SAHMRI
South Australian Health & Medical Research Institute

South Australian Health and Medical Research Institute (SAHMRI)

Response to the South Australian Productivity Commission Health and Medical Research Draft Report

9 October 2020

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Acronyms & Definitions

AAMRI	Association of Australian Medical Research Institutes
AHIP	Adelaide Health and Innovation Partnership
AHRTC	Advanced Health and Research Translation Centre
AI	Artificial Intelligence
AIML	Adelaide Institute of Machine Learning
ANZDATA	Australia and New Zealand Dialysis and Transplant Registry
AOA	Australian Orthopaedic Association
CALHN	Central Adelaide Local Health Network
DGR	Deductible Gift Recipient
HERDC	Higher Education Research Data Collection
HREC	Human Research Ethics Committee
HIVE	Health Innovation Ventures
HSCGB	Health Services Charitable Gifts Board
HMR	Health and Medical Research
HMRI	Health and Medical Research Institute
HTSA	Health Translation SA
IP	Intellectual Property
LHN	Local Health Network
MRCF	Medical Research Commercialisation Fund
MRFF	Medical Research Future Fund
MRI	Medical Research Institute
NALHN	Northern Adelaide Local Health Network
NHMRC	National Health and Medical Research Council
PIRL	Preclinical Research Imaging Laboratories
RAH	Royal Adelaide Hospital
RCSF	Research Commercialisation Start-up Fund
ROSA	Registry of Senior Australians
SAHMRI	South Australian Health and Medical Research Institute
SAGC	South Australian Genomics Centre
SALHN	Southern Adelaide Local Health Network
SAPC	South Australian Productivity Commission
WCHN	Women's and Children's Health Network

Definitions

Clinical Researcher: A researcher who focuses on new and better ways to detect, diagnose, treat, and prevent disease.

Clinician researcher: A medical health care professional who works with patients to carry out research projects. Clinician researchers are defined as those researchers with a concurrent clinical role/duties and appointment in the clinical setting.

LHN: Includes all State Government hospitals and health services.

Non-Medical Clinician Researcher: A non-medical health care professional (e.g. dieticians, nutritionists) who work with patients to carry out research projects.

North Terrace Precinct: Includes SAHMRI, Adelaide University, University of South Australia, CALHN and WCHN

SA Health: SA Health is the brand name for the health portfolio of services and agencies responsible to the Minister for Health and Wellbeing. It includes the Department for Health and Wellbeing and each LHN.

Southern Precinct: Includes SALHN and Flinders University.

EXECUTIVE SUMMARY

SAHMRI acknowledges the work of the Commission in the preparation of its Draft Report. Our principal focus in providing this response concerns the options for the future of SAHMRI.

KEY RECOMMENDATIONS

Our key recommendations are that SAHMRI:

- Remains an independent centre of excellence for health and medical research;
- Continues to focus on research excellence with high potential to translate into clinical care, health policy and improved health outcomes;
- Increases engagement with SA Health to reinvigorate clinical research within the health system for improved patient outcomes;
- Adapts its governance model (Members and Directors) to facilitate the above focus, in line with a modified Option 3:

  Maintain SAHMRI as an independent Health and Medical Research Institute (HMRI) with the purpose of research excellence and translation. SAHMRI should increase its focus on clinical research through greater engagement with the LHNs, especially CALHN and WCHN. The SAHMRI governance model should be changed to:

  - *Members who are the relevant Government Minister together with the Board Directors from time to time;*
  - *An independent skills-based Board.*
- Receives further investment from the State Government to allow SAHMRI to realise its potential and deliver economic returns to the State.

We support the findings of the Commission in relation to:

- The recognition given to the importance of health and medical research in the context of improvements to health outcomes;
- Acknowledgement that the challenges facing health and medical research in SA are sector-wide and must be addressed as such, with specific attention given to the Universities and SA Health, where decreases in productivity over the last 10 years are most evident; and
- The successful leadership of SAHMRI in the health and medical research landscape and the contribution that we have made since our establishment as a high-performing institution.

Furthermore, we are encouraged by the Commission's observation that SAHMRI has not been competing with the Universities, but rather positively contributing to the State's health and medical research performance.

We are pleased that the Commission acknowledged SAHMRI's contribution to funding success, as well as the high number of our research outputs published in journals of international standard.

The Future of SAHMRI

A focus on excellence

In the context of an exceptionally competitive national health and medical research sector, SAHMRI will continue to increase the success of the State, by building on the opportunities presented in relation to health services and clinical research. Only by being an independent centre of excellence for health and medical research, with a strong translational focus, can SAHMRI continue to position itself to accelerate research excellence and help reverse the State's decline in proportion of grant funding identified by the Commission.

Since our establishment, SAHMRI has achieved significant state-wide collaborative ventures of which we are very proud. In contrast to the view of the Commission and the Universities, these collaborations have always been, and will continue to be, based on the premise of research excellence.

In SAHMRI's relatively short history, through our focus on research excellence, we have contributed enormously to increasing South Australia's health and medical research capacity. We have demonstrated impact through improvements to patient care in a number of ways. Just four examples of our impactful research are:

- Precision oncology for Chronic Myeloid Leukemia patients;
- Improved health equity for Aboriginal Australians through the establishment of the SA Aboriginal Chronic Disease Consortium;
- Improvements in perinatal care that are resulting in better neurodevelopmental outcomes for preterm children and reductions in direct hospital costs; and
- Development of benchmark reports on the quality of aged care providers for the Department of Health and Aged Care Quality and Safety Commission.

The recent challenges raised by the COVID-19 virus have demonstrated the critical importance of an internationally recognised research institute closely aligned with government healthcare priorities. SAHMRI has demonstrated flexibility and responsiveness during the pandemic, undertaking key pieces of research as well as providing over 20 rapid evidence reviews directly to the Chief Public Health Officer.

To improve outcomes for our patients and communities, the South Australian health and medical research sector needs to be competitive, not only against other Australian research groups but also internationally. As an independent HMRI, SAHMRI will continue to advance the international competitiveness with flow on benefits for the economy of the State.

Governance

As an Institute, we expend a lot of energy addressing the mixed messages and concerns raised by our University Members, and the subsequent need to address these at a Board and State Government level. Their concerns (documented in their submissions to the SAPC) regarding the inputs and outputs of SAHMRI were found to be largely unsubstantiated by the Commission.

The complexity of SAHMRI's current governance structure, with all three Universities and the State Government represented both as Members of the Company and as Board Directors, encourages this tension, as identified by the Commission.

SAHMRI is confident that our existing **structure** - as a separately incorporated, independent health and medical research institute (HMRI) - is the right one. Only as an independent HMRI can SAHMRI effectively contribute to the state-wide objectives of increased health and medical research funding and translational output as identified and recommended by the Commission. Our successes since establishment are testament to the appropriateness of our structure – SAHMRI could not have achieved what we have achieved, had we been part of a Government entity or part of a university. It is however timely in this current instance to review and change our **governance model** to enable it to be more contemporary.

As an independent HMRI, SAHMRI can continue to play a leadership role in health and medical research across the State. We propose changes to our Governance model, including the appointment of an independent skills-based Board and replacement of current Members with the relevant Government Minister together with the Board Directors from time to time. These governance changes will support SAHMRI's enhanced focus on clinical research excellence, stemming from stronger relationships with SA Health, specifically in the North Terrace Precinct.

Research direction of SAHMRI

SAHMRI's vision has always been to be at the centre of health and medical research and translational activities in the State, and SAHMRI is perfectly placed to be the interface between the health system and medical research. Our structure includes researchers working across the discovery continuum, from basic science through to population health. This breadth of research expertise provides us with the capacity and agility to respond to emerging priorities and to sustain work on continuing priorities of State, national and international relevance. Through a focus on excellence and with a responsive operational structure, SAHMRI will continue to make its mark by accelerating the delivery of high-impact translational research which is needed for effective and efficient health care delivery in the State.

State-wide Leadership

SAHMRI was established to provide state-wide leadership in the South Australian health and medical research sector. We will continue to fulfill this role and build on the achievements that we have made to date – including, by way of example, the development of critical infrastructure (e.g. delivering large animal imaging at PIRL, supporting registries including ROSA and AOA, leading the SA Genomics Centre), recruitment of internationally recognised researchers and, policy and guideline change leading to state-wide health service improvements. In addition, we were instrumental in the establishment of Health Translation SA and see them as contributing an ongoing state-wide research translation enabling function moving forward.

Engagement with SA Health for improved clinical research outcomes

We agree with the Commission that SAHMRI's ongoing and increasing engagement with SA Health (incorporating the LHNs) will only improve our competitiveness as a state and ultimately lead to better patient outcomes.

With a sole focus on health and medical research, and a commitment to translation, SAHMRI is an ideal partner for the State's health system and has a key role to play in delivering evidence-based research that contributes to real improvements in patient outcomes.

We must become a State where health and medical research is recognised for the economic, social, health and knowledge benefits it produces; and where the translational impact of research is valued and research is integrated rapidly and seamlessly within the health system with the goal of improved health outcomes.

SAHMRI is excited about the creation of the Adelaide Health Innovation Partnership (AHIP) between SAHMRI and CALHN, and believes that this is a strategic way for the Institute to pursue an agenda of research excellence, in collaboration with CALHN and North Terrace precinct partners. The Partnership ensures strong connections between clinicians and researchers for improved patient outcomes, demonstrating clear alignment with SAHMRI's increased focus on clinical research. The physical co-location of SAHMRI with the Royal Adelaide Hospital, the University of Adelaide and the University of South Australia, together with their structural connections within the AHIP, will result in a unified effort to deliver excellence in clinical research and patient-centred health care within the North Terrace Precinct.

SAHMRI has a strong and functionally embedded partnership with the Women's and Children's Health Network (WCHN) which we will continue to strengthen. The SAHMRI Women and Kids Theme is housed within the Women's and Children's Hospital which offers significant opportunities for greater interaction between researchers and patient care.

In addition to the AHIP, SAHMRI will develop stronger ties with each of the LHNs, recognising the important link between excellent science, high-quality clinical research and improved patient outcomes. SAHMRI will approach each of the LHNs with the view of developing a strategic research partnership agreement with each.

There is a unique opportunity to enhance the health system through SAHMRI's focus on excellence and a reinvigorated approach to clinical research within the health system. Excellent clinical research must be underpinned by discovery science; an area in which SAHMRI excels. Clinical research will greatly benefit from the close relationship between researchers and clinicians via SAHMRI and the LHNs, and utilisation of the high-quality infrastructure in place at SAHMRI. This can only be achieved if the best and brightest researchers and clinical academics are attracted and retained, with the goal of continually building capacity within the health system to support all aspects of clinical research.

SAHMRI's Response to the Options

In SAHMRI's view, neither Options 1 nor 2 will allow us to play our critical role as an independent HMRI, pursuing excellence in the way that we have to date, and maintaining our national competitiveness and contributing to State-wide health improvements.

Incorporating SAHMRI as a Government entity (Option 1) does not provide the flexibility we need to attract and retain talent, expend research funds in a timely manner, or attract philanthropic donations.

A key responsibility of all universities is teaching, while SAHMRI's sole purpose is the conduct of health and medical research. If SAHMRI were to become a controlled entity within a University (Option 2), University priority-setting would significantly impact on SAHMRI's ability to achieve its own Objects and pursuit of research excellence and translation.

The benefits of having an independent, flexible and responsive HMRI in the State outweigh all arguments for a move of SAHMRI to either SA Government or a University.

Therefore, our recommendation is that the Commission adopt a modified Option 3. SAHMRI should continue to exist as an independent centre of excellence for health and medical research with the goal of translating evidence directly into improved patient care.

SAHMRI PROPOSES THAT THE COMMISSION ADOPT "OPTION 3", MODIFIED AS FOLLOWS:

Maintain SAHMRI as an independent Health and Medical Research Institute (HMRI) with the purpose of research excellence and translation. SAHMRI should increase its focus on clinical research through greater engagement with the LHNs, especially CALHN and WCHN. The SAHMRI governance model should be changed to:

- *Members who are the relevant Government Minister together with the Board Directors from time to time;*
- *An independent skills-based Board.*

Sustainability

The Commission's comment in the report that there are flaws in the business model for medical research institutes (MRI), suggests that the MRI model may in fact be 'broken'. We challenge this perception, particularly in light of the success of SAHMRI and that of interstate MRIs (with varying governance structures).

The Directors and management are confident of SAHMRI's long-term financial viability.

The South Australian Government has provided an operating grant to SAHMRI over the last nine years. In each of those years, we have demonstrated significant return on investment (Figure 3). As an example, provision of $5.67 million in 2018 resulted in a significant return on investment, with SAHMRI attracting over $11 for every $1 provided by the Government.

Government investment in SAHMRI is, however, lower than that provided to HMRIs in other jurisdictions, when compared on a per-capita basis.

A long-term commitment to maintain and indeed increase funding will enable ongoing and greater investment in research at SAHMRI; will enable us to fulfil our research and translation potential; will empower SAHMRI to respond to the needs of the State Government and the health service needs of the South Australian population; and simultaneously reduce health care costs.

Commission Recommendations

SAHMRI is in a uniquely strong position to support each of the Commission's recommendations, to build on our achievements to date and to strengthen South Australia's reputation in health and medical research excellence. Our response to the Commission's recommendations is included at Appendix I.

Additional SAHMRI Recommendations

We offer several additional recommendations for consideration (Appendix II). These are aligned with the Commission's goals for continued improvement within the health and medical research sector, and specifically the role that SAHMRI can play in the translation of research evidence into improved clinical care.

We are keen to work with the South Australian Government to ensure the ongoing success and growth of the health and medical research sector in SA, with the primary goal of increasing the competitiveness of the State.

We therefore welcome the opportunity to discuss our response with the Commission or the Government to assist in the finalisation of the report and refinement of the recommendations.

Professor Steve Wesselingh
EXECUTIVE DIRECTOR

Mr Raymond Spencer
CHAIRPERSON

Alice: "Would you tell me, please, which way I ought to go from here?"
The Cheshire Cat: "That depends a good deal on where you want to get to."

(Alice's Adventures in Wonderland, Lewis Carroll, 1865)

A FOCUS ON EXCELLENCE – THE FUTURE OF SAHMRI

SAHMRI is in a uniquely strong position to support each of the Commission's recommendations, to build on our achievements to date and to strengthen South Australia's reputation in health and medical research excellence.

SAHMRI recognises that an opportunity exists to review its existing governance model and structure to achieve these goals and lead the State's economic growth in health and medical research.

