW has 32% of Australia's population and generates 32% of GDP- roughly one third on each measure.[2]

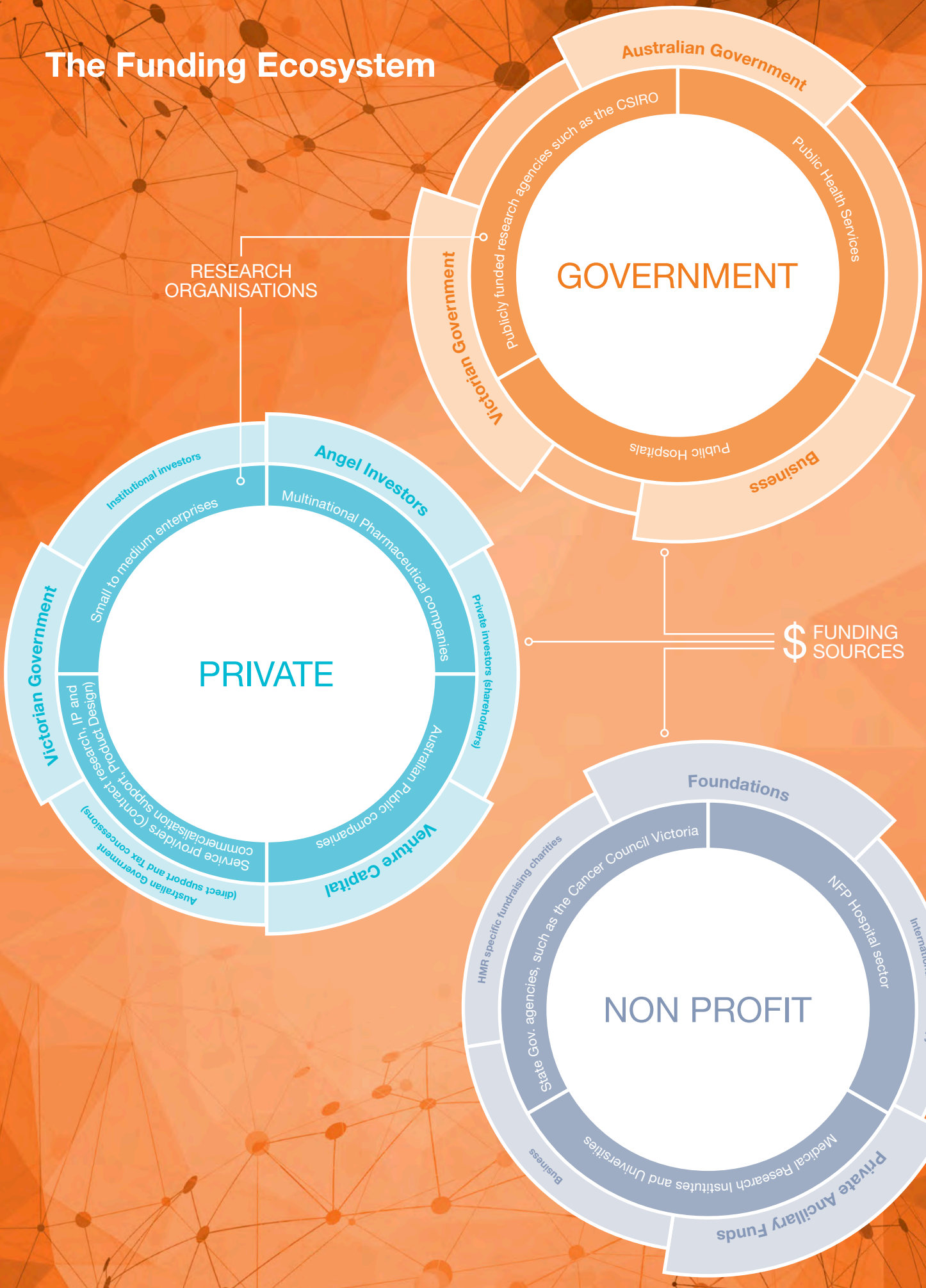
HMR is conducted in a range of different types of organisations across Victoria:

- universities;
- dedicated not for profit medical research institutes;
- government research agencies;
- hospitals and local health networks; and
- small businesses and large corporations.

These organisations are in all sectors of the economy, from the private sector through the not-for-profit ('for purpose') sector to the public sector. This diversity reflects the economy-wide importance of HMR and is also partly responsible for its complexity, evident in the many interrelated participants responsible for undertaking and funding Victorian HMR.

2 Analysis by Research Australia, using Australian Bureaus of Statistics data Catalogue No. 3101.0 - Australian Demographic Statistics, Mar 2018 and Catalogue No. 5220.0 Australian National Accounts: State Accounts as at June 2017

The Funding Ecosystem



WHO UNDERTAKES HMR IN VICTORIA?





Private sector HMR

Significant HMR is undertaken directly by the private sector in Victoria. For example, CSL, one of Australia's top 10 public companies by sharemarket capitalisation, has significant research facilities in Victoria as part of its international operations.[3] At the other end of the scale to the larger established companies like CSL are the small companies seeking to commercialise a single product or a small suite of products.

More than in any other sector, the activities undertaken in the private sector include not just research but further commercialisation activities- the 'D' in Research and Development. In 2015, the total value of expenditure in Victoria by Medical Technology and Pharmaceuticals companies on R&D was estimated to be $969 million.[4]

The private sector also outsources research to other researchers, including universities. The Australian Bureau of Statistics estimated that in 2016, Victorian universities undertook $161 million of research that was funded by business.[5] (No separate estimate is provided for health and medical research.)

Government HMR

Commonwealth and State Government agencies directly undertake significant research in Victoria, including HMR. In 2016/17, The Commonwealth Government directly undertook research valued at $529 million in Victoria, with the Victorian Government's direct research expenditure valued at $263 million.[6] While estimates for expenditure on HMR are not provided at the State level by the ABS, total expenditure by all Commonwealth, State and Territory Governments on the Socio Economic Objective of Health accounted for 18% of their total R&D expenditure, suggesting Victoria's share of direct expenditure on HMR by governments was around $140 million in 2016/17.[7]

3 https://www.csl.com/research-and-development
4 Victorian Government, State of the Sector, Medical Technologies and Pharmaceuticals 2017, page 17
5 Australian Bureau of Statistics, 81110DO003_2016 Research and Experimental Development, Higher Education Organisations, Australia, 2016. This estimate is for research in all fields. No separate estimate is provided for health and medical research.
6 Australian Bureau of Statistics, 81090DO001_201617 Research and Experimental Development, Government and Private Non-Profit Organisations, Australia, 2016-17, Table 1
7 The Socio-Economic Objective (SEO) of health in the ABS statistics is used here as a proxy for HMR





Non-profit HMR

Universities and Medical Research Institutes account for the bulk of HMR undertaken in Victoria and do so on a not-for-profit basis as registered charities.

In 2016, Victorian universities are estimated to have undertaken HMR worth more than $1.1 billion. This represented 36% of total Victorian university expenditure on research and 30% of all expenditure on HMR by Australian universities (and includes part of the estimated $161 million of research undertaken on behalf of businesses).[8] In 2016/17, Victorian independent medical research institutes (MRIs) are estimated to have undertaken HMR worth $461 million.[9] Together, Victorian universities and MRIs are estimated to account for around $1.5 billion of expenditure on HMR each year.

Total expenditure on HMR in Victoria

Drawing data together from the various sources described above enables an estimate to be made of the total expenditure on HMR in Victoria.

Location of HMR expenditure	$m.	% of total
In Government (State and Federal, including agencies)	140	5%
In Business	969	36%
In Universities	1,100	41%
In MRIs	461	17%
Total	**2,670**	**100%**

The above table shows where health and medical research is being undertaken but not necessarily who is funding it. The next sections of this report focus on who is providing the funding.

8 Australian Bureau of Statistics, 81110DO006_2016 Research and Experimental Development, Higher Education Organisations, Australia, 2016. The estimates are for the SEO of Health, a proxy for HMR.

9 Australian Bureau of Statistics, 81090DO007_201617 Research and Experimental Development, Government and Private Non-Profit Organisations, Australia, 2016-17 by SEO for Health, and 81090DO005_201617 Research and Experimental Development, Government and Private Non-Profit Organisations, Australia, 2016-17, used to estimate Victorian share of Australian total.



INVESTING IN PRIVATE SECTOR HMR

Large established companies listed on the stock exchange rely on traditional debt and equity markets for funding. They also benefit from targeted government measures such as the R&D Tax Incentive, which effectively provides large companies with a larger than normal tax deduction for business expenses associated with conducting eligible research and development activities.

Smaller companies are eligible for a broader range of government support, including market measures such as the refundable R&D Tax Incentive and direct assistance from the Department of Industry, Innovation and Science Entrepreneurs Programme and targeted assistance through agencies such as MTP Connect. The Victorian Government also provides programs such as the Victorian Medical Research Acceleration Fund, which requires matching investment from another source, and grants up to $500,000.

This funding is not the subject of this report.

Access to capital by Small and Medium Enterprises (SMEs) through either equity or debt has historically been seen as a barrier to the growth of business in Australia.[10] A key issue has been the lack of venture capital in Australia compared to markets in the USA and Europe, although this appears to be improving.

10 See for example, the Final Report of the Financial System Inquiry, November 2015, commissioned by the Australian Treasurer, p.15, Appendix 3.

Venture Capital in Australia

The Australian Private Equity and Venture Capital Association Limited (AVCAL) is a national association representing most of the active private equity and venture capital firms in Australia. These firms provide capital for early stage companies, later stage expansion capital, and capital for management buyouts of established companies. Venture Capital (VC) provides the capital for early stage companies, with Private Equity operating in the expansion and buyout spaces.

VC is important to small research-intensive companies in HMR that are undertaking R&D activity to commercialise their prototype product. Relative to many other sectors, the commercialisation of health and medical research into new drugs, therapies, diagnostics and devices is highly research intensive. This R&D activity is characterised by:

- relatively longer development timeframes, because the scientific and regulatory hurdles to market are greater and take longer to overcome; and
- relatively higher expenditure on R&D, particularly in later stages with activities like clinical trials.