SAHMRI PROPOSES THAT THE COMMISSION ADOPT "OPTION 3", MODIFIED AS FOLLOWS:

Maintain SAHMRI as an independent Health and Medical Research Institute (HMRI) with the purpose of research excellence and translation. SAHMRI should increase its focus on clinical research through greater engagement with the LHNs, especially CALHN and WCHN. The SAHMRI governance model should be changed to:

- *Members who are the relevant Government Minister together with the Board Directors from time to time;*
- *An independent skills-based Board.*

In summary, the revised option will:

- Allow SAHMRI to exist as an independent international centre of excellence in health and medical research;
- Implement Membership and Board changes (in-line with contemporary, best-practice governance standards) to ensure a focus on excellence with Members who are not conflicted by representative roles (e.g. University representation);
- Enable SAHMRI to help advance the economy of the State through health and medical research, particularly clinical research;
- Facilitate and strengthen the State's capability in data registries, data analytics and data linkage for better population health;
- Deliver improved patient outcomes via research excellence and closer collaborations with the LHNs, including a joint venture with CALHN for research activities and commercialisation; and
- Create a sustainable scientific and academic workforce.

In the context of an exceptionally competitive national health and medical research sector, SAHMRI can continue to assist in the success of the State's health and medical research institutions, by building on its achievements in health services and clinical research.

SAHMRI can provide the central coordination point that the Department for Health and Wellbeing desperately needs in health and medical research [*Recommendation 5.1*]:

- Taking advantage of the geographical proximity between SAHMRI and CALHN, and offering the opportunity to increase the conduct and translation of clinical research within both organisations in areas of shared interest, through an innovative partnership model (the *Adelaide Health Innovation Partnership)*.
- Bringing SAHMRI's recognised expertise across all four pillars of research from basic science through to population health, adding value and enhancing the competitiveness of national and international health and medical research within LHNs for the benefit of the health system, patient care and productivity.
- Building upon the strong links with other LHNs, particularly WCHN, which has led to a number of translational achievements.

Recognising the importance of fundamental research and the critical role it plays in the translational pipeline, SAHMRI will work with the LHNs to [*Recommendation 6.1*]:

- Support advancements in impactful, clinical research that stems from basic scientific studies and create a 'point of difference' to other jurisdictions whilst also value-adding to clinical research in South Australian hospitals.
- Revive the research culture within the LHNs through access to the state-of-the art research infrastructure and expertise available through SAHMRI.
- Build leadership capability in clinical research in hospitals and nurture the next generation of clinical researchers to outperform their inter-state counterparts.
- Expand clinical trial capability and share resources and infrastructure to encourage industry to invest in South Australia.
- Facilitate networking between researchers and industry to provide a stream of commercialisation opportunities that strengthen the local health and medical industries sector.
- Attract and retain talented researchers and clinical academics through leveraging joint appointments with SAHMRI, the Universities and SA Health.

Through existing linkages between SAHMRI, Health Translation SA, SA NT DataLink and SA Health (specifically the Commission for Excellence and Innovation), SAHMRI is well-positioned to strengthen the State's capability in data registries, data analytics and data linkage. As South Australia's only independent HMRI, SAHMRI:

- Has the established infrastructure and high-level expertise to continue to support SA Health in this rapidly expanding field [*Recommendation 7.1*].
- Has a consolidated and coordinated registry capacity, housing three nationally significant registries - Australian Orthopaedic Association (AOA, Joint Replacement Registry); Australia and New Zealand Dialysis and Transplant registry (ANZDATA); and the Registry of Senior Australians (ROSA).

- Is at the forefront of new fields such as bioinformatics, artificial intelligence (AI), and machine learning, and with this, the governance, regulatory and technical knowledge to lead solutions to the data access, privacy and security issues that big data analytics brings to research [*Recommendation 7.2*].
- Will formalise agreements with each LHN to strengthen the connections between research and patient care, and to recognise SAHMRI staff as affiliates for purpose of data access [*Recommendation 7.3*].
- Will continue to work with Health Translation SA to advance their agenda of key research-facilitating activities relating to access to patient-related data, such as improved ethics and governance; and Good Clinical Practice training [*Recommendation 7.3*].

It is important that SAHMRI maintains our status as an independent health and medical research institute as a company limited by guarantee rather than become a statutory entity [Option 1] or be incorporated as an MRI within a university [Option 2]. If we were either to become a statutory entity or part of a university, much of our effectiveness, agility and ability to influence at a national level stands to be lost.

Remaining an independent MRI, will ensure that we continue to operate as a not-for-profit company where commercial gains will be reinvested into research activities to ensure SAHMRI meets its research objectives; and maintain our Deductible Gift Recipient (DGR) status to attract philanthropic donations.

Whilst strongly advocating for the maintenance of SAHMRI's existing structure as a company limited by guarantee, SAHMRI considers that the Commission's inquiry presents the opportunity to reconsider SAHMRI's existing governance model, and in particular its Members, Directors and Objects.

In line with best practice corporate governance, SAHMRI proposes the following:

- **Members:** Members who are the relevant Government Minister together with the Board Directors from time to time.
- **Board:** Directors should be independent and appointed based on their skills only, rather than being nominated as representatives of any one or more members. A skills matrix would ensure that Directors facilitate the achievement of our strategic objectives, whilst also ensuring diversity.
- **Objects:** Minor amendments to SAHMRI's Objects are suggested, to ensure that the focus on research excellence is enshrined in SAHMRI's Constitution.

These proposed changes align with how many MRIs across the country are structured to optimise governance arrangements. They also:

- Untangle collaborations at the institute level and maintain collaborations at a project level, focussing solely on research excellence, allowing SAHMRI to increase the state's competitiveness.
- Maximise SAHMRI's state-wide focus, enhanced through increased engagement with the South Australia's state-wide health system, uniquely

positioning SAHMRI as a leader in clinical research, underpinned by fundamental discovery research and data science.

- Maintain SAHMRI's research administration status with the NHMRC as a research body with high standards of excellence that provides the flexibility to administer NHMRC grants and receive infrastructure funding directly from the NHMRC, for SAHMRI and its affiliated researchers.

RECOMMENDATION

SAHMRI offers the following recommendation in relation to the SAHMRI Model:

R1: SAHMRI recommends that Option 3 is modified to read as follows:

Maintain SAHMRI as an independent Health and Medical Research Institute (HMRI) with the purpose of research excellence and translation. SAHMRI should increase its focus on clinical research through greater engagement with the LHNs, especially CALHN and WCHN. The SAHMRI governance model should be changed to:

- *Members who are the relevant Government Minister together with the Board Directors from time to time;*
- *An independent skills-based Board.*

KEY ISSUES

There are a number of key issues identified by the Commission for which SAHMRI would like to provide further comment and recommendations.

Investment in health and medical research

Funding to the Health and Medical Research Sector

While the report addressed some of the economic drivers of health and medical research, it is clear that investment is required in the sector to ensure that as a State we can remain competitive. Each of our interstate counterparts have seen significant Government investment made in their jurisdictions, which have accelerated their competitiveness. Sustainability of the health and medical research sector in SA is critical, and further investment is key to this.

State Government investment in the health and medical research sector is required to:

- Support the expansion of the clinical research workforce, attracting world leaders in their field to South Australia;
- Support attractive fellowship programs for capacity building, to recruit and retain the brightest and best medical researchers;
- Support key research programs in clinical and fundamental discovery research such as matching funding for MRFF Frontiers applications;
- Identify and support critical infrastructure required to deliver excellence; and
- Support commercialisation ventures for future success.

We have a significant opportunity now to address the recent disinvestment of the State Government and ensure that the State regains momentum in the health and medical research sector.

The Commission suggests that additional funds could be secured for the health and medical research sector through the creation of efficiencies and de-duplication. Long-term sustainability and increased national competitiveness dividends cannot be achieved utilising this strategy alone. The health and medical research sector in the State is already very lean and it does not appear to us that the Commission has identified specific inefficiencies, that if rectified, would free up sufficient funds to re-invest in the critical areas outlined above. If these specific inefficiencies can be quantified, interim State Government funding will still be required to support research while the required changes are implemented.

As acknowledged in the Commission's draft report, funding provided to SA Health by the Federal Government for teaching, training and research must be identified and quarantined within the health system and strategically invested in research.

The funds held by the Health Services Charitable Gifts Board (HSCGB) must be examined closely, and funds dedicated to research must be allocated quickly, efficiently and appropriately. Consideration should be given to whether the funds currently being

administered by the HSCGB could be leveraged as a catalyst to scale up health and medical research in the State.

Infrastructure is a key component of the health and medical research sector that should be supported further by the State Government. SAHMRI has built research infrastructure that is accessible to local and national researchers, enhancing State research capacity, including:

- A genomics suite with state-of-the-art sequencing equipment valued at $2 million;
- SAHMRI proteomics, metabolomics and MS-Imaging core facility, with over $4 million of equipment with funding from the Australian Cancer Research Foundation and Ian Potter Foundation;
- A sophisticated flow-cytometry facility, funded by Australian Cancer Research Foundation and the Zero Childhood Cancer initiative together with a philanthropic contribution from the Detmold Group with equipment valued at over $5 million;
- The only full-service biospecimen repository in SA, valued at $600,000;
- Secured funding through Bioplatforms Australia and research partners representing a $7 million investment;
- A SPF and germ-free animal house service; and
- Clinical Research Imaging Centre– a partnership with Jones and Partners with imaging equipment valued at approximately $16 million.

Since taking over the pre-clinical facility at Gilles Plains, SAHMRI has transformed the Preclinical Imaging Research Laboratories (PIRL) as a nationally-accredited imaging service for researchers state-wide to continue accessing large animal imaging facilities and other essential preclinical services.

Through the establishment of Molecular Imaging Therapeutic Research Unit (including $15 million cyclotron facility), SAHMRI has been supplying a growing market for radio-isotopes locally and interstate for cancer diagnostics and research.

The State Government has, over the last almost 10 years, co-invested with Cancer Council SA in the Beat Cancer Project. This state-wide model is unique and the only one of its kind in Australia. The Beat Cancer Project originally commenced in July 2011 with more than $20 million of cancer research funding being awarded in its first five years, with an additional $24 million being leveraged. A second term (2016-2021) of Beat Cancer has seen $17 million committed with $15 million of additional funding being leveraged to date.

This is evidence of the impact that State Government investment can make.

Comparative Interstate Investment in the Health and Medical Research Sector

Interstate investment in health and medical research has resulted in several key achievements, both in medical discoveries but also in employment of key scientists and clinicians, building true capacity within these sectors. The Commission should closely examine these interstate schemes.

Interstate investment examples include:

- In June 2018 (as part of the 2018/19 budget), the New South Wales (NSW) Minister for Health announced investment in research and innovation with a total of $115 million for medical and scientific innovations[1];
  - NSW[2] has also implemented the Medical Research Support Program ($178 million from 2020-2024) which is the major source of infrastructure funding for eligible independent medical research institutes across NSW. The program provides support for the indirect costs of research based on success in competitive National Health and Medical Research Council grant schemes.
- In the 2019/20 Victorian Government budget, $116.5 million was invested in cutting-edge medical research including funding support for the Peter MacCallum Cancer Centre, Walter and Eliza Hall Institute and St Vincent's Hospital[3];
  - As an additional Victorian example, in the 2016/17[4] State Budget, almost $20 million was committed over four years to support:
    - Postdoctoral research fellowships;
    - Streamlining of clinical trials;
    - Medical Research Acceleration Fund ($3 million).
  - Funding was also committed that year to transform Orygen Youth Health's Parkville facility, the world's largest international research institute for youth mental health ($60 million), and a further $60 million towards the Aikenhead Centre for Medical Discovery.[5]
- Queensland Health has established the Health Innovation, Investment and Research Office[6], which supports the following funding programs:
  - Queensland Advancing Clinical Research Fellowships ($3.9 million awarded to date);
  - Junior Doctor Research Fellowships ($4.25 million awarded to date);

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[1] https://www.budget.nsw.gov.au/budget-overview/delivering-world-class-health
[2] https://www.medicalresearch.nsw.gov.au/medical-research-support-program/
[3] https://www.parliament.vic.gov.au/images/stories/committees/paec/2019-20_Budget_Estimates/Presentations/2019-20_BE_presentation_Health.pdf
[4] https://www2.health.vic.gov.au/about/health-strategies/health-and-medical-research-strategy#:~:text=How%20much%20has%20been%20budgeted,annum%20Postdoctoral%20Research%20Fellowships%20Program
[5] ibid
[6] https://www.health.qld.gov.au/hiiro

  - Nursing and Midwifery Research Fellowships ($1.6 million awarded to date);
  - Physiotherapy Research Fellowships ($1.4 million awarded to date);
  - Health and Medical Research Fellowships ($40.9 million awarded to date).

- In 2019, the Western Australian Government[7] announced investment in a long-term health and medical research innovation fund. $126.6 million will be invested in health and medical research over the next four years.

Clearly with this level of investment by other (particularly, eastern) state Governments, SA risks falling further behind. This will be most evident in the next five years when the interstate investment comes to fruition.

Investment consistent with that of other jurisdictions, but also proportional to the size of the health and medical research sector in South Australia, will ensure that we are well-placed to compete with other states.

Funding to support SAHMRI

The Commission notes in its report that there are flaws in the business model for medical research institutes, suggesting in fact that the MRI model may in fact be 'broken'. We challenge this perception, particularly in consideration of the success of SAHMRI and that of interstate MRIs.

Independent health and medical research institutes (HMRIs) collectively find nearly $250 million a year to cover the gap between the support they receive from grants, commercial income and other fundraising so they can continue essential activities like data management and IT, business development and commercialisation.

For every dollar spent on research, it is calculated that there are another 56 cents[8] needed to fully cover the costs of running a research institute. Independent HMRIs receive 23 cents of funding to cover the systemic costs of research (total from all sources), leaving a 31 cent per dollar shortfall. Federal Government funding only provides about 20% of what is needed to cover the total systemic costs of research.

For SAHMRI in 2019, this represented a $4 million shortfall on the $29 million worth of grants that we were awarded.

Funding support provided directly to the HMRIs in each state as infrastructure funding is shown in Figure 1 and 2. This information has been provided by AAMRI from a survey of their independent HMRI members in 2019 that covers revenues for 2018.