This R&D activity is often undertaken by an early stage SME (a start-up) where the company's only asset is likely to be the intellectual property it is seeking to develop; its sole activity is R&D; and it has no revenue. Furthermore, the likelihood of commercial success is low, making this a high risk investment category. Together, these characteristics make start-ups the natural home of VC investment.

AVCAL has been reporting annually on VC activity in Australia for many years and has published its Yearbook since 1999. In its Yearbook for the financial year to 30 June 2017, it noted that VC fundraising for the year had 'surged to a record level of $1.32b. 19 VC funds completed successful fundraising closes during the year, strongly supported by local investors and several major government initiatives, such as the Biomedical Translation Fund.' It also noted that 'Consistent with 2016, the domestic VC investor base came from a diverse range of sources including superannuation funds, corporate and financial institutions, the public sector and private individuals.'[11]

AVCAL noted a 24% increase in investments on the previous year, to $429 million, led by domestic VC funds. Healthcare and Life Sciences was the second highest investment category in 2016-17, accounting for one third of all VC investments ($143 million).

Perhaps the most significant finding is what wasn't invested; the funds raised ($1,320 million) exceeded the funds invested ($429 million) by almost $900 million. In part, this significant difference reflects the fact that it takes time to make VC investments, but it also reflects a significant increase in VC funding available in Australia.

11 Australian Private Equity & Venture Capital Association Limited, 2017, AVCAL 2017 Yearbook, page 4

Venture Capital in Australia

While a shortage of VC investment has long been identified as a barrier to the commercialisation of HMR in Australia, this suggests this may no longer be the case. The dramatic turnaround in both VC fundraising and investment is illustrated by the following table.

Venture Capital raised and invested by year, 2007-08 to 2016-17[12]

Year	Venture capital Raised Amount ($m)	Venture capital Invested Amount ($m)
2007-08	351.90	211.57
2008-09	174.89	228.61
2009-10	158.00	191.38
2010-11	120.00	289.31
2011-12	140.02	162.28
2012-13	153.93	143.69
2013-14	123.75	542.05
2014-15	325.63	233.06
2015-16	567.93	346.75
2016-17	1,320.91	429.36

The VC raised has more than doubled in the last two years in the table and the amount raised in 2016-17 is more than 10 times the amount raised in 2013-14 and most preceding years. Around $900 million raised in 2016-17 had yet to be invested at the end of the FY (It takes time to make VC investments.) Around a third of VC in Australia is invested in Healthcare and Life Sciences.

The trend of increased VC investment continued throughout 2018. Reporting on the 9 months to September 2018, AVCAL observed: 'However, growth in VC investment levels remains strong. Based on the current run rate of VC investment deals, 2018 may surpass the record $962 million in VC investment across 135 deals recorded in 2017.'[13]

This change represents an enormous opportunity for commercialising Australian HMR. It shifts the focus from a lack of VC to other potential barriers, including a lack of expertise in the commercialisation activities needed to get HMR discoveries ready for VC investment.

12 Australian Private Equity & Venture Capital Association Limited, AVCAL 2017 Yearbook Data, Table 1 and 3
13 Australian Private Equity & Venture Capital Association Limited and Preqin, 2018, 2018 Yearbook, November 2018

This has a direct impact on whether there will be sufficient high value HMR ready to be commercialised to maintain the one third share of this much bigger pool of money.

It should be noted that VC capital flows have historically varied significantly from year to year, and while there is reason to be optimistic about the future, there is no certainty that the recent trend will continue or that the VC funding will still be there when the supply of commercialisable IP catches up.

The following table of VC investments, based on where the company is headquartered, indicates Victoria is under-represented in VC investments overall.

Distribution of investments in 2016-17 (by company headquarter)[14]

	Venture capital		
Location	Amount ($m)	% of total	No. of companies
Australia	**335.98**	**78%**	**90**
New South Wales	198.75	46%	44
Victoria	82.90	19%	29
Queensland	6.54	2%	5
Western Australia	32.20	0.08	3
South Australia	3.04	0.01	2
ACT	12.55	3%	7
Other	0.00	0%	0
North America	**45.90**	**11%**	**17**
Oceania	**17.94**	**4%**	**4**
Other	**29.53**	**7%**	**6**
TOTAL INVESTMENT	**429.36**	**100%**	**117**

Note: 1. Locations with fewer than three companies receiving investments or for companies whose headquarter location have not been disclosed by the VC or PE firm have been aggregated into “Other”.

14 Australian Private Equity & Venture Capital Association Limited, 2017, AVCAL 2017 Yearbook Data, Table 6

Venture Capital in Victorian HMR

However, when it comes to investments in healthcare and biotechnology the picture is more positive. In 2016/17, VC investments in healthcare and biotech in Victoria accounted for 45% of the value of investments in this sector and 43% of investee companies.

VC investment in healthcare/biotech, 2016-17

Location of investee company	investment ($m)	% of amount	No. of investee companies	% of investee companies
Australian Capital Territory	1.1	0.8%	3	10.7%
New South Wales	40.2	30.4%	9	32.1%
Queensland	2.7	2.0%	2	7.1%
Victoria	59.7	45.1%	12	42.9%
Western Australia	28.6	21.6%	2	7.1%
Total	**132.4**	**99.9%**	**28**	**100.0%**

These statistics emphasise both the Victorian capability and expertise in healthcare and biotechnology early stage commercial development.

It also parallels Victoria's predominance in Commonwealth competitive grant funding from the NHMRC. Highly competitive, and with a low application success rate, the historic success of Victorian institutions in NHMRC programs is another indicator of the relative strength and quality of Victorian HMR.

2015-2017 outcomes by State and Territory for competitive grants by percentage awarded[15]

State	2015	2016	2017
Australian Capital Territory	1.7%	2.5%	2.5%
New South Wales	28.1%	27.6%	27.2%
Northern Territory	1.6%	0.8%	1.3%
Queensland	15.1%	13.3%	12.6%
South Australia	6.5%	6.5%	8.6%
Tasmania	1.2%	0.7%	0.9%
Victoria	**41.7%**	**42.7%**	**41.6%**
Western Australia	4.2%	5.9%	5.3%
Total	**100.0%**	**100.0%**	**100.0%**

The challenge for Victoria is to retain and improve this position. The Victorian Government's awareness of the strategic importance of HMR to the State is evident in the Government's *Healthier Lives, Stronger Economy Health* and *Medical Research Strategy 2016-2020*, and the complementary *Medical Technologies and Pharmaceuticals Strategy*.

15 NHMRC, Outcomes of Funding Rounds, selected years, sourced at https://nhmrc.gov.au/funding/data-research/outcomes-funding-rounds

Government co-investment and facilitating private sector investment

A number of policy settings and initiatives have been put in place or undertaken by the Commonwealth, State and Territory Governments to facilitate investment in smaller companies, with a particular emphasis on innovative, entrepreneurial, and/or research intensive companies. HMR has benefited from sector specific as well as more general programs. Some of these with particular relevance to private sector HMR are described below.

Case Study: Medical Research Commercialisation Fund

The Medical Research Commercialisation Fund (MRCF) illustrates how direct government intervention through the financial system and in partnership with venture capital can support the commercialisation of innovative medical research and encourage private sector investment.[16]

The MRCF was established in 2007 as an innovative investment collaboration that invests in early stage development and commercialisation opportunities emanating from Australian independent and university affiliated medical research institutes and allied research hospitals. The MRCF's investors include Australian Super, Statewide Super and the Australian Government (under its IIF program). Financial support was also provided by the state governments of Victoria, New South Wales, Western Australia and Queensland. The MRCF is managed by Brandon Capital Partners.[17]

The MRCF is evidence both that investment in medical innovation is a mid to long term proposition and that it can be profitable. Established in 2007, it was only in 2014 that the MRCF saw the first commercial success from its investment program with the purchase of Fibrotech by international pharmaceutical company Shire PLC. MRCF invested around $7.5 million for a return of around $75 million plus further payments contingent on performance.

As Dr Chris Nave, a founding partner of Brandon Capital Partners and Principal Executive of the Medical Research Commercialisation Fund, said at the time:
"Fibrotech was the MRCF's very first investment, so this deal represents a significant validation of our approach to commercialise the very best discoveries from Australia's leading medical research institutes. To get such an impressive return on our investment speaks to the quality of the science at the University of Melbourne, St Vincent's Institute of Medical Research and Bio21 Institute."[18]

16 www.mrcf.com.au
17 http://www.brandoncapital.com.au/
18 MRCF, Press Release 2 May 2014, at http://www.mrcf.com.au/blog/2014/05/fibrotech-acquired-by-shire-for-us75m-plus-milestones

The MRCF has continued to succeed and to expand. Having proven it is possible to invest successfully in early stage HMR in Australia, the MRCF has attracted new investments from its private sector partners without requiring further government investment or support. Brandon Capital Partners now has in excess of $300 million under management in the MRCF, and an additional $200 million it is investing for the Biomedical Translation Fund (see below).

Case Study: Biomedical Translation Fund (BTF)

The Strategic Review of Health and Medical Research, commissioned by the Australian Government in 2011, recommended the creation of a $250 million 'Translational Biotech Fund' for early-stage biomedical commercialisation, to be funded by the Australian Government and the private sector on a one-to-one matching basis.[19]

This recommendation came to fruition in 2016, with the creation of the Biomedical Translation Fund (BTF). The Australian Government diverted $250 million in capital from the Medical Research Future Fund over the first two years, to be matched on at least a dollar for dollar basis by private sector investment and managed by specialist commercial fund managers. As an extra incentive to private investors, the Australian Government will take a discount on any return on its investment, effectively increasing the return to commercial investors.