[7] https://www.mediastatements.wa.gov.au/Pages/McGowan/2019/05/Medical-research-and-innovation-receives-major-funding-boost.aspx
[8] AAMRI Member Report 2020

Figure 1: Funding support for indirect costs of research at independent MRIs, by region [9]

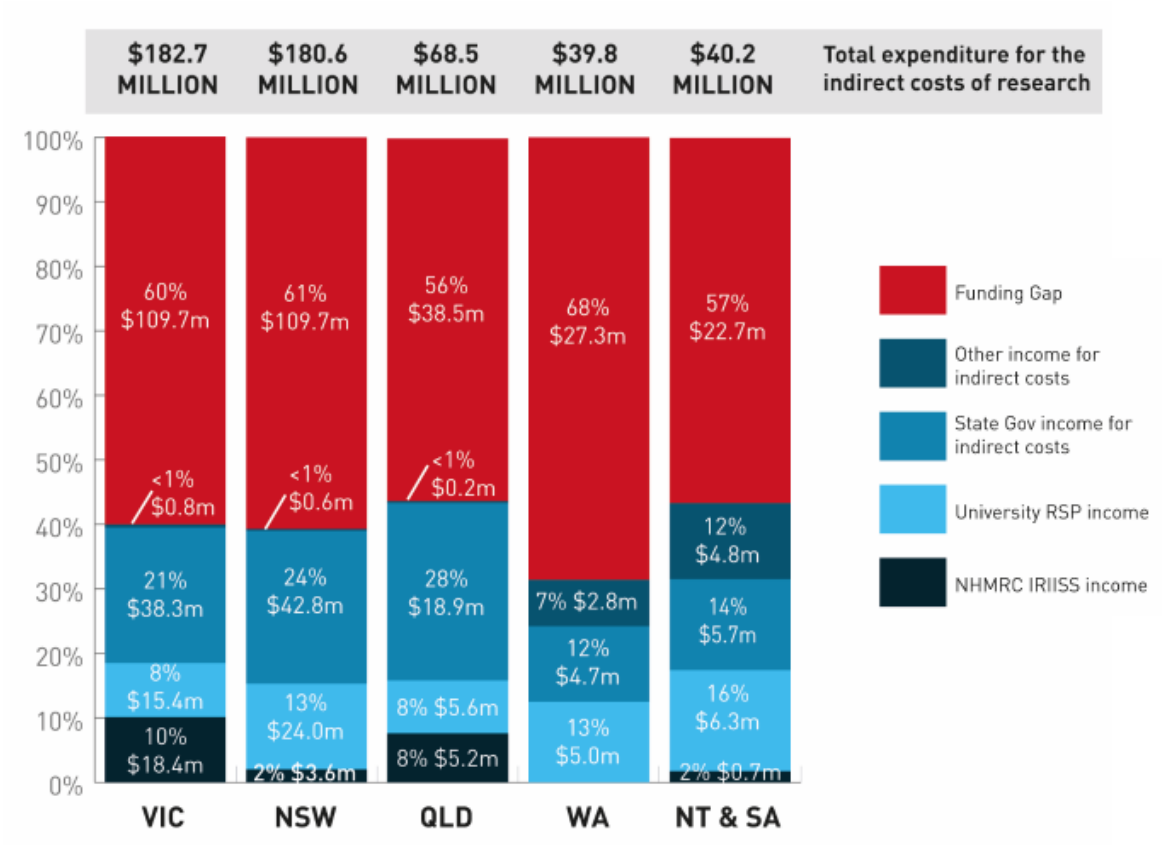
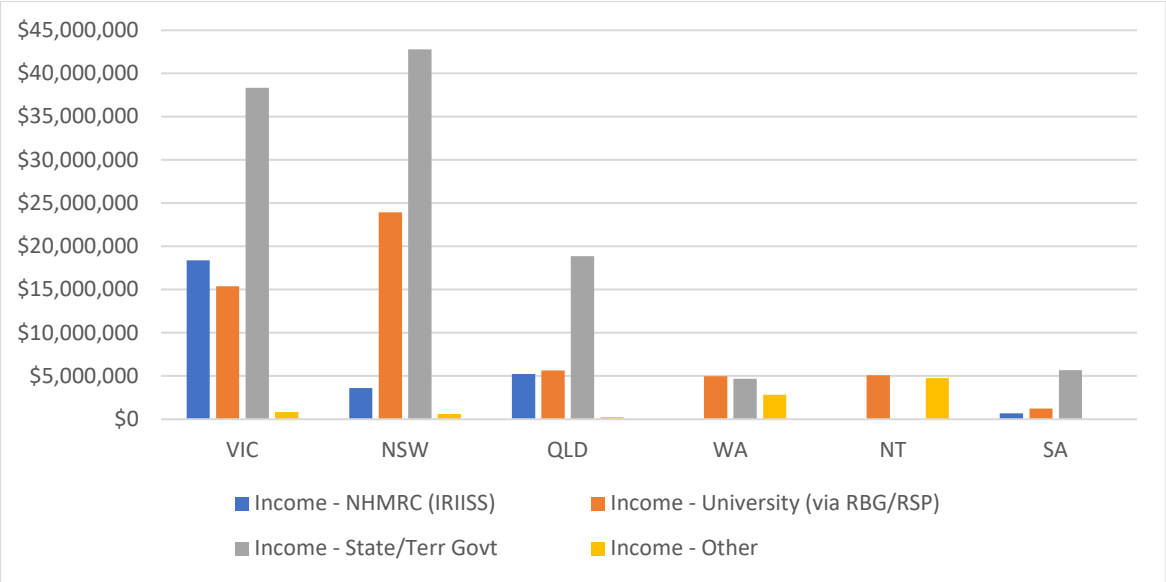


Figure 2: Income for indirect costs of research received by independent Medical Research Institutes in 2018. [10]

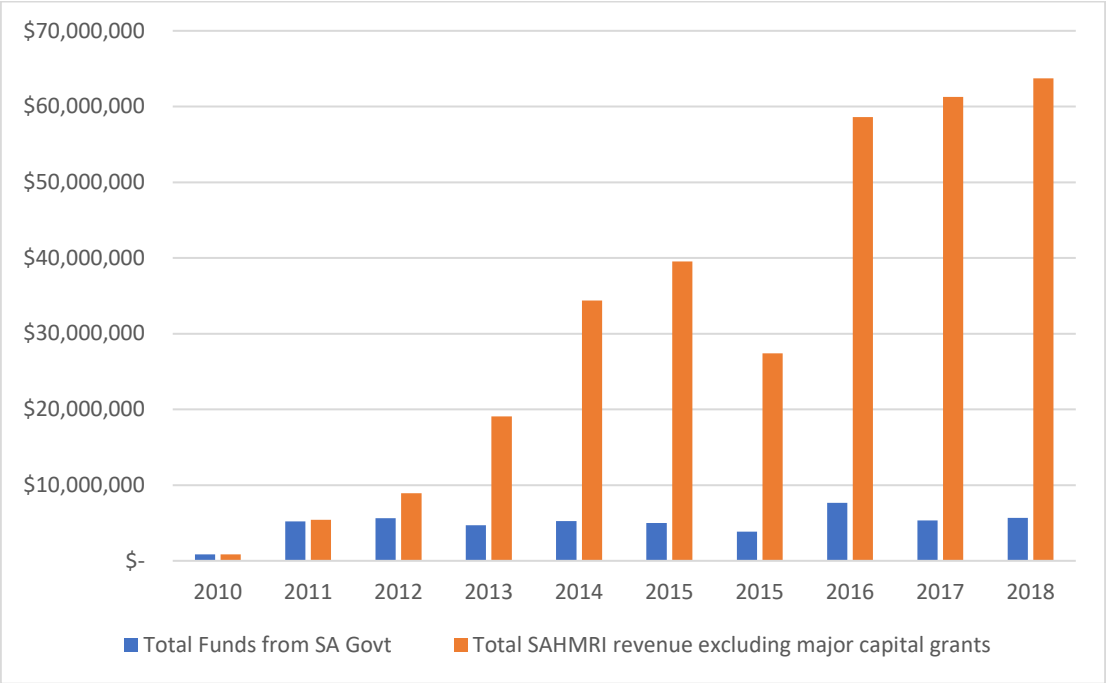


[9] Source – AAMRI 2020 Member Report. Please note that SA and NT have been combined for purposes of the report, therefore the figure includes data relating to both SAHMRI and Menzies.
[10] Source – AAMRI member survey, 2019.

The Directors and management of SAHMRI are confident of our long-term financial viability. The provision however of ongoing Government funding to SAHMRI will allow us to continue to achieve excellence in health and medical research, and ensure the translation of research findings into improved patient care and health service improvement. The funds will also assist SAHMRI in the recruitment and retention of key researchers to build capacity within the State.

The South Australian Government has provided an operating grant to SAHMRI over the last nine years. In each of those years, we have demonstrated significant return on investment (Figure 3). *As an example, provision of $5.67 million in 2018 resulted in a return on investment of over $11 for every $1 provided by the Government*. This return on investment, and the contribution that we have made to date to the State's economy, demonstrates the importance and value of investment in health and medical research at SAHMRI.

Figure 3: SA Government Contribution to SAHMRI 2010-2018.[11]



[11] Please note: the significant drop in funding from 2010-2011 represents the funding provided by the State Government for the construction of the SAHMRI facility.

RECOMMENDATIONS

We offer the following recommendations in relation to investment in health and medical research:

R2: While the SAHMRI financial model is sustainable, SAHMRI requires ongoing Government support as received by HMRIs interstate. As such, the State Government operating grant to SAHMRI should be increased to a base amount of $10 million per annum (commencing in 2021), which is proportional to interstate competitors. The annual operating grant should be increased annually in accordance with CPI.

R3: Additional investment in health and medical research at a State Government level is critical to fund fellowships aimed at supporting, attracting and retaining our brightest minds, undertaking research in areas of specific interest and significance to the State.

R4: Funding provided to SA Health by the Federal Government for teaching, training and research must be identified and quarantined within the health system and invested strategically in research.

R5: Consideration should be given as to whether the funds currently being administered by the Health Services Charitable Gifts Board could be leveraged as a catalyst to scale up health and medical research in the State.

Role of SA Health in the Health and Medical Research Sector

Over the last decade, SA Health has systematically disinvested in health and medical research. There has also been a:

- Reduction in engagement from LHNs in health and medical research;
- Reduction in recruitment of high performing clinician researchers.

Central and coordinated accountability is required to help to rectify this.

As outlined in *Recommendation 5.1*, SA Health must have clear accountability for and commitment to health and medical research. Embedding clinical research within the hospital system is critical. Research must be a strategic function of each LHN and acknowledged as such via a number of mechanisms e.g. service level agreements and clear measures of research success.

The appointment of a State Minister for Health and Medical Research and Innovation would provide the overall accountability required within the State for this important venture. This would improve the current arrangement whereby responsibility for health and medical research is spread across different portfolios. This is a strategy that has been adopted in New South Wales, Queensland and most recently in Victoria.

A closer relationship between SAHMRI, the Department for Health and Wellbeing, and the LHNs will allow (from a strategic/governance perspective):

- SA Health to work directly with SAHMRI to have key research questions identified and addressed in a timely fashion (e.g. COVID-19); and
- SAHMRI to be further embedded in the health ecosystem, recognising the importance of health and medical research to improve health care.

Department for Health and Wellbeing

A State-wide Health and Medical Research Strategy must be a priority, based on strengths of the State as well as community need. The Strategy must demonstrate the commitment of the State Government to health and medical research excellence in the state health system.

The Strategy should not outline the priority research areas for the State, nor the research that should be undertaken; rather it should be based on the promotion of excellence, a commitment to increasing competitiveness and identification of and recommendations for optimum resourcing and implementation plans.

The Strategy must:

- Be an essential component in ensuring the delivery of the recommendations of the Commission and will provide a clear focus for the health and medical research sector.
- Focus on enabling research rather than providing a list of priority research areas (research priorities must continue to be determined by each research institution; in the case of SAHMRI this will be based on areas of excellence).
- Include measures of research success that can be adopted across the LHNs and reported upon regularly (Appendix V).

While the Department for Health and Wellbeing could commence work on this Strategy, it must be developed as and 'owned' as truly state-wide. As such, a Steering Committee (with key stakeholder engagement) should be established to guide the development of the Strategy. It is recommended that the Steering Committee be charged with responsibility for delivery of the Strategy within a short and defined timeline, to take advantage of the momentum generated by the Commission's inquiry.

At a Departmental level, an investment must be made to increase capacity within the Office for Research (from 2.0FTE). This will facilitate the implementation of the Commission's *Recommendation 5.1.*

Local Health Networks (LHNs)

While SAHMRI has worked consistently to ensure that our relationship with the LHNs is productive, we agree that we should develop stronger ties with the LHNs, recognising the important link between excellent science, clinical research and improved patient outcomes. Our relationship with CALHN has recently been strengthened via the Adelaide Health Innovation Partnership (discussed further below).

SAHMRI also has a draft Memorandum of Understanding with WCHN that is currently being finalised to detail our shared research vision given that space within the hospital is occupied by our Women and Kids Theme. The future move of the Women's and Children's Hospital to the North Terrace Precinct will also enhance the relationship between SAHMRI and WCHN, particularly given understanding that WCHN wet-lab space will be within the SAHMRI building.

In addition to excellence, health equity is highly valued by SAHMRI and in particular in relation to Aboriginal and Torres Strait Islander health. We feel that further collaboration with Northern Adelaide Local Health Network (NALHN) and rural and remote health services is critically important in addressing this area.

Integrating research into the core business of each LHN is fundamental to ensure adequate support for clinical research across the health system and the retention of the brightest minds in the State. This may require standardisation of operations such as finance, IT (governance), human resources across the LHNs to ensure consistency of reporting of various research-related metrics.

LHNs and their CEOs must be accountable for research performance within their institutions (e.g. grants, publications, number of clinical trials, number of PhD students, ethics approval times, SSA approval times, research-related finance, HR and IT processes and approval time). Appendix V provides some suggested success metrics that could be utilised by the LHNs.

Adelaide Health Innovation Partnership (AHIP)

The creation of the Adelaide Health Innovation Partnership (AHIP) demonstrates the way in which SAHMRI is moving towards a focus on research excellence and closer connection with CALHN and our precinct partners (including WCHN).

AHIP brings SAHMRI's world-class skills and resources together with those of the Royal Adelaide Hospital and broader Central Adelaide Local Health Network. The partnership will leverage the technological and commercialisation expertise of the newly formed Health Innovation Ventures (hive) consortium and be supported by the University of Adelaide and University of South Australia.

Through strategic allocation of existing resources and attracting private investment, AHIP will focus on four major platforms:

- Attracting and retaining the best talent;
- Refining the design, implementation and analysis of clinical trials;
- Encouraging clinicians to pursue innovative models and care; and
- Commercialising digital health advancements and technology.

AHIP's mission is to find solutions to five significant health challenges facing our community – cancer care, heart disease and diabetes, critical care, mental health and emerging infectious diseases.

These focal points obviously align strongly with SAHMRI's proven strengths, as does the partnership's dedication to achieving health equity. As part of the alliance, the Royal Adelaide Hospital has also committed to being the best hospital in the world for supporting health care for Aboriginal communities.

The Partnership will facilitate clinician researchers across CALHN and ensure alignment between clinicians and researchers for the best research and health outcomes.

AHIP will provide the opportunity for SAHMRI and CALHN to integrate a number of existing governance arrangements, such as human ethics and site-specific assessment processes.

While better health outcomes are the ultimate mission, the partnership will yield significant economic benefits also through the involvement of hive. This first-of-its-kind digital innovation hub will create a community of local, national and international healthcare and technology organisations, taking the best of Australian innovation to the world, and attracting the best in the world to Australia.

Clinical Research

SAHMRI's impact is greatest, and most immediate, in the area of clinical research. SAHMRI has had a strong and consistent focus on clinical research, and particularly clinical trials since inception.

Our vision for SAHMRI is to strengthen our clinical trial platform to effectively support the conduct of internationally recognised, impactful clinical research across diverse disciplines. We will:

- Expand existing partnerships and create new partnerships to build capability.
- Develop the next generation of clinical research leaders.
- Maintain diversity of revenue sources – competitive grants from government and other agencies and industry funding.
- Update our infrastructure to support efficient and high-quality research.
- Ensure clinical research is highly relevant to clinical needs.
- Facilitate and encourage translation of research into practice.

The MRFF opportunities for clinical research are significant. Those institutions that prepare themselves well by developing robust, comprehensive clinical trial platforms will be able to compete nationally for those funds and continue to attract the industry sponsored and collaborative trials internationally.

In the most recent round of MRFF funding announcements (Feb-July 2020), South Australia was awarded approximately $28 million in total – 17 of the 210 grants awarded (8.1%).[12] SAHMRI researchers were awarded approximately $16 million – 10 of the 17 SA projects (59%)[13] (Appendix IV).

[12] SA was successful in MRFF schemes targeting: Genomics Project Grants; Congenital Heart Disease; Clinical trial activity (incl Clinician Investigator); Indigenous Health research; and Primary Health Care and Preventive and Public Health research.
[13] Excluding MTPConnect administered grants

Two Precincts

The report suggests the likely creation of two health and medical research precincts in the State – North Terrace (SAHMRI, Adelaide University, University of South Australia, CALHN and WCHN) and the Southern Precinct (SALHN and Flinders University).

Should two precincts exist, we anticipate that over time, each will develop a sense of identity and have areas of excellence that differ from the other; and while there may be some overlap we must see those as areas of strength for the State that can be enhanced through collaborative effort. Leveraging of skills and expertise between the two precincts will be important.

While SAHMRI occupies a clear role in the North Terrace Precinct, given our state-wide focus, there is an opportunity for us to provide linkages between the two proposed precincts.

We will continue to collaborate closely with those within the Southern Precinct wherever there is mutual benefit to do so and where those collaborations are based on research excellence.

As noted earlier in our response, we will also work with NALHN and Country Health in order to promote issues of health equity.

RECOMMENDATIONS

We offer the following recommendations in relation to health and medical research accountability and commitment within the Department for Health and Wellbeing and the LHNs:

R6: Appoint a Minister for Health and Medical Research and Innovation to provide a central point of accountability for the sector, rather than dispersing responsibility for research across several Government Ministers (as is currently the case).

R7: Department for Health and Wellbeing establish a Steering Committee to prepare a comprehensive State-wide Health and Medical Research Strategy, based on strengths of the State as well as community need. Membership of the Steering Committee should include representatives of all major stakeholders in health and medical research in the State, including SAHMRI.

R8: The Department for Health and Wellbeing must increase the staffing capacity within the Office for Research to achieve the strategies outlined in draft Recommendation 5.1.

Talent

As recommended in our initial submission, a state-wide recruitment and retention strategy should be developed as part of a broader State-wide Health and Medical Research Strategy, with a focus on high performing researchers. The need for such a strategy has been recognised by the Commission.

It is imperative that sector is populated with excellent researchers across the four pillars of research. As such, there must be appropriate strategies adopted to increase investment in human capital.

Coordinated approaches (for joint appointments) between SAHMRI, the Universities and the LHNs (where appropriate) must be adopted to attract the best and brightest scientific and academic minds to the State.

Clinician Researchers

The importance of linking strong clinical research with strong clinical practice is key, as is providing protected time for clinicians to undertake research.

The number of clinician researchers in the State has steadily decreased due to disinvestment and changing priorities within the health system.

SAHMRI has always recognised the importance of clinician researchers, and as a result we already have a number working within our Themes. In fact, four of our five Theme Leaders are clinician researchers. Our clinician researchers have direct contact with the health care system and offer us the ability to directly translate research findings into evidence-based improvements to health service delivery. A closer collaboration with CALHN through Adelaide Health Innovation Partnership will ensure that SAHMRI continues to build the capacity of clinician researchers within the North Terrace precinct, offering them access to world-class infrastructure and laboratories.

For South Australia to compete with the eastern states in relation to attracting the best health and medical research talent, we must adopt a robust recruitment and retention strategy for clinician researchers (with joint investment from SA Health, the Universities and SAHMRI). This will ensure that as a State we attract and maintain the foremost clinical research expertise as a key capability in translational research.

RECOMMENDATION

We offer the following recommendation in relation to the attraction of talent:

R9: The (proposed) State-wide Health and Medical Research Strategy must include metrics regarding the attraction and retention of key talent to the State in order to increase the number of high calibre clinical researchers/academics.

Data Access

Considerable effort is required to ensure timely access to data for research purposes.

This is an issue that goes beyond SAHMRI and its governance structure. Government policy must be directly addressed in order to make improvements.

It is difficult to negotiate access to SA Health data, even when ethics and privacy issues are appropriately accounted for. A risk-adverse approach to data access, not adequately balanced against potential benefits and opportunities lost, prevents South Australian researchers from accessing the specific health and demographic data required to undertake research with any level of efficiency. This substantially increases the cost of conducting research and is a real barrier to feasibility and grant success. It is a significant impediment to South Australia's increased competitiveness. It also hampers translational research for the health systems.

Page 173 of the Commission's report suggests that the two main SA repositories of health data are SA/NT DataLink and SAHMRI. However, health data goes far beyond these two sources.

Access to data held by SA Health is the key issue for our researchers. Barriers put in place by Government data custodians are a significant issue and must be removed.

Given the issues associated with data access, South Australian researchers are at a significant disadvantage when compared with their interstate counterparts where data is more readily made available for research purposes.

We do not want to find ourselves in a position where we lose researchers from the State because it is so hard to access data.

RECOMMENDATION

Recognising that draft Recommendation 7.3 addresses a number of key issues associated with data access, we present the following additional recommendation for consideration:

R10: SA Health must develop workable, but consistent and transparent policies for rapid and secure access to health data.

Translation and Commercialisation

Translation

SAHMRI is committed to improving the health of all South Australians through the conduct and translation of health and medical research at a level of international excellence. SAHMRI is perfectly positioned to focus on translation – in fact, this is a core component of our DNA. In our original submission to the Commission, we provided numerous examples of our translational success. We will continue to excel in this area and lead the nation.

Our translation impact is greatest and most immediate in the area of clinical research. We are committed to strengthening our clinical research platform to effectively support the undertaking of internationally recognised, impactful clinical research across diverse disciplines. This goal will also be significantly enhanced through the establishment of the Adelaide Health Innovation Partnership.

As indicated earlier in our response, the MRFF offers a number of opportunities for translational research to be supported through significant funding, as highlighted with South Australia's recent success (Appendix IV).

Health Translation SA

SAHMRI is very proud of the role it has played in the establishment of Health Translation SA (HTSA) including leading the initial accreditation as an NHMRC accredited Advanced Health Research and Translation Centre (AHRTC) in 2015. HTSA is currently housed within the SAHMRI building, and we act as the administering body for HTSA itself as well as all of its contracts and funding agreements. SAHMRI also provides key operational support to HTSA including IT, finance and human resources.

Now HTSA mobilises collaborative ventures across eight partners, including SAHMRI, to accelerate the translation of evidence into practice across South Australia to improve health outcomes.

SAHMRI believes that through its strategic and operational activities HTSA is well positioned to continue to drive state-wide collaborative activities working with SAHMRI as a key partner and a beneficiary of improvements to the South Australian landscape and culture.

As a centre of excellence in health and medical research, SAHMRI is committed to continuing to work with HTSA to expand the capability of the State in the key areas of impact and translation.

Commercialisation

As outlined in our original submission to the Commission, SAHMRI has entered into a partnership with Bright Arena to support commercialisation activities at the Institute. Our approach focuses on impact, both at the level of the individual researcher and the Institute as a whole.

It is our view that commercialisation activities need a strategic framework that explicitly discovers and develops a pipeline of opportunities. Recognising this, SAHMRI and Bright Arena have set out to develop a fit-for-purpose commercialisation solution in line with existing precinct initiatives.

To achieve this, two distinct initiatives are required: one to build the pipeline among precinct members (precinct incubator), and the other to provide funding to finance the key experiments and proof-of-concepts for them to become investible (early proof-of-concept fund).

Precinct Incubator

The incubator would:

- Build capability and collaboration across stakeholders in the precinct with a dedicated awareness program that would engage clinician researchers, researchers and clinicians to prototype and validate ideas.
- Boost pipeline of pharma, device and digital health opportunities
- Create physical incubator space through leveraging significant scientific infrastructure for accessible support, and capability.

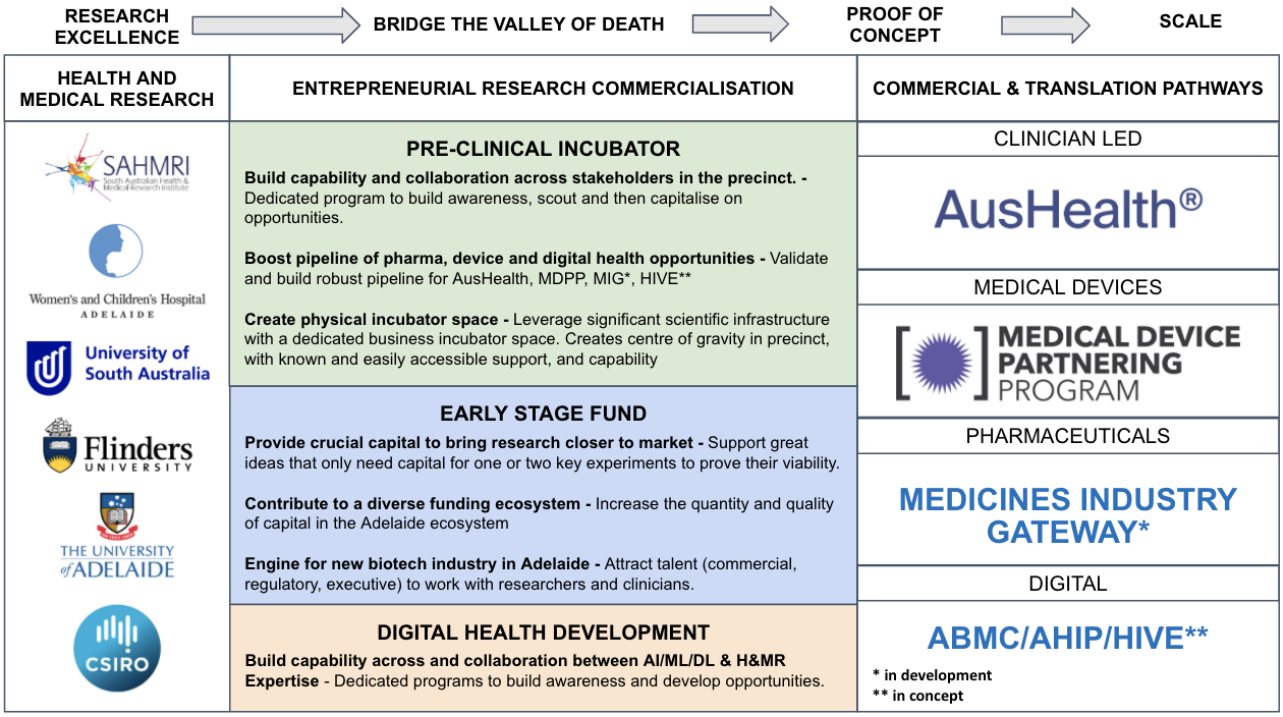
Early Stage Proof-of-Concept Fund

The fund would:

- Provide crucial capital to bring research closer to market, support ideas and incentivise opportunities.
- Contribute to a diverse funding ecosystem and bring in capital and expertise from outside the State through co-investment.
- Support a new biotech industry in Adelaide to attract talent (commercial, regulatory, executive) and forge closer ties between researchers and industry.

Both the Precinct Incubator and the Early Stage Proof-of-Concept Fund build upon the SAHMRI-Bright Arena partnership and the first-hand experiences of the last few years, and can be summarised in Figure 4.

Figure 4: Precinct level solution to commercialisation



AI and Digital Health Development

The lack of digital convergence in health and medical research in the State has long been recognised as a gap in commercial opportunities. With CSIRO's Health business unit and University of Adelaide's AIML team in the North Terrace precinct, a connected effort in this space would create new opportunities for impact in the region.

RECOMMENDATIONS

We offer the following recommendations in relation to commercialisation:

R11: To enhance IP commercialisation capabilities, the staff and activities of AusHealth[14] (formerly MedVet) should work closely with SAHMRI to complement the Adelaide Health Innovation Partnership.

R12: A state-wide model should be adopted for IP and commercialisation that it utilised by SAHMRI, SA Health and the Universities.

R13: To enhance IP commercialisation capabilities in the North Terrace Precinct, a strategic framework should be developed that explicitly discovers and develops a pipeline of opportunities (including across AI and Digital Health) that might include the establishment of a Precinct Incubator and an Early Stage Proof-of-Concept Fund.

[14] https://www.aushealth.com.au/

RESPONSE TO COMMISSION INFORMATION REQUESTS

SAHMRI provides the following response to the Commission's request for further information. We also note some factual errors in the Commission's draft report, and kindly request changes as noted in Appendix III.

Information request 3.1

The Commission seeks information and views on:

- To what extent has the Commission provided a balanced and reasonable assessment of grant funding trends? What key observations are missing?
- What other sources of HMR funding are currently or potentially available to South Australian institutions? What information is available on them?