The appointed fund managers are Brandon Capital Partners, One Ventures Management and BioScience managers. The BTF is fully subscribed, with $501.25 million, to be invested over 5 years. To date, $71.4 million has been committed to 11 different investments, in companies developing a range of biomedical products from an artificial heart to an immunotherapy for peanut allergy.[20]

19 Australian Government, Final Report of the Strategic Review of Health and Medical Research, February 2013, Recommendation 16.
20 https://www.business.gov.au/assistance/venture-capital/biomedical-translation-fund

Encouraging Venture Capital investment

In addition to co-investment, the Australian Government provides a number of programs to support VC investment in early and later stage companies across all sectors. This support is available to, but not limited to the HMR sector and the bulk of it takes the form of tax advantages rather than direct co-investment. Advantageous tax treatment for investments helps to 'de-risk' the investment, reducing the risk differential that accompanies early stage investment in companies.

Early Stage Venture Capital Limited Partnerships (ESVCLP)

Fund managers providing early stage venture capital are able to register as an ESVCLP. Doing so provides tax benefits that make these vehicles more attractive to institutional and retail investors, particularly from overseas. For individual investors, pooling funds to invest in a portfolio of companies helps to mitigate the risk associated with investing in early stage companies that have an as yet unproven idea and little or no evidence of commercial viability.

Venture Capital Limited Partnerships (VCLP)

VCLPs are similar to ESVCLPs but are able to invest in later stage businesses. The attractions for Australian and overseas investors are similar; investing at this slightly later stage may be more expensive but the likelihood of obtaining a return on the investment is higher.

The VCLP has been in existence since 2002, with the ESVCLP commencing in 2011. While free to invest in all industry sectors, 'Biotech, Pharmaceutical and Health' (BPH) has been a popular destination, attracting $112 million (25.6%) of the total investments in ESVCLP, and $935.4 million (18.2%) of the total investments in VCLPs. In 2016-17, 18% of the companies invested in were in BPH.

Investments $m.	Biotech Pharma & Health $m.	All investments $m.	Biotech Pharma & Health %
ESVCLP 2010-11 to 2016-17	112.0	437.8	25.6%
VCLP 2004-5 to 2016-17	935.4	5,153.2	18.2%
Total	**1047.7**	**5,591.0**	**18.8%**

Investments can be made in eligible companies based in Australia and overseas. In 2016-17, 22% of all the Australian based companies invested in were Victorian. Of the total $5,153.2 million invested by ESVCLPs and VCLPs, $1,019.7 million (19.8%) has been invested in companies and businesses based in Victoria.[21]

21 Analysis by Research Australia using Australian Government Department of Industry, Innovation and Science data in the ESVCLP and VCLP timeseries, 2016–17 https://www.business.gov.au/assistance/early-stage-venture-capital-limited-partnership

Tax Incentives for Early Stage Investors

From 1 July 2016, additional tax incentives are available for investments in a 'qualifying early stage innovation company' (ESIC). A more targeted program than the ESVCLP and VCLP, an ESIC must essentially be a new, unlisted company where the majority of its expenditure is on R&D.[22] An ESIC is a good fit with the profile of an HMR startup seeking to commercialise a new therapeutic, diagnostic, or medical device.

The program is aimed at sophisticated investors, often described as 'Angel Investors' (not retail 'mum and dad' investors). These are typically entrepreneurial individuals who, in addition to making a financial investment, are able to provide strategic and business advice and mentoring to the ESIC's principals.

With the scheme commencing with effect from the 2016-17 financial year and the most recent available ATO statistics being for the 2015-16 financial year, there is currently no information available about the number of ESICs registered or the value of investments made.

22 https://www.ato.gov.au/Business/Tax-incentives-for-innovation/In-detail/Tax-incentives-for-early-stage-investors/?page=2#Whenwillacompanymeettheearlystagetest

Crowdsourced equity funding

An even newer arrangement that is aimed at retail investors and startups is crowdsourced equity funding (CSEF). It enables investors to find and invest in small and/or early stage businesses without the usual regulatory protections of prospectuses and 'standard' retail investment offers which can be too expensive for a small business to develop. Small investors are provided with more limited information about the business and are protected by maximum limits ($10,000 per annum) on the amount that can be invested. Eligible companies can raise up to $5 million a year using CSEF but they must have less than $25 million in assets and annual revenue.[23]

An extension of the concept of crowdsourcing, where people pledge funds to support a particular cause or product they care about, CSEF allows the individual to pledge funds in return for an equity stake.

The advantage of CSEF for businesses lies in the opportunity to reach individuals who are supportive of their aims and objectives. For this reason, small companies seeking to develop medical devices and technologies could be significant beneficiaries from a CSEF model as the products they are seeking to develop are generally a public good and could find a significant pool of potential investors willing to support their development.

Case Study: Magnetica Limited

Magnetica Limited is an Australian company specialising in the development of next generation MRI technologies. In 2016, Magnetica used crowdsourced equity funding to raise capital for the development of a compact specialty orthopaedic MRI product. Using the Equitise crowdsourced equity platform, Magentica raised $1.1 million from 21 investors.[24]

Still a relatively new concept in Australia, CSEF is evolving rapidly, with further regulatory changes made in September 2018 to expand its scope. Despite the potential for CSEF to be used to support startups in the HMR space, a review of CSEF platforms suggest that there has been relatively little activity to date, with Magnetica an isolated example.

Case Study: AUILabs

Advanced User Interface Labs (AUI Labs) is based in Scoresby, Victoria, and was founded 'by three serial tech entrepreneurs to use cutting edge technology to solve real problems.'[25] One of its products is Continuum, a stroke rehabilitation application, 'that uses a cutting edge muscle electrical pulse sensor and gamification to guide rehabilitation exercises, monitor and provide continuous improvement feedback leading to better patient outcomes.'

AUILabs initiated an EOI process with CSEF platform Birchal in early 2018 but did not progress to an offering.[26]

An advantage of CSEF for businesses is the opportunity to reach individuals who are supportive of their aims and objectives.

Despite limited success to date, CSEF is still new; small companies seeking to develop medical devices and technologies could be significant beneficiaries from CSEF as it matures.

23 https://www.moneysmart.gov.au/investing/crowd-sourced-funding
24 https://blog.equitise.com/magnetica-successful-crowdfund; https://magnetica.com
25 http://www.auilabs.com/about-us/
26 https://www.birchal.com/company/aui-labs

Social Impact Investing

Social Impact Investing is a model of attracting private capital to address public problems, where the reward to the investor is tied to the benefit delivered to the community and government.

Originating within social welfare programs, internationally Social Impact Investing is being used to address health issues through interventions with the potential to lead to better helath outcomes and reduce health costs. Examples include behavioural interventions with pre-diabetic patients in Israel, and a program to reduce hospital admissions for asthma among low income populations in California.[27]

In Australia, Social Impact investing provides an opportunity to test and develop new interventions in healthcare to the point where they are ready to be implemented across the healthcare system. The characteristics of many pilot projects and clinical trials needed to further develop new interventions are well suited to the Social Impact Investing model, and there are ample opportunities for new interventions.

Australia has significant capacities in the research, design, conduct and implementation of such interventions, but there is a current shortage of alternative funding sources for these activities. Social Impact investing can provide the opportunity for direct investment where it is most needed.

The Australian Treasury undertook a public consultation in 2017 examining the design for a taxation and regulatory framework for Social and Impact Investing in Australia. Research Australia advocated at the time for health interventions to be included within such a Framework. The Australian Government has yet to respond to the consultation.

The South Australian and NSW Governments have utilised Social Impact investing, although not in a health setting. Like CSEF, Social Impact Investing is still a relatively new funding model with promise for some HMR projects, but lno evident success to date.

27 http://www.socialfinance.org.il/social-impact-bonds/42/reducing-development-type-2-diabetes-in-high-risk-pre-diabetics; http://www.socialfinance.org.il/social-impact-bonds/25/asthma-usa

Supporting commercialisation of HMR – more than money is needed

While a shortage of VC investment has long been identified as a barrier to the commercialisation of HMR in Australia and may be becoming less of an issue as described above, a shortage of commercialisation expertise has also been identified as a barrier.

This issue is particularly acute in health and medical research where products typically take a long time to reach the market, the regulatory requirements for access to a market (regulatory approval for the sale of a new medicine, diagnostic or device in each market) are onerous and the path to remuneration (listing on the Pharmaceutical Benefits Scheme, for example) is long and expensive.

Efforts to address this problem have included the creation of specialist commercialisation offices within universities and MRIs. Beyond individual institutions there are examples of cooperative groupings to bring both expertise and capital to the task.

Case Study: Uniseed

UniSeed commenced in 2000 as a partnership between the University of Melbourne and the University of Queensland, with a $50 million seed venture fund and has since expanded to include the University of Sydney, UNSW Sydney, and the CSIRO, with investment capital provided by all five partner research organisations. Its mandate is to 'facilitate the commercialisation of research "partner-generated" intellectual property by targeted investment in highly promising technolo gies.' In addition to providing seed investment funding it provides access to networks and expertise to support the development of commercialisation and IP Strategies and the identification of other commercial partners. UniSeed operates across all research disciplines, with a focus on technologies, including in health.[28]

A more recent Victorian example is focused specifically on HMR.

Case Study: BioCurate

BioCurate was formed jointly in June 2016 by The University of Melbourne and Monash University, with support from the State of Victoria, to operate specifically on the early phases of new drug development. While it is able to provide seed funding, the focus is on more than the money. 'BioCurate will provide the commercial focus, expertise and funding necessary to address the barriers to success, and drive early decisions, with the intent of boosting the successful development of new medicines.'[29]

After reviewing more than 30 candidates, BioCurate's first investment in six early drug discovery projects was announced on 31 July 2018. Since its creation, BioCurate has extended its influence beyond the two founding universities. It entered an agreement with the Walter and Eliza Hall Institute in 2017 to provide commercial services, and has a Memorandum of Understanding with Neurosciences Victoria (NV) which extends its cooperation to NV members Austin Health, Melbourne Health, the Florey Institute of Neuroscience and Mental Health, the Bionics Institute and Swinburne University. On 31 October 2018, BioCurate entered an agreement with the multinational pharmaceutical company Novartis to cooperate on early stage drug development.[30] BioCurate CEO, Glenn Begley, is an Australian with extensive experience in Australia and the USA in the commercialisation of new medicines and therapies.