Grant funding trends: Administration of grants by SAHMRI

As outlined in our original submission to the Commission, SAHMRI's success rate for NHMRC and MRFF grants is difficult to report on, given that these grants are largely administered via the Universities. As such, any publicly available data regarding the administering institution would suggest that SAHMRI has quite a low NHMRC/MRFF grant application submission and success rate, which is a substantial under-representation of SAHMRI in this research metric.

NHMRC are considering ways in which their data can be analysed using participating rather than administering institution – this would demonstrate where the research was being undertaken rather than who administered the grant.

As noted in our original submission (p57, Figure 18 and Figure 5 below) SAHMRI has steadily increased its share of funding at state level, with 42% of South Australia NHMRC funding being awarded to members of the SAHMRI research community in 2019. **We request that this is appropriately reflected in the Commission's final report.**

Figure 5: Increasing percentage of South Australian NHMRC funding awarded to SAHMRI, 2016 – 2019

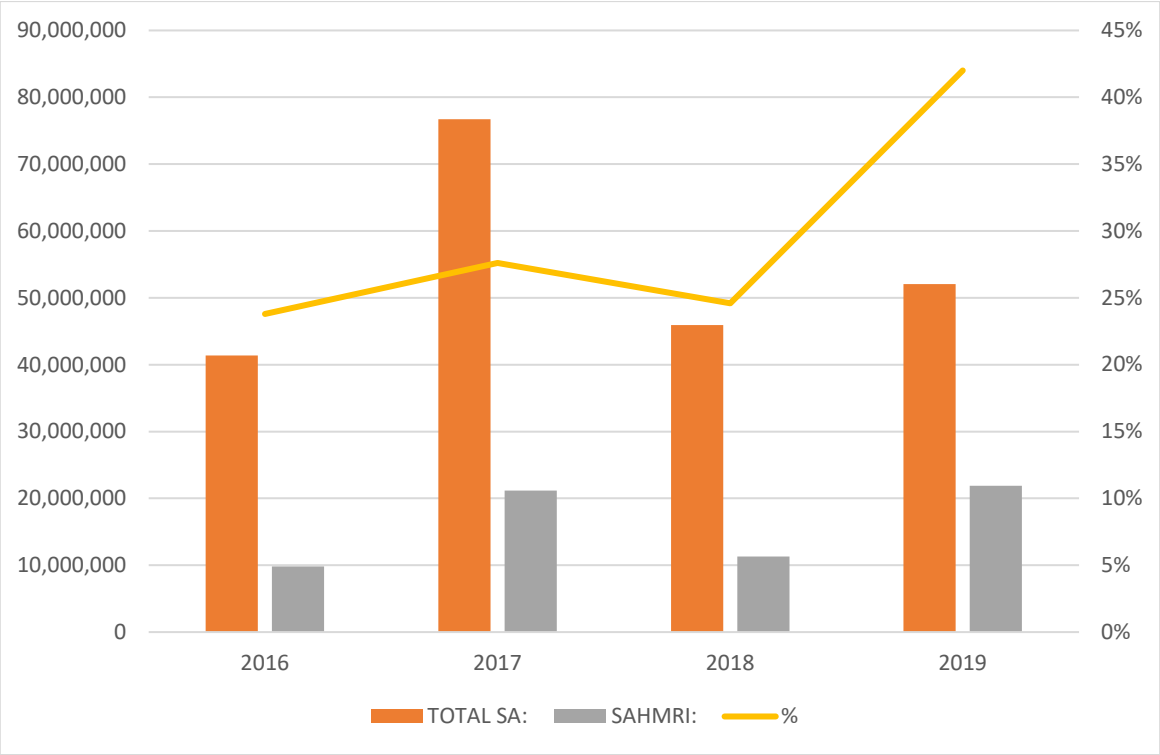


Figure 5.2 on page 127 of the Commission's report attempts to provide NHMRC data relating to SAHMRI grant funding as administering institution 2010-2020. It appears that the Commission has failed to recognise this key point regarding the administration of SAHMRI's grants via the Universities when presenting this graph.

We therefore respectfully request that this graph (Figure 5.2 on page 127) is removed from the final report given the skewed data that it presents, specifically a misleadingly negative picture for SAHMRI.

Funding diversity

As noted in our original submission (p.57-62), there are several other sources of HMR funding. Beyond the funding received from the NHMRC and MRFF, SAHMRI receives research funding from a variety of funding bodies (Table 1). Unlike the NHMRC and MRFF, these funding bodies do not often publish detail in relation to funding success trends. As such, it is difficult to obtain data in relation to SA success rates.

Publicly available information can be found on each of these funding sources via their websites.

Table 1: Examples of diversity of funding sources.[15]

Federal Government	Department of Health and Ageing Department of Defence
State Government	Department of Premier and Cabinet – Premier's Research and Industry Fund
International sources	Duke Clinical Research Institute European Commission Health Research Council of NZ Bill and Melinda Gates Foundation EMBL A*STAR Singapore
Industry sources	AMGEN Incorporated AtheroNova Bristol Myer Squibb CERENIS Glaxo Smith Kline Fonterra Co-operative Reckitt Benckiser
NGO/Philanthropic	Beyond Blue Cancer Council Channel 7 Research Foundation CSL Limited Diabetes Australia Fay Fuller Foundation Hospital Research Foundation Ian Potter Foundation Australian Cancer Research Foundation James and Diana Ramsey Foundation Leukaemia Foundation Movember Women's and Children's Hospital Research Foundation Tour de Cure Kiwanis

[15] Designed to be a list of examples of funding bodies only. Many other funders provide support to SAHMRI. We can only highlight these funding bodies – we cannot show national/state distribution of funding as these funding bodies do not release their data publicly.

Information request 4.1

The Commission seeks information and views on:

- What is the size and nature of the HMR workforce in South Australia's public universities, MRIs and LHNs? Please provide time series data for the last 10 years.

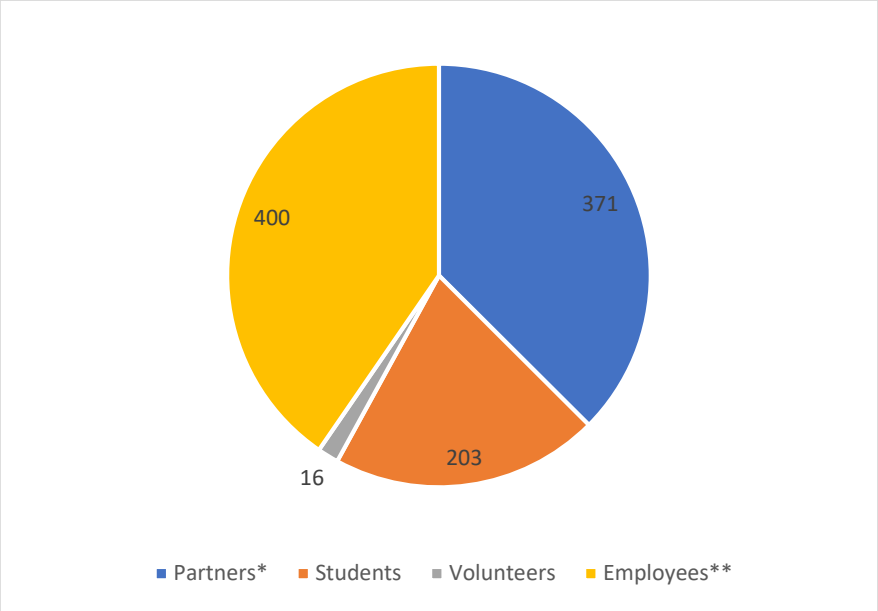
The following data relates to SAHMRI's workforce trends, since 2010 (Figures 6-9). This data was originally provided to the Commission in February 2020, and as such the data is accurate as of that date.

The SAHMRI Community has steadily grown under the leadership of notable experts in their respective fields over the last 6 years since we moved into our North Terrace facility. SAHMRI now has approximately 400 employees, spread across our various sites:

- North Terrace = 325
- Women's and Children's Hospital = 40
- Preclinical Research Imaging Laboratory (PIRL) – Gilles Plains = 21
- Flinders Medical Centre = 9
- Country SA = 2
- Interstate = 4

It is noted that many of our employees hold joint appointments with University partners (Figure 6).

Figure 6: SAHMRI Community (as at 27.2.2020)



*8 x Partners hold a position within the formal SAHMRI Organisational Structure, **6 x Employees have joint appointments with SA Universities

Figure 7: SAHMRI Workforce Growth (excl. casual employees) (2010-2019)

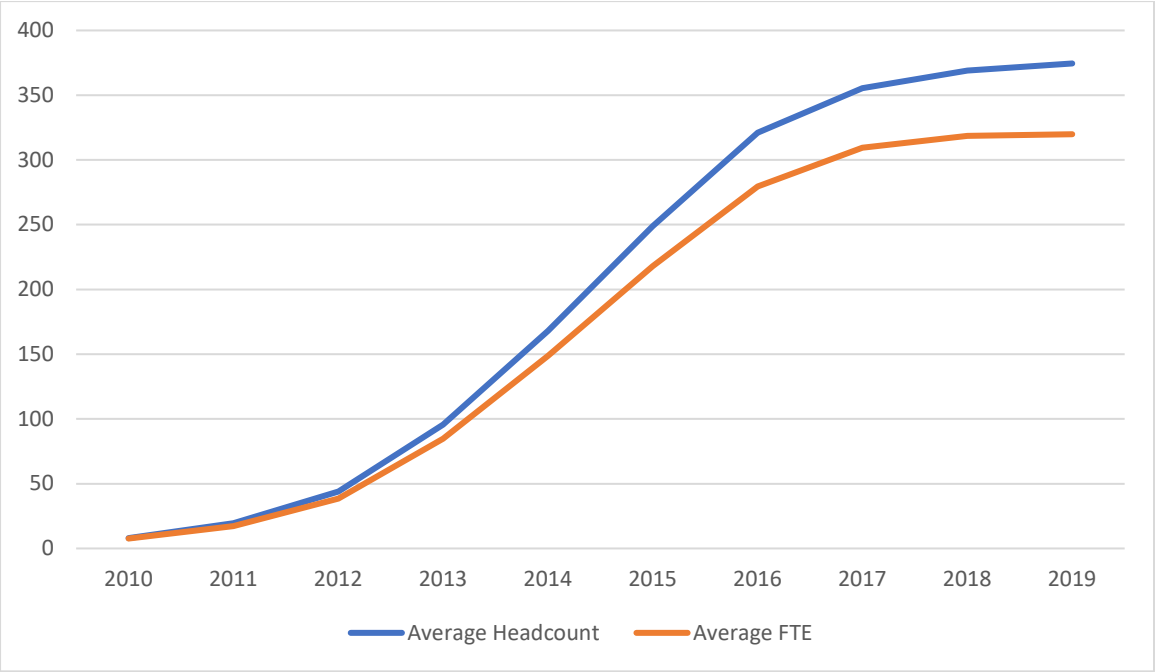


Figure 8: SAHMRI Workforce. Gender Breakdown by Career Classification (FTE) 2010 - 2019

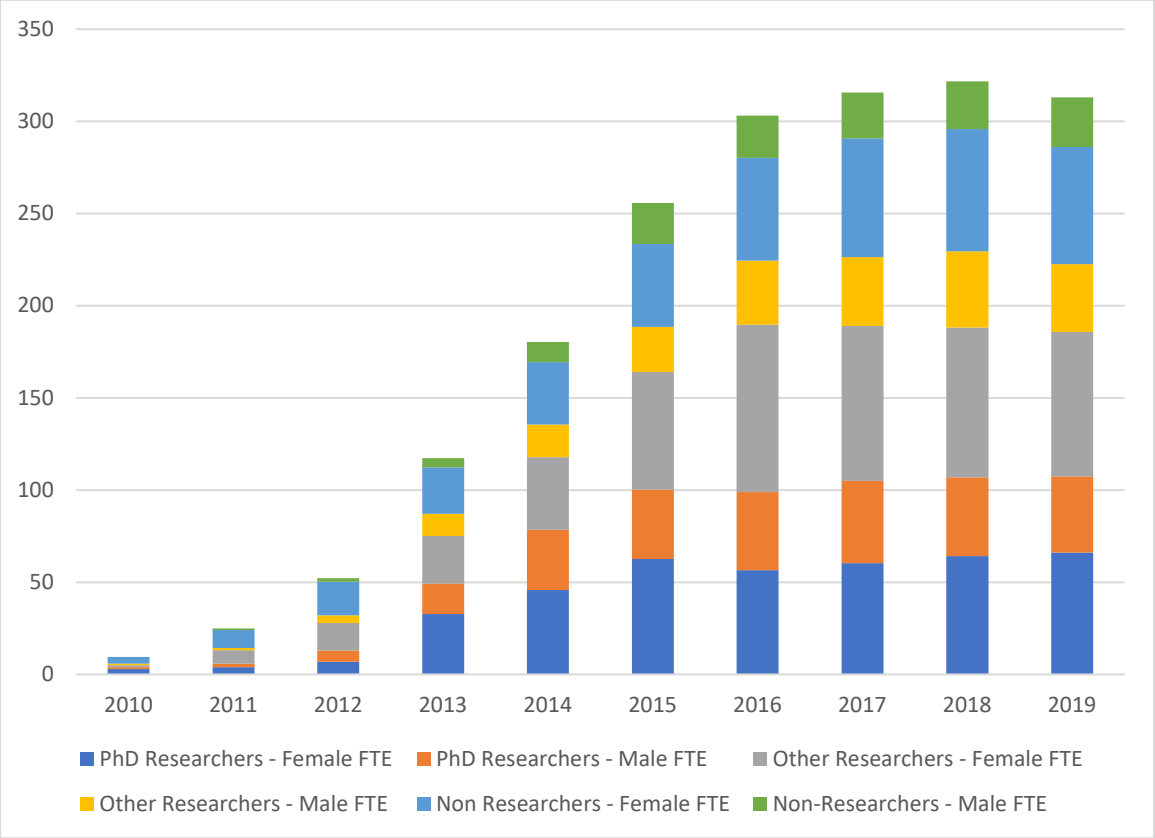
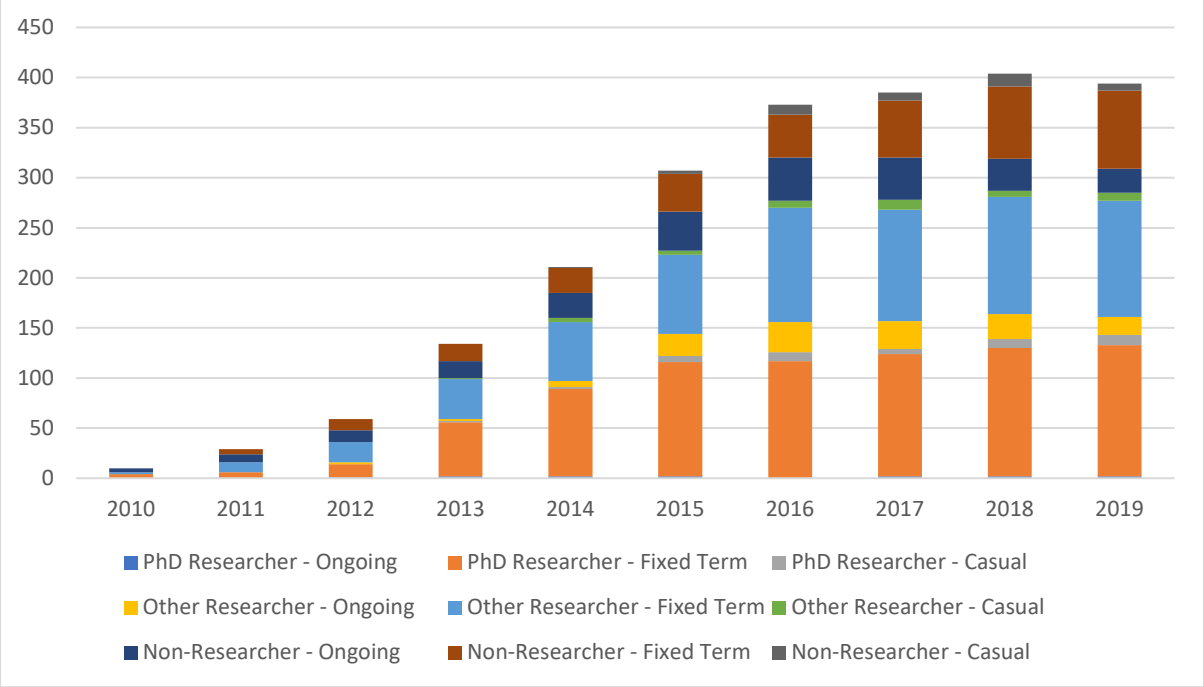