28 https://uniseed.com/about/
29 http://biocurate.com
30 http://biocurate.com/latest-news/

MTP Connect

As part of the National Innovation and Science Agenda, the Australian Government is investing in capacity building and support in several key industries. One of these is Medical Technologies and Pharmaceuticals, and MTP Connect has been created to progress the Government's innovation agenda in this sector.

Formed in 2015 as one of the Australian Government's Industry Growth Centres, MTPConnect aims to:

- accelerate the rate of growth of the medical technologies, biotechnologies and pharmaceuticals (MTP) sector,
- increase commercialisation and collaboration; and
- establish Australia as an Asia-Pacific hub for MTP companies.[31]

To achieve this, it is focused on improving management and workforce skills, better access to global supply chains and international markets and optimising the regulatory environment. It also administers competitive funding programs on behalf of the Australian Government, including the MRFF's BioMedTech Horizons Program.[32]

Case Study: Melbourne Biomedical Precinct

The Victorian Government's support for the Melbourne Biomedical Precinct is a good example of State Government leadership. It aims to maximise the historic advantages created by the geographical proximity of a number of Victoria's HMR 'jewels' and key health facilities to deliver world class health care, education and research. Support has included leadership from the Office of the Premier and development of a Biomedical Precinct Strategic Plan. It includes new funding as well as planning for the Parkville National Employment & Innovation Cluster (NEIC).[33]

Going beyond simply providing funding, initiatives like MTP Connect and the Melbourne Biomedical Precinct are about increasing capabilities and improving the effectiveness of existing facilities to enable Victorian and Australian HMR to deliver better health outcomes and compete more effectively on the global stage.

While Victoria's world class research facilities, access to capital and commercialisation expertise mean Victoria is well placed to benefit from HMR, it can't afford to be complacent.

31 https://www.mtpconnect.org.au/Category?Action=View&Category_id=86
32 https://www.mtpconnect.org.au/biomedtechhorizons
33 https://www.melbournebiomed.com


Emergency
Parking
KEEP LEFT

FUNDING NON-PROFIT HMR

Universities and MRIs account for the bulk of HMR undertaken in Victoria and do so on a not for profit basis as registered charities. This charitable status does not prevent them from owning or commercialising intellectual property (IP) arising from their research. These commercial activities can include 'spinning out' IP into new companies and/or licensing IP to companies; and can be an important source of funding for further research.

Funding for HMR in universities and MRIs is derived from a range of sources:

- Commonwealth Government competitive grants
- Commonwealth Government block grants
- Victorian Government funding
- Private sector contracts and partnerships
- Competitive grants and targeted funding from charitable organisations
- HMR specific charities- Australian and International
- General purpose charities
- Donations and bequests direct to universities and MRIs
- Own revenue

With the exception of government funding these are examined in more detail in this section of the report.

Charities

Charities both undertake HMR and fund HMR. As noted above, Universities and Medical Research Institutes account for the bulk of HMR undertaken in Victoria and do so on a not-for-profit basis as registered charities.

Many hospitals and health providers that participate in and support research are also charities. This charitable status enables them to receive tax deductible donations directly and to receive funding from other charities. Many also have their own charities and foundations that support their work, and actively fundraise on their own behalf.

There are also many independent charities that raise money specifically for HMR or fund HMR as one of their purposes.

Categorising Charities

Charities in Australia are registered by the Australian Charities and Not-for-Profits Commission (ACNC). National regulation of charities is important because many operate nationally, and because of the considerable tax concessions charities attract from the Commonwealth Government in addition to donors' eligibility for tax deductions.

As part of registration, charities are assigned one or more charity sub types, and these subtypes can assist in identifying charities that undertake and/or support HMR.

While several different charity subtypes may support or undertake HMR, the most relevant is Health Promotion Charity (HPC).

The specific legal meaning of health promotion charity is a **charitable 'institution whose principal activity is to promote the prevention or the control of diseases in human beings'.**

Examples of health promotion charities include organisations that:

- research treatments for diseases or methods of disease prevention, or
- work to raise awareness of diseases.

Not all health-related charities are health promotion charities.[34]

Two other relevant subtypes are Charities Advancing Health (CAHs) and Public Benevolent Institutions (PBIs).

Advancing health includes preventing and relieving sickness, disease or human suffering (but is not limited to these).

Some examples of charities advancing health:

- Associations, foundations and support groups for people with particular illnesses or diseases
- Hospitals, ambulance services, nursing services
- Family planning and support services
- Medical research bodies.[35]

Public Benevolent Institution is a subtype that is particularly relevant to health providers as well as researchers.

A Public Benevolent Institution is a type of charitable institution whose main purpose is to relieve suffering that is serious enough to arouse a feeling of pity or compassion in members of the community. Such suffering could be caused by conditions such as poverty, sickness, helplessness or distress.

Some examples of Public Benevolent Institutions:

- Some hospitals and hospices
- Some disability support services
- Some aged care services
- Providers of low-cost rental or subsidised housing for people in need[36]

These different subtypes are contained in Australian taxation legislation and attract different concessions and advantages. This influences the decisions charities make about registration.

34 https://www.acnc.gov.au/tools/factsheets/health-promotion-charities
35 https://www.acnc.gov.au/for-charities/start-charity/before-you-start-charity/charity-subtypes
36 https://www.acnc.gov.au/tools/factsheets/public-benevolent-institutions-and-acnc

How many charities support Victorian HMR?

Determining exactly how many charities support HMR in Victoria is not straightforward. While it is possible to search the ACNC's register and to obtain some datasets, the number of different subtypes that might support HMR make it difficult to be precise. As the above descriptions show, an HPC, CAH or PBI may or may not be undertaking HMR and may or may not be fundraising to support HMR. Further complicating the matter is that a charity may be registered as one or more of these subtypes.

A detailed analysis of the ACNC register to identify all the individual charities that support HMR in Victoria is possible but time consuming; it would involve examining individual charities' financial statements and is beyond the scope of this report. Nonetheless it is possible to provide the following statistics.[37]

There are **1099 HPCs** that operate in Victoria (many are national). This includes charities that are only health promotion charities (1100) and charities that are also either CAHs (718), PBIs (18) or all three (85).

There are **2585 CAHs** that operate in Victoria. There is a significant overlap with HPCs as noted above, with 718 being both. Another 596 are also PBIs.

There are **3453 PBIs** that operate in Victoria. PBIs that support HMR are likely to also be CAHs (596), HPCs (18) or all three (85).

If duplications are excluded, there are 1099 HPCs and 1782 CAHs that are not also an HPC. PBIs are a much broader category of charity, and it seems they are unlikely to support HMR unless they are also a HPC or CAH.

On this basis there are around 2800 Australian charities that could be contributing in some way to HMR in Victoria, although the actual number is likely to be much lower; the activities of both HPCs and CAHs can include activities that are not HMR, including health promotion, health education and the delivery of health care.

37 Data derived from analysis of an ACCC dataset, ACNC 20181011_DATADOTGOV_Main.XLSX, downloaded on 13 November 2018 at https://data.gov.au/dataset/acnc-register

Competitive grants and targeted funding from charitable organisations

In much the same way that governments invite applications for grants subject to specific eligibility criteria, many charitable organisations do the same.

HMR specific charities

Many HMR specific, 'mission driven' charities invite applications for funding for specific purposes related to their own objectives. These range from small grants to individual students and researchers (travel to conferences, scholarships and fellowships) to long term funding for a whole team or institute.

For example, the Cancer Council of Victoria has an annual program of grants to support PhD students, mid-career researchers and a grant in aid program to support specific research projects. Its most recent Annual Report, to 31 December 2017, reveals that it allocated nearly $6 million in research grants to universities, medical research institutes and hospitals.[38] The Cancer Council of Victoria is registered with the ACNC as an HPC.

The Cancer Council Victoria also undertakes significant research activity in its own right, operating the Victorian Cancer Registry and the Centre for Behavioural Research in Cancer. These research activities complement its other work in prevention, patient support and education. In the year to 31 December 2017, this expenditure totalled more than $22 million. In the same period, it received more than $45 million in donations and bequests.

Funding from charities can often be for specific programs or purposes that support or augment existing research programs that attract other funding. It can also be for for initial experiments to generate the preliminary data needed to secure larger competitive project or program grant funding. In this way, charitable funding can work with, and augment, other funding sources.

Case Study: funding innovative research cost effectively

The Cure Brain Cancer Foundation (CBCF) formed in 2001 as Cure for Life Foundation. It has focused on public fundraising for research into brain cancers and public advocacy, raising $10 million in 2016/17.[39] One of its programs funds innovative approaches to research- new ideas that might not be funded by more 'mainstream' programs.

In November 2018, Professor Andrew Scott was the recipient of a $200,000 innovation grant from CBCF. The research is testing a new imaging technique to determine if it can help provide brain cancer patients with a more accurate prognosis. The patients are already participating in an existing clinical trial funded by the Medical Research Future Fund and undertaken as a partnership between La Trobe University and Austin Health. The funding from the CBCF is an effective and efficient 'value add' to the existing research program, enabling an assessment of this innovative imaging technique without the costs of establishing a new and separate clinical trial.[40] The CBCF is registered with the ACNC as both an HPC and a CAH.

38 Cancer Council Victoria, Financial Statement for the 12 months to 31 December 2017
39 https://www.curebraincancer.org.au
40 http://www.austin.org.au/page?ID=3139

Private foundations and charities

While the Cancer Council Victoria and CBCF are examples of charities that invite donations from the public and undertake fundraising activities, another category of foundations and charities rely on the resources of a specific individual or family for their funding. Examples of these private foundations and charities that are active in funding HMR include the Wicking Trust and the Ian Potter Foundation. These typically have a specific focus or purpose which directs their funding.

Case Study: The Wicking Trust

John and Janet Wicking were notable philanthropists and benefactors to many institutions during their lifetime, particularly in the areas of the arts, microsurgery and most notably, vision impairment. They provided moral and financial support to the Association for the Blind (now Vision Australia) for over 40 years. Mr Wicking was a Board Member of the Association for 18 years including 12 years as President.

The J.O. & J.R. Wicking Trust (The Wicking Trust) was established under the terms of John's will and provides for research into 'problems associated with blindness or visual impairment, or with ageing, or into the cause or treatment of Alzheimer's disease…'[41]

It typically initiates a call for applications annually, to address a particular theme or issue in one or more of the focus areas described above.

In 2018, the focus was on end of life care, with grants available for research to integrate the end of life system in:

- Education
- Networks and Roles
- Planning
- Navigation and Flow
- Choices[42]

Past grant recipients include the National Ageing Research Institute in 2015, which received funding to help accelerate the development of the Melbourne Ageing Research Collaboration. 'As the lead partner for MARC, the National Ageing Research Institute (NARI) has now been awarded $3.18 million over five years in the 2016 Wicking Trust Major Grants round to significantly improve the wellbeing and quality of life of older people living in community, hospital and residential settings.'[43]

The grant reflects the Trust's focus on supporting organisations that are well placed to affect systemic change in the wellness and quality of life of the aged and/or those with Alzheimer's disease. The Wicking Trust is registered with the ACNC as a CAH.

41 https://www.eqt.com.au/charities-and-not-for-profits/grants/jo-and-jr-wicking-trust

42 Wicking Trust Major Grants Program 2018 Guidelines, at https://www.eqt.com.au/~/media/equitytrustees/files/philanthropy/forms-guides-reports/wicking-trust-grant-guidelines.pdf?la=en

43 https://www.eqt.com.au/charities-and-not-for-profits/grants/jo-and-jr-wicking-trust/melbourne-ageing-research-collaboration-2016

Competitive grants and targeted funding from charitable organisations

Other charities and foundations with a broader range of interests are also important to HMR.

Case Study: Ian Potter Foundation

The Melbourne based Ian Potter Foundation, was established in 1964 and is today one of Australia's major philanthropic foundations. Sir Ian Potter (1902-1994), an Australian financier and stockbroker was the Foundation's founder and primary benefactor. While primarily reliant on this initial bequest, it is also eligible to receive donations from the public.[44]

With a wide remit, the Foundation's program areas are:

- Arts
- Community Wellbeing
- Education
- Environment & Conservation
- Health & Disability
- Medical Research
- Science, and
- Major Grants

An example of the Foundation's support for health and medical research is the $15 million donated in support of cancer research as part of the completion of the Victorian Comprehensive Cancer Centre. In recognition of the donation, Level 13 of the VCCC houses the Ian Potter Centre for New Cancer Treatments.[45]

At a much smaller scale, the Foundation funded a travel grant of $2000 for Dr Katherine Livingstone to attend the conference of The International Society for Behavioural Nutrition and Physical Activity in Canada in mid 2017.[46]

44 https://www.ianpotter.org.au/who-we-are/our-history/
45 https://www.viccompcancerctr.org/assets/Uploads/here.pdf
46 https://www.ianpotter.org.au/knowledge-centre/case-studies/dr-katherine-livingstone/

Private and Public Ancillary Funds

The creation of the legal and taxation framework for Private Ancillary Funds (PAFs) is an initiative by the Australian Government to encourage philanthropy by wealthy individuals and families. It is a form of trust with either one donor or several donors who are closely related (usually a wealthy individual or members of a family). Unlike a public charity, a PAF cannot advertise for donations from the public.

A contribution to a PAF can be claimed as a tax deduction by the donor in the year in which it is made. Contributions to a PAF can be distributed immediately as donations to charities that are eligible to receive tax deductible donations ('Deductible Gift Recipients', also known as DGRs). Alternatively, they can be retained in the PAF and invested, subject to a minimum (5%) of the net assets of the PAF being donated to DGRs each year.

A Public Ancillary Fund (PuAF) is essentially a variation on the theme. Whereas every PAF is a legally constituted trust in its own right and the contributors must be contributor, a PuAF is a single trust which accepts contributions from multiple contributors and may treat each as a separate sub account. It is a 'fund of funds' for PAFs. PuAFs must distribute a minimum of 4% of the net assets every year. Charities and Foundations that raise finds from the public for HMR and/or other purposes may be PuAFs. The Ian Potter Foundation (referred to above) and the Peter MacCallum Cancer Cancer Foundation (referred to below) are both PuAFs.

PuAFs and PAFs are administered by the Australian Taxation Office (ATO), and the most recent statistics available are for the 2015-16 financial year. As at 30 June 2016 there were 1426 PAFs and 1429 PuAFs. Together they had over $12 billion in assets and distributed more than $850 million to Australian charities (they are not permitted to support overseas charities). Total donations to PAFs and PuAFs in 2015-16 were more than $1.5 billion.

Public and Private Ancillary Funds, 2015-16[47]

2015-16	PAFs	PuAFs
Number	1426	1449
Donations received	$810,732,308	$768,309,886
Distributions made	$456,806,890	$394,141,696
Net Assets	$8,307,388,159	$3,822,370,243

47 Australian Taxation office, Taxation statistics 2015–16 Charities: Public and private ancillary funds, 2000–01 to 2015–16 income years

The average PAF had a balance of more than $5.8 million, and the average annual distribution was $320,000. The number of PAFs and PUAFs has been growing at around 10% per annum and the value of net assets held has almost doubled in the four years from 2012-13 to 2015-16.

Growth in Public and Private Ancillary Fund Assets 21012-13 to 2015-16[48]

	PAF	PuAF	Combined
Net Assets 2012-13	$3,402,968,710	$2,957,393,915	$6,360,362,625
Net Assets 2015-16	$8,307,388,159	$3,822,370,243	$12,129,758,402

Information from the ATO on the destination of donations is scant. The latest year for which a breakdown of donations by target area is provided is 2012-13, and there is no detailed description of the categories that are used. Nonetheless, in 2012-13, 6% of donations were to 'health' while 1.5% were to 'Research'. There is also no breakdown by State.

These figures suggest that if this trend has continued, PAFs and PuAFs have not been well utilised to fund HMR and that there is an opportunity to increase philanthropic support of HMR from PAFs and PuAFs. With a pool in excess of $12 billion, even a modest increase in the levels of funding to HMR could be a significant amount of money. For example, an increase in funding for HMR of 1% would be more than $120 million.

Victoria's strong showing in VC investments in health care/biotechnology and its historic overrepresentation in NHMRC grants suggests Victoria has the capacity and excellence in HMR needed to attract additional donations from PAFs and PuAFs for HMR.

48 Ibid

Crowdsourcing

Crowdsourcing has been one of the most innovative developments of the last decade and has allowed a range of projects to attract the financing they needed to succeed. Starting in the creative arts, the range of projects supported by crowdfunding has broadened in recent years.

One of the earliest examples of the use of crowdfunding as a platform for the funding of university research projects was 'Research My World', pioneered by Deakin University and Pozible in 2013. While many of the research projects, including some that were HMR related, met their financial targets, Deakin did not persist with the model as a means of raising funds for research.

In 2015, Researchable launched in Australia as an online platform for funding research.

> *'On Researchable, donors can directly fund and engage with research that matters to them from leading institutions around the world.*
>
> *Researchable uses a donations-based crowdfunding model that combines funding from the crowd (individual donors) with traditional philanthropy (high net worth individuals, businesses, charities and non-profits). Supporting Australian research projects on Researchable is tax deductible for Australian donors.'*[49]

However, Researchable no longer has an online presence and appears to have ceased to operate.

More recently the University of Melbourne has developed its own crowdsourcing platform, Funder@Melbourne.

> *'FUNDER@Melbourne enables you, either as an alumnus, student, parent, or friend, to directly support causes close to your heart. Whether it is supporting a student initiative, life-changing research breakthroughs, or to activate new scholarships, every bit you give will make a difference.'*[50]

Developed as part of the University of Melbourne's broader BELIEVE campaign, it does not appear to have been widely promoted or utilised to date.

A desktop review of other existing generalist crowdfunding websites revealed no current projects for research being funded directly. Crowdfunding platforms are being used to sponsor individuals undertaking specific activities to raise funds for a range of different causes- e.g. walking 500 kilometres to raise funds for a specific charity.

While the experience to date with the use of crowdsourcing to fund research has not been overly positive, crowdsourcing is still a relatively new and emerging concept. It is even possible that the 'Research My World' initiative and the Researchable platform were initiatives that occurred too early in the development of crowdsourcing and might be worth revisiting.

49 https://www.facebook.com/StartupDailyOnline/posts/hi-we-recently-launched-researchable-an-online-platform-for-funding-research-on-/1657804071144670/

50 http://alumni.online.unimelb.edu.au/s/1182/bp17/home.aspx?sid=1182&gid=1&pgid=12642

Donations and bequests

Donations and bequests direct to universities, hospitals and MRIs are a relatively small but important form of funding for HMR.

Medical Research Institutes

This contribution is clearest with Medical Research Institutes, where the sole (or predominant) activity is HMR and the donations and bequests are clearly being used to fud HMR. The following table, using information from 2017 financial statements, shows the significant variation in the donations and bequests received by Victorian MRIs, both in the dollar value and as a percentage of overall revenue.

Donations and bequests to Victorian MRIs, 2017

Medical Research Institute	Total Income	Donations & Bequests (D&B)	D&B as % of Total Income
Australian Centre for Heart Health	$1,577,259	$691,809	43.9%
Baker IDI Heart and Diabetes Institute Holdings Limited	$51,236,381	$17,256,978	33.7%
Burnet Institute	$43,713,921	$5,190,305	11.9%
Centre for Eye Research Australia Limited	$18,607,139	$3,573,514	19.2%
Florey Institute of Neuroscience and Mental Health	$73,268,000	$6,739,000	9.2%
Institute for Breathing and Sleep	$2,002,902	$1,253	0.1%
Murdoch Children's Research Institute Vic)	$110,341,771	$17,213,612	15.6%
National Ageing Research Institute	$2,158,724	$91,596	4.2%
National Institute for Aboriginal and Torres Strait Islander Health Research Limited (Lowitja Institute)	$4,805,874	$0	0.0%
St. Vincent's Institute of Medical Research	$22,408,892	$3,657,149	16.3%
The Bionics Institute of Australia	$6,733,140	$174,757	2.6%
The Walter and Eliza Hall Institute of Medical Research	$116,165,000	$9,327,000	8.0%

Nearly all the MRIs are registered as an HPC, with many also registered as a CAH. Several are also registered as a PBI.