Figure 9: SAHMRI Workforce. Employment Status Breakdown by Career Classification



Information request 4.2

The Commission seeks information and views on:

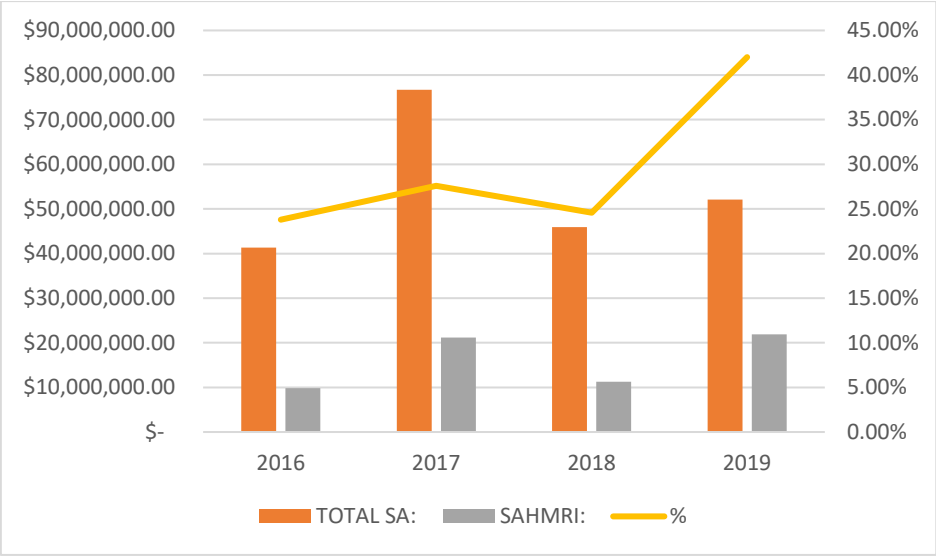
- What explains the apparent divergence between the trend in South Australia's share of publications and the state's share of funding received from the NHMRC?

SAHMRI is proud that in our relatively short history, we have been able to steadily increase our grant funding success and publication rates.

Grant funding

Since 2016, SAHMRI has steadily increased its share of funding at State level, with 42% of South Australian NHMRC funding being awarded to researchers associated with SAHMRI in 2019 (Figure 10).

Figure 10: SAHMRI share of NHMRC Funding awarded steadily increases, 2016 – 2019



Publications

Despite its relative size and age, SAHMRI has made an increasing contribution to publication output in South Australia (Figure 11).

SAHMRI's publication impact is highly effective (citation impact factor of 15.9 compared to 12.7 for other State research institutions).

And when compared with other HMRIs across the country, our publication output is highly productive (Figure 12).

Figure 11: South Australian publication output, 2005-2019

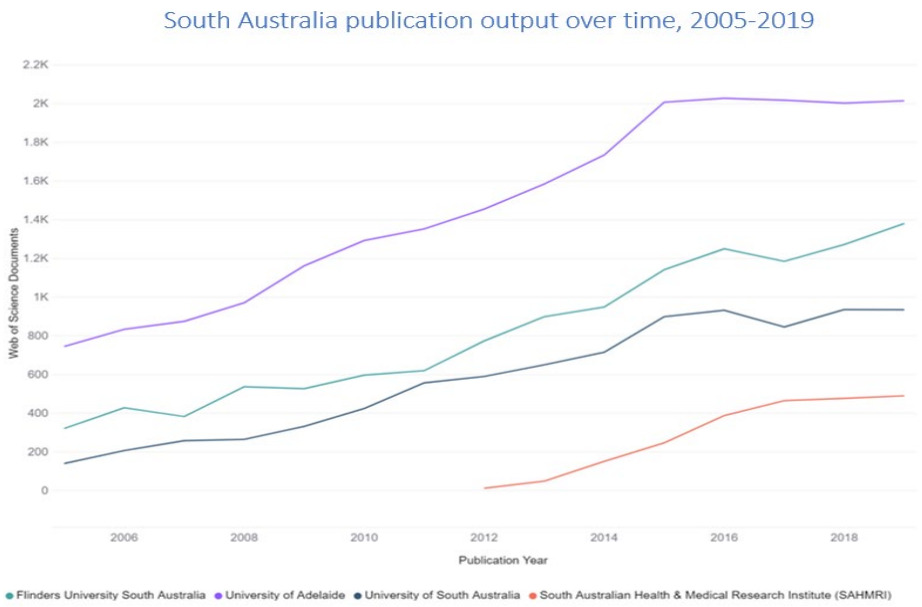
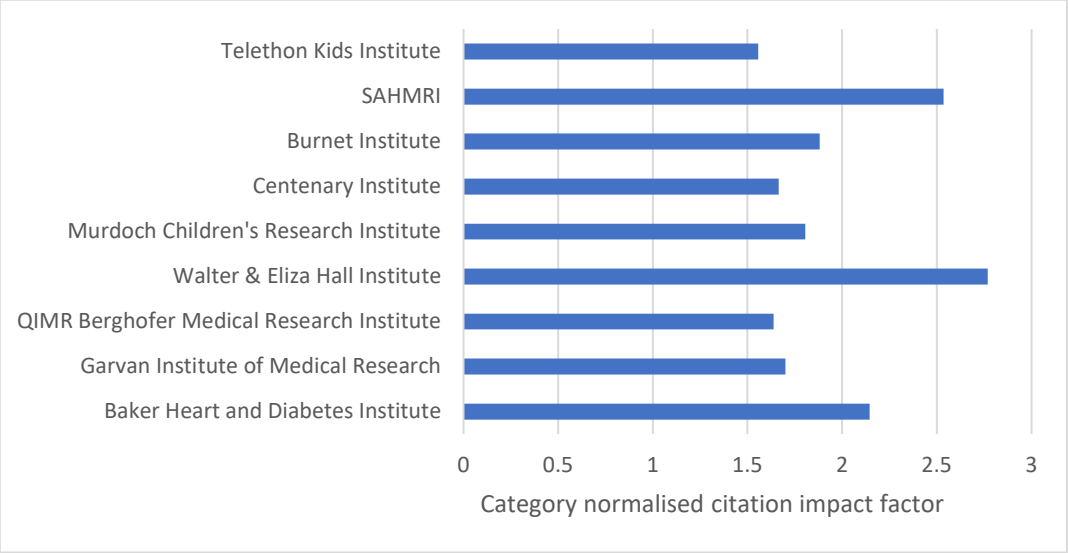


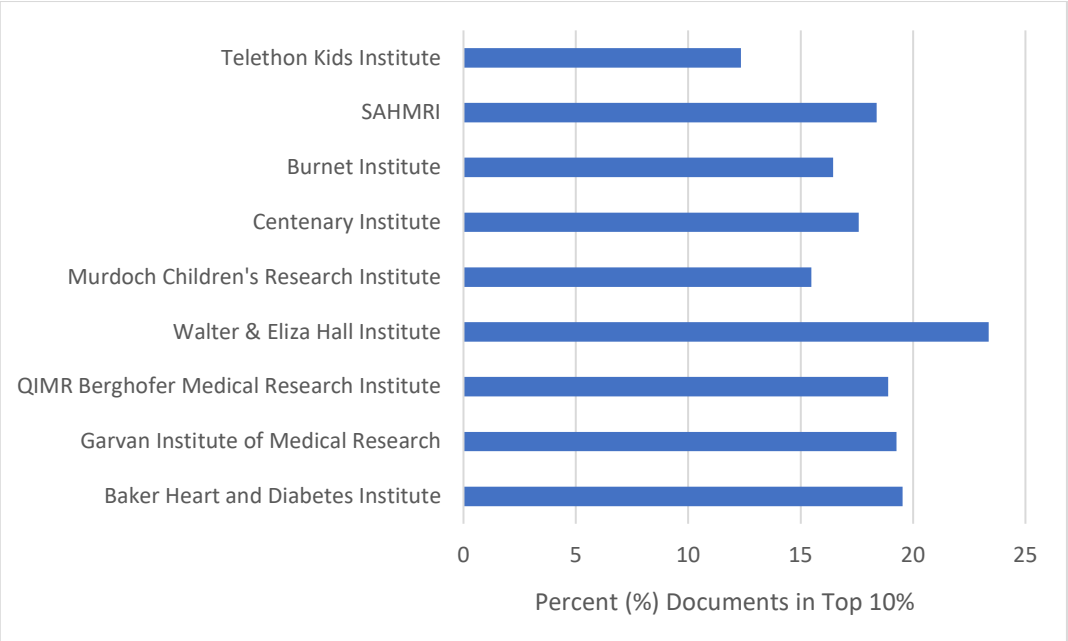
Figure 12: SAHMRI publication outputs (2012-2019).

SAHMRI publication outputs compare favourably to other comparative, independent MRIs as measured by a) category normalised citation impact and b) Percentage of documents in top 10%

a)



b)



Information request 4.3

The Commission seeks information and views on:

- What other health research impact assessment frameworks are in use in South Australia? Please provide details.
- What examples of health research impact assessment frameworks would be most useful for South Australia? Why?

AAMRI and the Telethon Kids Institute are currently developing a research impact tool, that will be available for use by other HMRIs. It would be useful for the State to consider utilising this framework to measure the impact of health and medical research across the State over the next 10 years.

While SAHMRI regularly reviews its own performance, and our Research Advisory Committee reviews our strategic directions and outputs on a biennial basis, we determined that it was timely to commission an independent review of SAHMRI's performance.

SAHMRI commissioned Dandolo Partners (a management consulting firm specialising in public policy) to undertake this review, focussing on our value as a health and medical research institute.

Dandolo Partners reviewed SAHMRI in terms of impact across a variety of fields, including knowledge, social, health, economic, leadership.

SAHMRI's impact

SAHMRI delivers very different kinds of impacts. In addition to the more conventional 'knowledge impact' of MRIs, SAHMRI also more importantly plays a key role in delivering health, economic, social and leadership impacts to SA.

We disaggregated SAHMRI's impact using NHMRC's impact framework, which consists of knowledge, health, economic and social impact. We also included leadership impact to acknowledge SAHMRI's role in leading and coordinating HMR in SA.

	Knowledge impact	Health impact	Economic impact	Social impact	Leadership impact
Definition of impact	*Develop new knowledge to inform further research*	*Prevent disease, create health policy or health system changes*	*Creation of new products and/or commercial outcomes*	*Counter inequalities in health, improve access to healthcare services*	*Lead policy or initiatives related to HMR*
Examples of SAHMRI's impact	• Research output and citation impact • Investing and managing research infrastructure to support research in key areas	• Lives saved • Informing health policy reforms • Change in recommendation health guidelines	• Cost savings for the health sector • Commercial income	• Improved health equity • Improved mental health outcomes	• Attraction of key staff • Leader in HMR workforce diversity • Leadership role to facilitate collaboration and grant funding applications

Information request 5.1

The Commission seeks information and views on:

- What reforms could the South Australian Government seek to implement, in conjunction with other jurisdictions, to address the remaining areas of duplication that reduce the effectiveness of the National Mutual Acceptance (NMA) framework process?

Delays in research ethics and governance processes are significant impediments to the timely commencement of research in South Australia. Mutual acceptance models of Human Research Ethics Committee (HREC) review have certainly improved the current system, but there is a long way to go in relation to streamlining governance approvals. Without resolution of these issues, the State will miss the opportunity to thrive.

SAHMRI is actively engaged on the Clinical Governance Committee, chaired by Professor Caroline McMillen, tasked with reviewing clinical research governance in the State (Professor Maria Makrides represents SAHMRI on this Committee).

The recommendations of the Birch Review[16] should be fully supported and implemented.

Information request 5.2

The Commission seeks stakeholder views on the merits of the following structural options for SAHMRI to more closely align its structure with a purpose to develop as a centre of HMR excellence:

- **Option 1**: Incorporate SAHMRI into an LHN with close attachment to the Royal Adelaide Hospital;
- **Option 2:** Incorporate SAHMRI into one of the state's CBD based public universities; and
- **Option 3:** Modify SAHMRI's current structure, purpose, constitution, governance and membership to enable a stronger alignment of member interests in HMR.

In SAHMRI's view, neither Options 1 or 2 will allow us to play our critical role as an independent HMRI, pursuing excellence in the way that we have to date, and maintaining our State-wide health improvements and national competitiveness.

Incorporating SAHMRI as a Government entity (Option 1) does not provide the flexibility we need to attract and retain talent, expend research funds in a timely manner, or attract philanthropic donations.