Hospitals

Many public and not for profit hospitals have foundations and/or undertake fundraising to support research and training and to buy equipment.

The Northern Health Foundation (registered with the ACNC as a CAH) manages donations and philanthropic support for teaching, training and research, education, capital works and the purchase of medical equipment within Northern Health. Annual fundraising events include a gala dinner and a major raffle. Its current research program supports projects spanning the fields of genetics; chronic disease; aging; and health systems, structure and processes.[51]

The **RMH Neurosciences Foundation** supports neuroscience research at the Royal Melbourne Hospital. It generated more than $8 million in revenue in the year to 30 June 2017.[52]

The **RWH Foundation**, based at The Royal Women's Hospital is a CAH. In 2017-18 it distributed $2.12 million to the hospital, 77% of which was funding for research.

> *'Our focus on advances in research went towards conducting the world's largest study to compare BMI with endometriosis and over $400,000 invested in our Centre for Women's Mental Health. This investment created the Safe Mothers, Safe Babies program to support pregnant women at risk of domestic violence along with conducting the Building Early Attachment and Resilience (BEAR) study to help mums with mental health issues interact better with their baby.'*[53]

The **Austin Medical Research Foundation** is a CAH based at the Austin Hospital. It funds:

- young researchers to kick-start their careers;
- clinicians who would like to combine research and clinical work; and
- established researchers with innovative ideas.

In 2017 the AMRF awarded $489,000 in grants and funded 70% of applications.[54]

The **St Vincent's Hospital Foundation** actively raises funds for medical care, research and training. In 2016-17, projects it funded included $31,000 toward a new clinical research centre for cancer, and $114,231 towards a world first clinical trial in Neuroscience treatment.[55]

The **Epworth Medical Foundation** raises funds to purchase state-of-the-art technology, build world-class facilities, conduct research and provide innovative services. Recently the Foundation has supported a new research project in prostate cancer treatment at the Epworth Radiation Oncology facility.[56]

51 http://www.nhfoundation.org.au/support/donation/
52 http://www.neuroscience.org.au
53 https://www.thewomens.org.au/support-us/what-your-donations-helped-achieve-2017-18/
54 http://www.austinmrf.org.au
55 https://www.stvfoundation.org.au/what-we-do
56 https://epworthmedicalfoundation.org.au

Donations and bequests

Universities

The role of donations and bequests in funding health and medical research at universities is less clear than in MRIs because universities undertake teaching and research in a whole range of disciplines, and data on donations and bequests specific to HMR are not available. This wide scope of activities is reflected in how they are registered as charities; while all Victorian universities are registered with the ACNC as charities advancing education, despite their extensive HMR activities none are registered as HPCs or as CAHs.

Donations and bequests to Victorian universities, 2017[57]

University	Donations and Bequests	% of total income
Australian Catholic University*	$958,000	0.2%
Federation University	$490,000	0.2%
La Trobe University	$1,939,000	0.3%
Monash University	$17,158,000	0.8%
RMIT University	$1,467,000	0.1%
Swinburne University	$1,707,000	0.3%
University of Melbourne	$93,270,000	3.7%
Victoria University	$1,830,000	0.2%
Deakin University	$1,631,000	0.2%

*ACU is a national university with large campuses in several states

Overall there is less variability between universities than there is among MRIs, although the 'standout' is the University of Melbourne. Its donations and bequests dwarf those of other universities, both in dollar terms and as a percentage of total income.

57 Data obtained from universities' 2017 financial statements

National Comparison

There is also a significant variation in the importance of donations and bequests between states and territories. While data are not available for donations used specifically for HMR, the following data on donations made for the purpose of funding research across all fields is indicative of the degree of variation. Australia wide, donations bequests and foundations provide only a small percentage of university's funding expended on research. The data indicates that in Victoria, donations, bequests and foundations are a smaller percentage (1.4%) than Australia wide (2.3%).

Donations, bequests and foundations expended on research as a percentage of total university expenditure on research, 2016[58]

Australian Capital Territory	1.2%
New South Wales	3.6%
Northern Territory	0.0%
Queensland	3.0%
South Australia	1.4%
Tasmania	0.6%
Victoria	1.4%
Western Australia	1.5%
Australia	**2.3%**

Case Study: Believe- the Campaign for the University of Melbourne.

The University of Melbourne launched Believe- the Campaign, in 2013 with the aim of raising $500 million by the end of 2017. This goal was achieved and a new goal of raising $1 billion by 2021 has been set. As at 31 December 2017, the Campaign had raised $746.7 million. The funds are being used for a range of purposes. 'Financial gifts have supported scholarships, enabled life-changing research and created new opportunities for engagement with the community beyond University boundaries.'[59]

In addition to $93 million in donations and bequests in the year, the University of Melbourne reported that it earned $57 million in Endowment Philanthropic Income.

"Endowment philanthropic income represents capital donations where the principal is to remain intact for a defined time period and income is generated on that principal for utilisation in future years."[60]

58 Australian Bureau of Statistics, 81110DO003_2016 Research and Experimental Development, Higher Education Organisations, Australia, 2016 Table 1 Higher education expenditure on R&D, by location, by source of funds, 2016
59 University of Melbourne, 2017 Annual Report, p.57
60 University of Melbourne, notes to the 2017 Financial Statements, p.111

Overseas philanthropy

Australian HMR is also a destination for overseas philanthropy. The Bill and Melinda Gates Foundation and the Wellcome Trust have both supported HMR in Australia and Atlantic Philanthropy made substantial donations to HMR in Queensland in the first decade of this century.

Case Study: Medicines for Malaria Venture

The Medicines for Malaria Venture started in 2009. Funded from a range of international sources, it has raised USD 1.019 billion dollars as at December 2017; a little more than half of this funding has come from the Bill and Melinda Gates Foundation.

Australian researchers have been active in MMV's work. The 2017 Annual Report identifies Monash University, University of Melbourne, University of Sydney, QIMR Berghofer, Griffith University and the Menzies School of Health as recipients of funding for research. The Australian Government Department of Foreign Affairs and Trade is a donor to MMV.[61]

Lesser known foundations are also making significant contributions.

Case Study: Resolving major global health challenges

'The University (of Melbourne)'s position within the Melbourne Biomedical Precinct, and as a member of the new Victorian Comprehensive Cancer Centre (VCCC) alliance, was strengthened by a $3.97 million investment by the Li Ka Shing Foundation (LKSF) in precision oncology research at the University of Melbourne Centre for Cancer Research (UMCCR). Support from the LKSF will upscale genomic sequencing and data collection capacity at the UMCCR, with the goal of identifying new drug targets and treatments for upper gastrointestinal cancers. The gift also establishes a clinical knowledge exchange between the Peter MacCallum Cancer Centre and the Shantou University Medical College Affiliated Cancer Hospital. In November, research at the UMCCR was further bolstered by a $3 million gift from the Peter MacCallum Cancer Foundation.'[62]

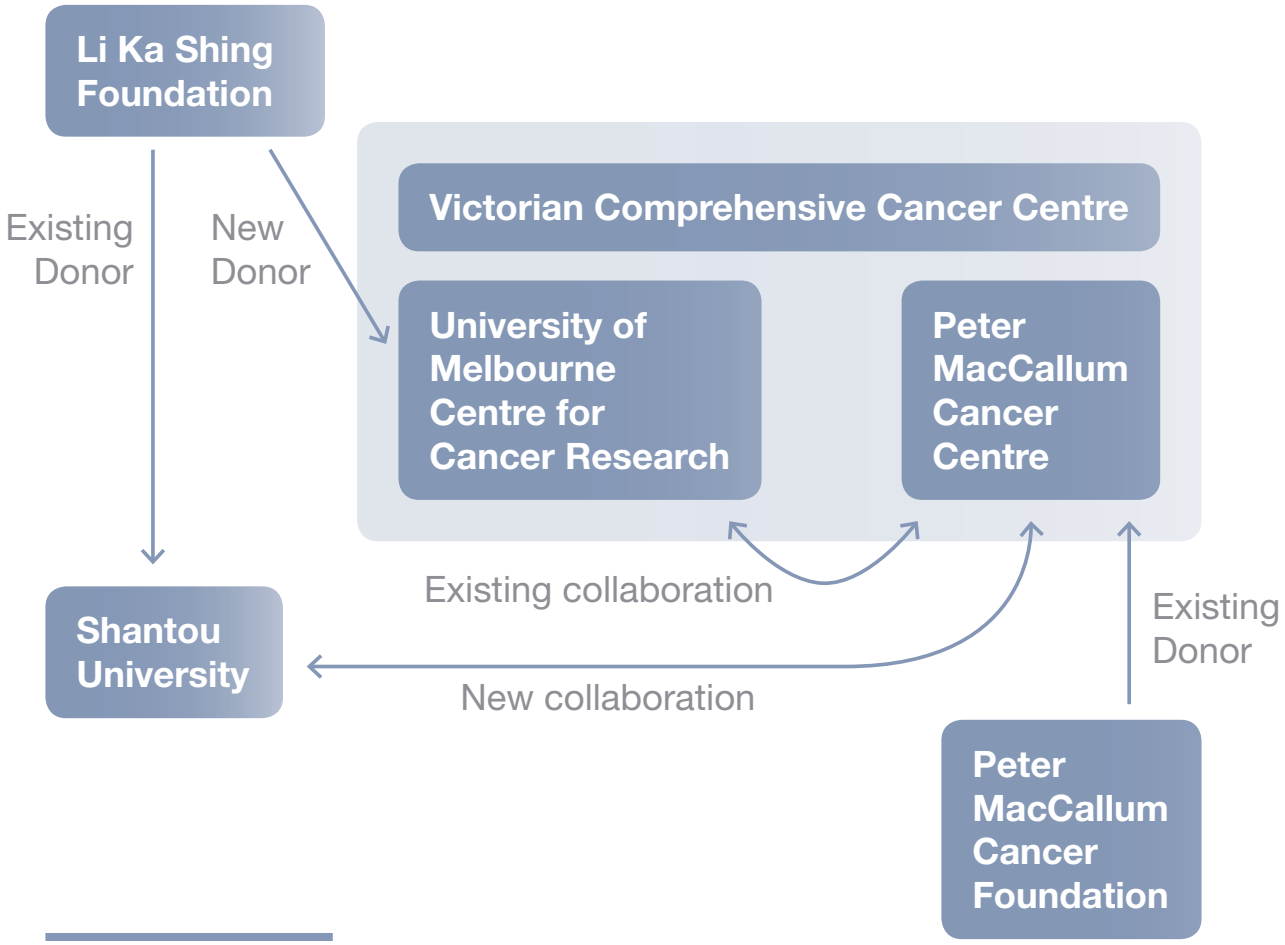
The Li Ka Shing Foundation is a Hong Kong based philanthropic Foundation created in 1980 by Entrepreneur Li ka Shing. 'Healthcare and education are vital to society and have been central to our projects since LKSF was founded in 1980. We are helping hospitals, schools and universities across 27 countries and regions so that they can have the best impact possible.'[63]

Other significant donations by LKSF to overseas universities include £20m to establish the Centre for Health Information and Discovery at Oxford University, and NZ$5 million (HK$27.6 million) to the University of Auckland.[64]

61 Medicines for Malaria Venture, Annual Report 2017
62 Ibid, p.57
63 https://www.lksf.org/our-initiatives/about/
64 https://www.lksf.org/worlds-largest-health-big-data-institute-opens-in-oxford/; https://www.lksf.org/li-ka-shing-foundation-gifts-nz5-million-to-university-of-auckland-to-promote-innovation-and-philanthropy/

As the case study demonstrates, the relationships in HMR can be complex. The University of Melbourne Centre for Cancer Research, which was the recipient of the grant from the Li Ka Shing Foundation, is based in the Victorian Comprehensive Cancer Centre, which is also where the Peter MacCallum Cancer Centre is located. The Peter MacCallum Cancer Centre is a research institute dedicated to cancer research. It has 39 laboratories and/or research programs.[65] The Peter MacCallum Cancer Foundation supports the research at the Peter MacCallum Cancer Centre. The donation by the LKSF has helped to support collaboration between researchers at the Peter MacCallum Cancer Centre and the Shantou University, another beneficiary of the Li Ka Shing Foundation.

Philanthropy inspiring new collaboration



65 https://www.petermac.org/research/labs

Universities' own funds

Universities are large organisations with broad responsibility for research and training across the breadth of human knowledge and experience. They also have very large budgets, and while much of this is allocated for specific purposes, they have some discretion in how funds are utilised.

The following table, using data from the Australian Bureau of Statistics (ABS), shows the percentage of university research funded from 'General University Funds'. The ABS define General University Funds (GUF) as funds used for research that are not targeted by the donor/funding body to research. Sources of this funding include revenue from teaching students, interest income, general donations and bequests, and universities' commercial operations. It excludes competitive grants from government (NHMRC, ARC etc.) and other sources, and Australian Government block funding linked to research.

On average, GUF accounted for more than half of all funds expended on research by universities in 2016.[66]

Percentage of research funded from general university funds, by State, 2016

Australian Capital Territory	61.0%
New South Wales	51.3%
Northern Territory	65.8%
Queensland	60.1%
South Australia	44.9%
Tasmania	42.4%
Victoria	58.0%
Western Australia	61.9%
Australia	**55.8%**

While it is clear that universities have a significant level of discretion in their total expenditure on research, it is important to note that research-specific funding programs are 'grant in aid' and rarely if ever, fund the full costs of research. In many cases, GUF are used to meet the additional direct and indirect costs associated with research that is funded by other programs. This reduces the level of discretion universities have in how GUF are allocated. Nonetheless universities do have control over their own research agendas and can use GUF strategically to build funding partnerships, increase research capacity in key areas, and leverage funding from other sources.

66 Australian Bureau of Statistics, Cat. No. 81110DO003_2016 Research and Experimental Development, Higher Education Organisations, Australia, 2016, Table 1

Corporate Philanthropy

Corporate Australia is a source of philanthropy for HMR. Examples include the Macquarie Foundation, AMP Foundation, and the BUPA Foundation. HMR is also frequently the beneficiary of corporate giving programs (regular donations to charities deducted from employees' pay) and corporate employee engagement programs, in which groups of employees participate in fundraising activities for charities, often on 'company time'.

Case Study: BUPA Foundation

The BUPA Foundation is funded by BUPA, which is UK based health insurer that participates in the Australian health insurance market. The Foundation has invested more than $30 million in Australian projects since 2005 and has a strong focus on research that supports translation and/or is translatable. It undertakes a call for applications each year in several different programs including its annual Emerging Health Research Award, with a $25,000 prize, and its Foundation Grants Program.

In 2018, the Foundation's grants grogram had a focus on mental health, seeking to fund research that will lead to improved models of care for individuals experiencing mental illness.[67]

As a health insurer, the focus of the Bupa Foundation on research makes sense, complementing its own area of expertise and interest in a healthier community. However, health is important to all of us, and HMR has an appeal well beyond companies that operate in this sector.

67 https://www.bupa.com.au/about-us/bupa-health-foundation/about

Corporate Philanthropy

Case Study: The SOHN Hearts and Minds Investment Leaders Conference

Modelled on an American initiative and partnered with the SOHN Conference Foundation, the Australian SOHN Hearts and Minds Investment Leaders Conference has operated annually in Australia since 2016. 'The conference attracts distinguished global and local investment professionals who share their expertise and exclusive investment ideas in an inspiring, one-day, fast paced format.'[68]

All proceeds from the conference are donated to the selected HMR charities and the event has raised $8 million for HMR since its inception.

The Conference has inspired the creation of Hearts and Minds Investments Limited, an investment company open to private investors. It is taking the standard template for a listed investment vehicle, investing in other companies to generate a commercial return for shareholders, but with a philanthropic twist. The fund managers are donating their services (i.e. not receiving management fees) and a portion of the assets of the Fund (approximately 1.5%) will be donated every six months to the selected charities- all leading Australian medical research organisations. The initial fundraising target of $500 million in shares was reached ahead of schedule and the company started trading on 14 November 2018, putting it on track to donate approximately $15 million per annum to the selected research organisations.[69]

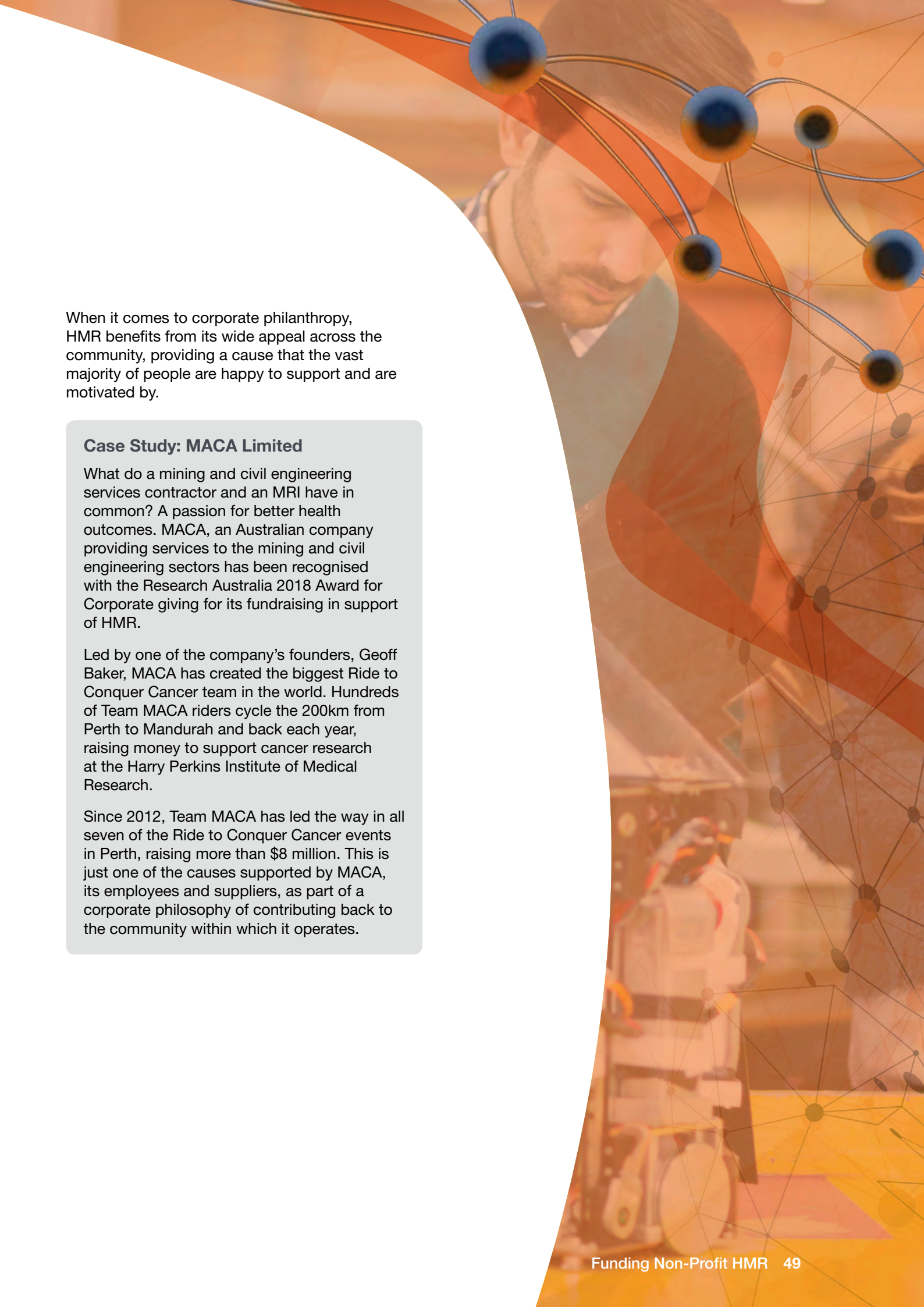
The designated recipients are:

- Victor Chang Cardiac Research Institute
- Black Dog Institute
- Brain and Mind Centre, Sydney University
- The Charlie Teo Foundation
- The Children's Hospital at Westmead - Paediatric Intensive Care Unit, Research
- The Florey Institute of Neuroscience and Mental Health
- The Centre of Human Psychopharmacology, Swinburne University
- Multiple Sclerosis Research Australia Limited
- Orygen
- Royal Prince Alfred Hospital, research[70]

The Company's directors are also donating their services. All are senior figures in the corporate and financial services sector, several of whom are also on the boards of health and medical research organisations or charities. For example, Lorraine Berends is a director of the Trustee Company for the Mothers' Day Classic, an annual event which raises funds for breast cancer research; Matthew Grounds is Chairman of the Victor Chang Cardiac Research Institute; Geoff Wilson AO is a director of The Sporting Chance Cancer Foundation; and Michael Trail AM is the Founder of Social Ventures Australia.[71]

And this is where the innovation lies. While Australia's corporate leaders have often lent their expertise and networks to the Boards of not for profit research organisations and fundraising charities, Hearts and Minds Investments enables the directors and fund managers to utilise their core expertise in investment management to generate funds for research.