A key responsibility of all universities is teaching, while SAHMRI's sole purpose is the conduct of health and medical research. If SAHMRI were to become a controlled entity

[16] Birch (2018). Review of Research Governance in the Department for Health and Wellbeing (SA) and related LHNs.

within a University (Option 2), University priority-setting would significantly impact on SAHMRI's ability to achieve its objects and pursuit for research excellence.

The benefits of having an independent HMRI in the State outweigh all arguments for a move of SAHMRI to either SA Government or a University.

Therefore, our recommendation is that the Commission adopt a modified Option 3. SAHMRI should continue to exist as an independent centre of excellence for health and medical research with the goal of translating evidence directly into improved patient care.

SAHMRI PROPOSES THAT THE COMMISSION ADOPT "OPTION 3", MODIFIED AS FOLLOWS:

Maintain SAHMRI as an independent Health and Medical Research Institute (HMRI) with the purpose of research excellence and translation. SAHMRI should increase its focus on clinical research through greater engagement with the LHNs, especially CALHN and WCHN. The SAHMRI governance model should be changed to:

- *Members who are the relevant Government Minister together with the Board Directors from time to time;*
- *An independent skills-based Board.*

SAHMRI is confident that our existing **structure** - as a separately incorporated, independent health and medical research institute (HMRI) - is the right one. Only as an independent HMRI can SAHMRI effectively contribute to the state-wide objectives of increased health and medical research funding and translational output as identified and recommended by the Commission. Our successes since establishment are testament to the appropriateness of our structure – SAHMRI could not have achieved what we have achieved, had we been part of a Government entity or part of a university. It is however timely in this current instance to review and change our **governance model** to enable it to be more contemporary.

As an independent HMRI, SAHMRI can continue to play a leadership role in health and medical research across the State. We propose changes to our Governance model, including the appointment of an independent skills-based Board and replacing current Members with the relevant Government Minister together with the Board Directors from time to time. These governance changes will enhance SAHMRI's focus on clinical research excellence, stemming from stronger relationships with SA Health, specifically in the North Terrace Precinct.

Information request 6.1

The Commission seeks information and views on:

- What is the current number of clinician academics and researchers in South Australia across the universities and LHNs? How have these numbers changed over the last decade?
- What are the most significant barriers to attracting and retaining clinician researchers and academics, medical researchers and scientists in universities and MRIs in South Australia?

While SAHMRI cannot provide the data requested in relation to the number of clinician academics and researchers across the SA health and medical research sector, we can provide information relating to our workforce.

SAHMRI has recognised the importance of clinician researchers, and have a number working within our Themes. These researchers have direct contact with the health care system and offer us the ability to directly translate research findings into evidence-based improvements to health service delivery.

SAHMRI has both medical and allied health clinicians (dieticians) working within our Themes.

- Professor Maria Makrides (dietitian) is the Theme Leader of the SAHMRI Women and Kids Theme. Her role demonstrates the importance of allied health researchers in the clinical setting.
- Professor Tim Hughes (haematologist, RAH) is the Theme Leader of our Precision Medicine Theme.
- Professor Steve Wesselingh (infectious disease specialist) Executive Director, is a also a senior clinician researcher, working specifically at Flinders Medical Centre.
- Dr Peter Psaltis (cardiologist, RAH) plays a critical role as the Co-Director of our Vascular Research Centre.
- Professor Derek Chew (cardiologist) is the Theme Leader of Lifelong Health and is also the Network Director of Cardiology at Flinders Medical Centre.

Other clinician researchers working at SAHMRI include: Professor Stephen McDonald, Dr David Yeung, Dr Devendra Hiwase and Dr Dan Thomas, all clinicians with links to the Royal Adelaide Hospital; and Dr Amy Keir (neonatologist), Dr Monica Skubisz (obstetrician), Dr Carmel Collins (nurse) and Dr Merryn Netting (paediatric dietitian), all clinicians with links to WCHN.

To enable clinician researchers to have the greatest translational impact, they must be granted quarantined research time, research support and adequate data access as key components to success.

South Australia needs a recruitment and retention strategy for clinician researchers to ensure that as a State we attract and maintain the foremost clinical research expertise as a key capability in translational research.

Attracting and retaining researchers

Many key researchers have been attracted to South Australia because of the interaction and co-location of clinical/health service delivery, research laboratories and academic institutions. However, we must do more to increase the pool of world-class researchers and be more competitive and effective through the following:

1. Shared appointment model

For South Australia to compete with the eastern states in relation to attraction of the best health and medical research talent, the State must consider a state-wide and competitive recruitment and retention strategy.

Many high performing researchers will come to South Australia because they are offered an opportunity to work across various institutions within the sector – occupying clinical duties within the health system, an academic role at one of the Universities and a research role at SAHMRI. The ability to work across institutions is appealing to many and should be considered in the context of a state-wide recruitment and retention strategy.

We can point to examples that have applied this shared appointment model such as the recruitment of Dr Dan Thomas and Dr Dan Worthley (Precision Medicine), both recognised for excellence in their respective fields and attracted back to South Australia (from overseas) on joint appointment arrangements between the University of Adelaide and SAHMRI.

2. Optimised recruitment packages

Until recently, hospitals have been less inclined to invest in research active clinicians and scientists. As a State, we must be willing to commit to funding these researchers to ensure active translation of evidence into improved outcomes in health care.

The shared appointment model could be supported through the provision of funds from the State Government to allow a health system component of the cross-institutional employment. This model has been adopted in Queensland where clinician researchers (medical and allied health) are supported financially.

3. Future young leaders

Interstate researchers tend not to aspire to move to South Australia and international researchers generally do not have Adelaide on their radar. More could be done to promote Adelaide as a major scientific destination, especially with the creation of Adelaide BioMed City (e.g. as the State Government does for tourism).

Instead of attracting 'lone-star' researchers, we must bring in a capability, which may be their whole team or aligning attracted talent to an established team.

Information request 6.2

The Commission seeks information and views on:

- What other lessons and examples of research attraction and retention models from interstate and/or overseas would be useful for South Australia? Why? How might they be applied in South Australia?

Consideration should be given to interstate models where success has been achieved in Fellowship programs. For example:

Queensland Health has established the Health Innovation, Investment and Research Office[17], which supports the following funding programs:

- Queensland Advancing Clinical Research Fellowships ($3.9 million awarded to date);
- Junior Doctor Research Fellowships ($4.25 million awarded to date);
- Nursing and Midwifery Research Fellowships ($1.6 million awarded to date);
- Physiotherapy Research Fellowships ($1.4 million awarded to date);
- Health and Medical Research Fellowships ($40.9 million awarded to date).

As a specific example, the Clinical Research Fellowships *"…are intended to support Queensland Health clinician researchers undertake research linked to their practice. The program recognises that clinician researchers (including doctors, nurses, dentists, allied health practitioners and clinical scientists) are uniquely placed to identify clinical issues that can benefit from further research, lead patient focussed research discoveries and facilitate improved patient care through research translation. The objectives of the Queensland Advancing Clinical Research Fellowships are to:*

- *Develop Queensland Health clinician researchers and support their research career progression, particularly toward securing competitive research funding from national agencies and other funding sources.*
- *Support health and medical research projects that have real potential to lead to better health outcomes for Queenslanders.*
- *Build collaborative linkages between Queensland Health and the wider Queensland health and medical research sector to support the translation of research discoveries into frontline healthcare.*[18]

In Victoria, the VESKI Innovation Fellowships[19] have been introduced to support individuals in the fields of science and innovative technology. Recipients receive $50,000 per year for 3 years (matched by their host institution) to undertake their research in Victoria.

Any support schemes introduced in South Australia must be accompanied by investment from the State Government.

[17] https://www.health.qld.gov.au/hiiro
[18] ibid
[19] https://www.veski.org.au/vif?q=vif-criteria

Information request 6.3

The Commission seeks information and views on:

- What are the existing and longer-term potential impacts of the COVID-19 pandemic on the HMR workforce? What measures might be used to mitigate those impacts?

COVID-19

Over the last six months, SAHMRI has demonstrated its ability to respond in an agile and timely manner to health challenges, specifically COVID-19.

The recent challenges raised by the COVID-19 virus are a salient reminder of the critical importance of an internationally recognised, dynamic and capable research institute closely aligned with government healthcare priorities – a unique resource for provision of immediate expert advice relevant to the State's and community interests.

Through this challenging time, now more than ever, SAHMRI is committed to being flexible, adaptable and shift our focus to where it is needed most.

Our researchers have undertaken a number of key research activities during the pandemic:

- BRACE TRIAL[20] – The BCG vaccination to Reduce the impact of COVID-19 in Australian healthcare workers following Coronavirus Exposure (BRACE) Trial is a multi-centre randomised controlled clinical trial of the BCG vaccine against COVID-19. The trial aims to enrol 4000 healthcare workers from across Australia to investigate whether an existing, commonly used vaccine can reduce the effects of COVID-19 infection: Professor David Lynn.
- Health Policy Centre – Rapid evidence synthesis to answer priority questions from the State's Chief Public Health Officer and COVID-19 Task Force: Professor Caroline Miller.
- Viral pneumonia hospitalisations and aged care: Associate Professor Maria Inacio, SAHMRI Registry of Senior Australians (ROSA).

Clinical research activities and work in the APY Lands has been affected by COVID-19, and SAHMRI has put strategies in place to support our research teams directly affected.

Research Australia has released reports on the expected impact of the pandemic on health and medical research over the short to medium term.[21]

[20] https://www.sahmri.org/brace/
[21] https://researchaustralia.org/covid-19/

The 2020 AAMRI Members Report also highlights key areas where it is anticipated that COVID-19 will impact on the health and medical research sector:

- Workforce implications;
- Finalisation of key research activities;
- Commercialisation;
- Financial pressures re indirect research costs.

These impacts cannot be underestimated.

While the long-term impact is yet to be seen, the SA Government should consider ways of supporting researchers as we work through and emerge from the pandemic.

Information request 7.1

The Commission seeks information and views on:

- What specific actions are needed to test the opportunity to build big data medical analytics as a strength for the health system and HMR in South Australia? What is the role of the South Australian Government?

Artificial Intelligence and Machine Learning

SAHMRI has recently established an Artificial Intelligence and Machine Learning Platform, in collaboration with the Australian Institute for Machine Learning (AIML, University of Adelaide) to achieve world-class AI-in-Health research capability in South Australia, and the health impact this transformative technology enables. The AI Platform will bring together the AI and health research community to build a long-term research base, realise the potential of AI's capacity to improve health outcomes and efficiency, and generate novel AI methods that will have significant and sustainable health impact. The focus on novel and transformative methods over applied AI is essential if we are to capitalise on the opportunity and achieve the desired long-term impact.

Discussions are currently underway with SA Health in relation to the advancement of AI within the health system – through the establishment of a "AI in Health" platform.

Bioinfomatics Core at SAHMRI

Three Bioinformatics groups exist within the Computational & Systems Biology program at SAHMRI:

- Two EMBL Australia Fellow groups led by Professors David Lynn and Ville-Petteri Mäkinen, containing >20 researchers
- Bioinformatics Platform led by Dr Jimmy Breen (team of 5 researchers)

A key component for bioinformatics capability is the need for high-performance computing. Consideration should be given to State investment in high-performance computing functions, supported by adequate storage in order to support big-data studies.

Information request 7.3

The Commission would like to hear views from stakeholders regarding the importance of a whole of state government data strategy to enable interoperability, connectivity and timely access to South Australia's data assets and underpin individual agency plans such as the SA Health Data and Analytics Plan.

The introduction of a whole of State Government data strategy and the implementation of a SA Health Data and Analytics Plan are both strongly supported by SAHMRI. Both have been missing from the sector for a very long time, leading to increased frustration by researchers who wish to access health data for their projects.

SAHMRI is very willing to contribute to the development of both documents.

Given the issues associated with data access, South Australian researchers are at a significant disadvantage when compared with their interstate counterparts where data is more readily made available for research purposes.

We do not want to find ourselves in a position where we lose researchers from the State because it is so hard to access data.

Information request 7.4

The Commission seeks information and views on:

- What are the key infrastructure gaps or deficiencies which constrain HMR data management in South Australia? Why are they important?
- What action could be taken by the South Australian Government to address these gaps and deficiencies?

In line with the above information request, the introduction of a whole of State Government data strategy and the implementation of a SA Health Data and Analytics Plan would greatly assist in identifying the sector needs in relation to data management.

Investment will be required to appropriately manage this, educate researchers and provide sufficient support to ensure that data is ethically stored. This may require a staffing commitment, as well as further high-performance computing capabilities and sufficient data storage.

Information request 8.1-8.3

In our response to information requests 8.1-8.3, please note the following context.

SAHMRI has partnered with Bright Arena to adopt a new approach to commercialisation. Through this partnership, Bright Arena has identified three key impediments to improving commercialisation and translation performance:

- The Research Impact Gap
- The Industry Engagement Gap
- The Institute Capacity Gap

The Research Impact Gap: Researchers need to be supported to be 'commercially-savvy' to increase our rates of commercialisation.

The Industry Engagement Gap: Institutions need to bridge the industry engagement gap in order to have access to extra funding from industry.

The Institute Capacity Gap: Researchers need to be provided with the capability and capacity to build commercial opportunities within a supportive culture.

The response to information requests 8.1 – 8.3 are provided with this background in mind.

8.1 The Commission seeks information about successful approaches to addressing proof of concept funding necessary for development of an investible commercialisation proposal, including the roles of research institutions among others.

- What policy settings have addressed this funding gap? What is the evidence of their effectiveness?

The context to Information Request 8.1 can be summed up as a failure in the system to identify and develop a pipeline of HMR opportunities to commercialise, and to have fit-for-purpose funding mechanisms in place to build the capacity to support these opportunities.

The Pipeline Gap in SA

Developing an investable commercialisation proposal comprises, at a high level, three steps:

- Scouting and identifying promising research and technology.
- Validating the market opportunity around a technology.
- Deciding what resources are needed to develop the opportunity further. This often results in funding being sought to develop a proof of concept.

This process of pipeline building for medical research has faltered in SA, as evidenced by:

- The economic contribution of biotech to Gross State Product plateauing at approximately $90 million for the past 3-5 years.
- Low levels of engagement between industry and research institutes/universities in SA.
- Negligible Venture Capital and funding activity in the State focused on medical research start-ups.

This gap can be addressed when the capability to identify and develop early stage opportunities is combined with appropriate funding tailored to the unique needs of early stage medical research.