68 https://sohnheartsandminds.com.au/about/
69 http://www.heartsandmindsinvestments.com.au/site/PDF/1130_0/CharitableLICreachesoffertargetearly
70 http://www.heartsandmindsinvestments.com.au/site/charities/charities1
71 http://www.heartsandmindsinvestments.com.au/site/the-company/board



When it comes to corporate philanthropy, HMR benefits from its wide appeal across the community, providing a cause that the vast majority of people are happy to support and are motivated by.

Case Study: MACA Limited

What do a mining and civil engineering services contractor and an MRI have in common? A passion for better health outcomes. MACA, an Australian company providing services to the mining and civil engineering sectors has been recognised with the Research Australia 2018 Award for Corporate giving for its fundraising in support of HMR.

Led by one of the company's founders, Geoff Baker, MACA has created the biggest Ride to Conquer Cancer team in the world. Hundreds of Team MACA riders cycle the 200km from Perth to Mandurah and back each year, raising money to support cancer research at the Harry Perkins Institute of Medical Research.

Since 2012, Team MACA has led the way in all seven of the Ride to Conquer Cancer events in Perth, raising more than $8 million. This is just one of the causes supported by MACA, its employees and suppliers, as part of a corporate philosophy of contributing back to the community within which it operates.

Leveraging government funding to encourage philanthropy

One way governments can influence donors is by partnering with them to support a particular cause. This can be particularly effective in an area like HMR, which traditionally attracts both government funding and philanthropy.

Collaboration in cancer research

Perhaps one of the best examples in HMR is the Priority Driven Collaborative Cancer Research Scheme (PdCCRS).

Cancer Australia is an Australian Government agency, 'established in 2006 to benefit all Australians affected by cancer, and their families and carers. Cancer Australia aims to reduce the impact of cancer, address disparities and improve outcomes for people affected by cancer by leading and coordinating national, evidence-based interventions across the continuum of care.'[72]

Since 2007, Cancer Australia has partnered with cancer charities to provide the Priority Driven Collaborative Cancer Research Scheme (PdCCRS). Each year the program funds research in selected priority areas, agreed between Cancer Australia and its funding partners.

The stated aims of the Program are to:

- coordinate funding of priority-driven cancer research at the national level;
- foster collaboration between cancer researchers to build Australia's cancer research capacity; and
- foster consumer participation in cancer research, from design to implementation.

Over the course of the program to 2016, 78% of the funding provided through the PdCCRS came from Cancer Australia, with the balance coming from the other partners.[73] Cancer Australia takes responsibility for designing the eligibility criteria and the call for applications and utilises the expertise of the National Health and Medical Research Council in evaluating applications and administering grants.

MRFF Missions

The Australian Government is utilising funding from the MRFF to tackle missions in key disease areas. In several instances it is seeking to coordinate research and inspire philanthropic support by partnering with philanthropy.

Brain Cancer Mission

The Brain Cancer Mission was announced in October 2017 by the Australian Minister for Health, the Hon. Greg Hunt MP. The Government is providing $55 million through the Medical Research Future Fund (MRFF), to be matched by another $50 million from philanthropy. At the time of the launch $10 million had been committed from the Minderoo Foundation's Eliminate Cancer Initiative and a commitment of $20 million had been made by the Cure Brain Cancer Foundation (CBCF).

Since the launch, further funds have been committed by Carrie's Beanies 4 Brain Cancer ($5 million), the Mark Hughes Foundation ($3 million), the State of Queensland through the Children's Hospital Foundation Queensland ($10 million) and the State of Victoria ($2 million).[74]

72 https://canceraustralia.gov.au/about-us
73 https://canceraustralia.gov.au/sites/default/files/pdccrs-factsheet2016.pdf
74 https://canceraustralia.gov.au/research-data/research/australian-brain-cancer-mission

The sources of the philanthropy are varied. The Cure Brain Cancer Foundation has focused on public fundraising for research into brain cancers and public advocacy, raising $10 million in 2016/17.[75] It was instrumental in initiating a Senate Select Committee Inquiry into research funding for low survival cancers which in turn provided impetus for the Brain Cancer Mission.

The Minderoo Foundation is a very different entity. It was created in 2001 by Andrew and Nicola Forrest and is funded by them. It has supported over 250 initiatives across Australia and abroad including projects in education, research, Indigenous affairs, disaster response and the arts.[76] Its contribution to the Brain Cancer Mission is part of a broader, multinational $400 million Eliminate Cancer Initiative being undertaken by the Minderoo Foundation.[77]

Carrie's Beanies for Brain Cancer is another mission focused foundation that raises donations from the public for brain cancer research.[78] The Mark Hughes Foundation also has a focus on brain cancer, raising funds from the public for research, patient support and advocacy.[79]

The Brain Cancer Mission is being administered by Cancer Australia.

Million Minds

In a similar vein, the Million Minds Mental Health Research Mission, announced in March 2018, aims to assist up to one million people by supporting innovative and ground-breaking mental health and suicide prevention research.

The Mission will commence in 2019, and $125 million in funding will be provided over ten years from the Medical Research Future Fund (MRFF). Donations and contributions from other governments and sectors are being sought to increase its impact, although at the time of preparing this report, no philanthropic funding had been announced.

75 https://www.curebraincancer.org.au
76 https://www.minderoo.com.au/about-minderoo/
77 https://www.minderoo.com.au/news/2017/05/22/global-cancer-collaboration-part-of-significant-new-donation/
78 https://www.carriesbeanies4braincancer.com/about
79 https://markhughesfoundation.com.au

Leveraging government funding to encourage philanthropy

Advantages

A key advantage for government of this type of partnering is that it can attract additional funding to HMR, which is an area the government supports in any case and is willing to fund.

The advantages for donor organisations include the efficiencies that can be achieved from economies of scale. These are particularly evident if the government partner covers some or all of the costs of running the application process, selecting successful applications and administering grants, as is the case with the PdCCR and the Brain Cancer Mission.

There is also the opportunity to influence government decisions about what gets funded. Kid's Cancer Project CEO, Owen Finnegan outlined the advantages of participating in the PdCCR in an article for the Consumers Health Forum in April 2018.

> "The PdCCRS gives us an opportunity to collaborate, becoming part of a bigger research program that allows us to achieve more. It is also a way of encouraging the Federal Government to look at how its funding for cancer research is directed, by putting forward our priorities as part of the Program," said Owen.
>
> Another advantage of the PdCCRS is that Cancer Australia covers the cost of administering the scheme through the NHMRC. "For The Kids' Cancer Project the opportunity to see our money going further through collaboration and reducing the logistical challenge of the reviewing process allows us to spend more of our time on our core business of engaging our community and encouraging them to support research," Owen said.[80]

Reducing the charity's administration costs can be an advantage in attracting donors, with the charity being able to promote the fact that all (or a large proportion) of donations go directly to funding the research.

A further advantage for the charities involved is that the public may be more likely to donate to a cause that is supported by government. In Research Australia's 2018 opinion polling, we surveyed people about their propensity to donate to charities that were partnering with government. We were curious to know if people who are already making donations would be encouraged to donate more if they know a government was prepared to match their donations. Or would they discouraged by the knowledge that government funding was available, and instead donate to other causes? Among people who already donate to HMR 53% indicated they would be likely to donate more if a government matched their donation. 43% said it would make no difference, and only 4% would be likely to donate less.[81]

While the polling did not explore the reasons, it seems likely that donors are influenced by the notion of effectively doubling their donation through matching, (the leveraging effect) and that the involvement of government is an assurance that the cause is worthwhile, and the funds will be used well. The latter reason may be more relevant in a complex area like HMR than when donating for other causes, where people may be more readily able to assess the value of the specific proposal.

For researchers, the advantages include larger programs with more funding, fewer funders and application processes to deal with, larger grants and clear and familiar guidelines and grant administration processes. It can also help researchers to build links with charities that support their work.

80 Consumers Health Forum Australia, Health Voices, Issue 22, April 2018, Consumer directed research- powering results http://healthvoices.org.au/issues/april-2018/consumer-directed-research-powering-results/

81 Research Australia, 2018, Australia Speaks! 2018 Opinion Polling for health and medical research, p. 18



CONCLUSION

With annual expenditure of around $2.7 billion, Victorian HMR is both a significant and strategically important part of Victoria's economy. Victoria undertakes world class health and medical research, and with goals of better health outcomes, safer and more effective healthcare and commercialisation of research discoveries, it is an activity that resonates across the whole of Victoria's economy and community. It is also an area in which Victoria has strategic advantages.

While government funding of HMR is the bedrock of this system, contributions from the private and not-for-profit sectors are also significant. The relationships between the different research organisations and the different sources of funding are complex.

Like an ecosystem, a change in one area can have repercussions, both good and bad, for the whole system. While the purpose of this report has been to describe this ecosystem as it currently exists, better understanding the contributions made by each participant is an essential first step to understanding how Victorian HMR can be further enhanced.



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