Role for Institutes

SAHMRI and Bright Arena have been piloting entrepreneurial commercialisation capability development over the past two years, with the goal of identifying and developing early stage opportunities. This commercialisation framework involves:

- Actively working with researchers to identify promising technology and talent.
- Building entrepreneurial capability and capacity in researchers and staff.
- Supporting promising technology and teams.
- Encouraging researchers to build business models around their research to maximise its impact.

SAHMRI's key commercial program metrics are:

- 76 project teams engaged in commercial/entrepreneurial programs
- 128 researchers trained in industry skills
- 7 new companies created
- 3 new products in development
- 3 new research groups recruited

Opportunities exist to extend the SAHMRI / Bright Arena approach and programs to the North Terrace Precinct and AHIP.

The funding gap for health and medical research

While the numbers from the SAHMRI program are promising, certain commercialisation opportunities have been unable to progress further due to inadequate early stage funding. There are some funding options available in the system, however these each come with their challenges, specifically:

1. *Federal schemes are limited in scope, exclude HMRI's or focus on later stage funding.*

    - NHMRC Development grants are limited in size (only 3% of total NHMRC funding pool) and scope (funding does not support business development activities directly).
    - Australian Research Council funding is only available for universities. This locks HMRI's out of a significant source of industry focussed funding.
    - The Biomedical Translation Bridge requires cash matching, which excludes very early stage opportunities whose very issue is not being investible.

2. *No dedicated local funding support for medical research proof of concept.*

    - The Research Commercialisation Start-up Fund (RCSF) supports early stage companies, but is industry agnostic and medical start-ups funded through this mechanism are already well into product development with significant funding already raised (e.g. GPN vaccines, Carina Biotech).

3. Private capital is constrained by pipeline or governance.

- The Medical Research Commercialisation Fund has significant capital ready for deployment for early stage and follow on investment. While they deploy significant funds across Australia, a lack of pipeline building and early stage de-risking means SA-based opportunities are passed over for more mature opportunities from other states.
- The SA Venture Capital Fund has a mandate to invest in Adelaide start-ups, but can only invest after Phase I clinical trials for a medical research based opportunity.

Our work has identified that approximately $5 million is spent each year in South Australia to fund early stage proof of concept for medical research start-ups and commercial opportunities.

8.2 The Commission seeks information and views on an HMR IP framework that better enables collaboration and clinical research. What are the relative merits of:

- a centralised IP network covering the local health networks;
- SA Health, in conjunction with university and industry, developing guidance on intellectual property and commercialisation;
- addressing intellectual property ownership and treatment in the contractual arrangements for clinician researchers who are employed in local health networks; and
- making specific overarching framework agreements between local health networks and individual universities, as noted by Flinders University.
- What other options are possible? What are their merits?

Information Request 8.2 recognises SA's relatively small population of health and medical researchers and that critical mass and coordinated efforts at a precinct level would meaningfully benefit the State. South Australia is too small to compete with itself and would do well to pool its efforts. A coordinated precinct and state strategy is required.

8.3 The Commission seeks views and evidence on the merits of a more centralised, streamlined and coordinated approach to commercialisation across LHNs including:

- a single organisation, such as AusHealth, to be responsible for commercialisation activity across SA Health;
- LHNs to have access to a central commercialisation back office support function; and
- a precinct approach in which collaborating institutions can pool resources

There is merit in a coordinated approach to commercialisation across the LHNs. SAHMRI sees value in AusHealth and has recommended it work very closely with SAHMRI to complement the work within the Adelaide Health Innovation Partnership. This model, along with the foundation work undertaken by SAHMRI and Bright Arena, could be adopted across the health system more broadly.

APPENDICES

Appendix I: Response to Commission Recommendations

Draft recommendation 5.1 – Research within SA Health

SAHMRI is very supportive of recommendation 5.1.

The LHNs, with the endorsement and support of the State Government, should embed health and medical research within their operations, with the aim of seamlessly integrating research into their core business in a manner that is complementary to clinical care.

Initiatives such as the Adelaide Health Innovation Partnership (collaboration between SAHMRI and CALHN, supported by the University of Adelaide and UniSA) will dramatically increase the opportunity for clinical research to be enhanced within the State.

A clear and defined set of metrics should be established against which each LHN can report on a regular basis. An example set of success measures is included as Appendix V. Adoption of success measures such as these would assist in increasing the relevance of research within the LHNs and across the sector more broadly.

The Department for Health and Wellbeing must increase the staffing capacity within their Office for Research in order to achieve the strategies within this recommendation. A staffing level of 2.0FTE is not sufficient to achieve the direction set out by the Commission.

Draft recommendation 6.1 – SA Health HMR Workforce Capability

SAHMRI is supportive of recommendation 6.1.

The importance of linking strong clinical research with strong clinical practice is key, as is providing protected time for clinicians to undertake research.

It would be appropriate for the proposed workforce capability plan to integrate with the wider health and medical research strategy as recommended by SAHMRI.

SAHMRI must be included in any plans to increase joint-appointments or clinical-joint appointments.

As per the submission that will be made by the SA Clinical Research Governance Steering Committee, a joint LHN/SAHMRI/University strategy should be adopted to inform clinical academic requirements, and the recruitment of leaders.

Draft recommendation 7.1 – SA NT DataLink

SAHMRI is supportive of draft recommendation 7.1.

As a key partner in SA NT DataLink, we see the immense value that a state-based linkage unit provides our researchers. We have a number of examples where the use of SA NT DataLink has achieved significant research outcomes through the linkage of big data that would ordinarily not be possible, and therefore support the recommendation for ongoing security and stability of SA NT DataLink.

Draft recommendation 7.2 – Privacy Legislation

SAHMRI is supportive of draft recommendation 7.2.

We agree that SA should have its own privacy legislation. Alternatively, SA Government agencies could be made subject to the Federal Privacy Act (or relevant parts of it). That way there is only one set of privacy "rules" that people need to comply with.

It must be recognised however that while privacy legislation would offer the State a number of benefits, it is not the sole answer to the data access issues experienced by researchers who are trying to access SA Health data for clinical studies.

Draft recommendation 7.3 – Improvements to data access

SAHMRI is very supportive of draft recommendation 7.3.

Data access is a fundamental issue for health and medical research and cannot be solved simply via a change in SAHMRI's governance structure. Barriers to data access are a major impediment to research. Considerable effort is required to ensure easy and timely access to data for research purposes, and this must be prioritised.

We are supportive of the creation of a Data and Analytics Plan for SA Health, and support the views of the Commission regarding the features of a good data system (as outlined on page 194 of the Commission's report).

Appendix II: SAHMRI Recommendations

SAHMRI Model

SAHMRI offers the following recommendation in relation to the SAHMRI Model:

R1: SAHMRI recommends that Option 3 is modified to read as follows:

> *Maintain SAHMRI as an independent Health and Medical Research Institute (HMRI) with the purpose of research excellence and translation. SAHMRI should increase its focus on clinical research through greater engagement with the LHNs, especially CALHN and WCHN. The SAHMRI governance model should be changed to:*
>
> - *Members who are the relevant Government Minister together with the Board Directors from time to time;*
> - *An independent skills-based Board.*

Investment

We offer the following recommendations in relation to investment in health and medical research:

R2: While the SAHMRI financial model is sustainable, SAHMRI requires ongoing Government support as received by HMRIs interstate. As such, the State Government operating grant to SAHMRI should be increased to a base amount of $10 million per annum (commencing in 2021), which is proportional to interstate competitors. The annual operating grant should be increased annually in accordance with CPI.

R3: Additional investment in health and medical research at a State Government level is critical to fund fellowships aimed at supporting, attracting and retaining our brightest minds, undertaking research in areas of specific interest and significance to the State.

R4: Funding provided to SA Health by the Federal Government for teaching, training and research must be identified and quarantined within the health system and invested strategically in research.

R5: Consideration should be given as to whether the funds currently being administered by the Health Services Charitable Gifts Board could be leveraged as a catalyst to scale up health and medical research in the State.

Role of SA Health in health and medical research sector

We offer the following recommendations in relation to health and medical research accountability and commitment within the Department for Health and Wellbeing and the LHNs:

R6: Appoint a Minister for Health and Medical Research and Innovation to provide a central point of accountability for the sector, rather than dispersing responsibility for research across several Government Ministers (as is currently the case).

R7: Department for Health and Wellbeing establish a Steering Committee to prepare a comprehensive State-wide Health and Medical Research Strategy, based on strengths of the State as well as community need. Membership of the Steering Committee should include representatives of all major stakeholders in health and medical research in the State, including SAHMRI.

R8: The Department for Health and Wellbeing must increase the staffing capacity within the Office for Research to achieve the strategies outlined in draft Recommendation 5.1.

Talent

We offer the following recommendation in relation to attraction of talent:

R9: The (proposed) State-wide Health and Medical Research Strategy must include metrics regarding the attraction and retention of key talent to the State in order to increase the number of high calibre clinical researchers/academics.

Data Access

Recognising that draft Recommendation 7.3 addresses a number of key issues associated with data access, we present the following additional recommendation for consideration:

R14: SA Health must develop workable, but consistent and transparent policies for rapid and secure access to health data.

Translation and Commercialisation

We offer the following recommendations in relation to translation and commercialisation:

R11: To enhance IP commercialisation capabilities, the staff and activities of AusHealth (formerly MedVet) should work closely with SAHMRI to complement the Adelaide Health Innovation Partnership.

R12: A state-wide model should be adopted for IP and commercialisation that it utilised by SAHMRI, SA Health and the Universities.

R13: To enhance IP commercialisation capabilities in the North Terrace Precinct, a strategic framework should be developed that explicitly discovers and develops a pipeline of opportunities (including across AI and Digital Health) that might include the establishment of a Precinct Incubator and an Early Stage Proof-of-Concept Fund.

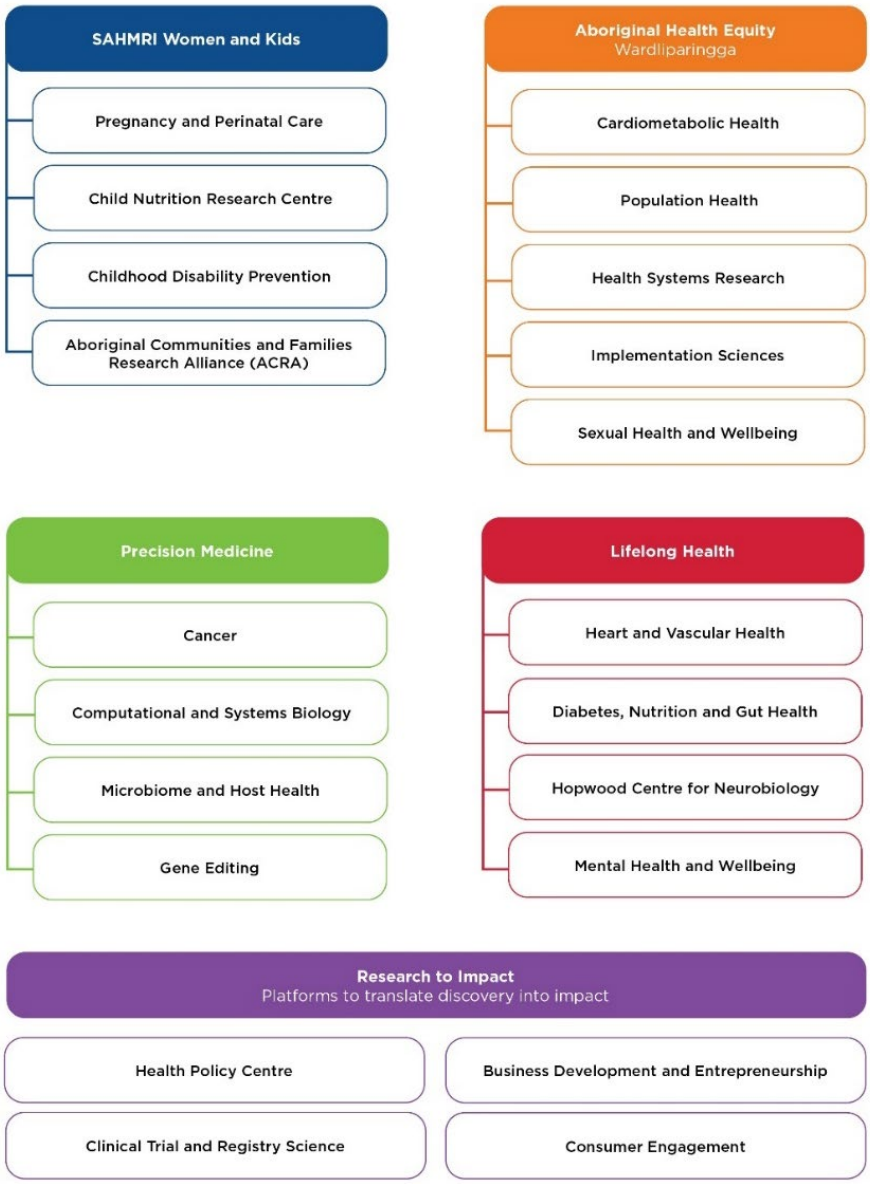
Appendix III: Matters Of Fact / Requested Changes

SAHMRI Theme Structure

On page 124 of the Commission's report, the SAHMRI Theme Structure is incorrectly reflected.

Please note that Aboriginal Health Equity and SAHMRI Women and Kids are both Themes within their own right and not part of Lifelong Health.

As such, we request the SAHMRI structure be corrected and accurately reflected in the Commission's final report.



Data Repositories

Page 173 of the Commission's report outlines that the two main South Australian repositories of health data are SA NT DataLink and SAHMRI registries. This is factually incorrect.

SAHMRI houses a number of nationally recognised registries (AOA, ROSA, ANZDATA). Each are all very large data collections in their own right, with data focussed on specific population groups/cohorts, available to researchers with ethics approval.

Data held by Government entities, particularly SA Health, form critical repositories of information accessed by health and medical researchers.

We request that this statement is corrected to ensure the appropriate representation of the public health system data utilised by researchers.

Administration of grants by SAHMRI

As outlined in our original submission to the Commission, SAHMRI's success rate for NHMRC and MRFF grants is difficult to report on, given that these grants are largely administered via the Universities. As such, any publicly available data regarding the administering institution would suggest that SAHMRI has quite a low NHMRC/MRFF grant application submission and success rate, which is a substantial under-representation of SAHMRI in this research metric.

As noted in our original submission (p57, Figure 18, and as below), SAHMRI has steadily increased its share of funding at state level, with 42% of South Australia NHMRC funding being awarded to members of the SAHMRI research community in 2019. **We request that this is appropriately reflected in the Commission's final report.**

Increasing percentage of South Australian NHMRC funding awarded to SAHMRI, 2016 – 2019

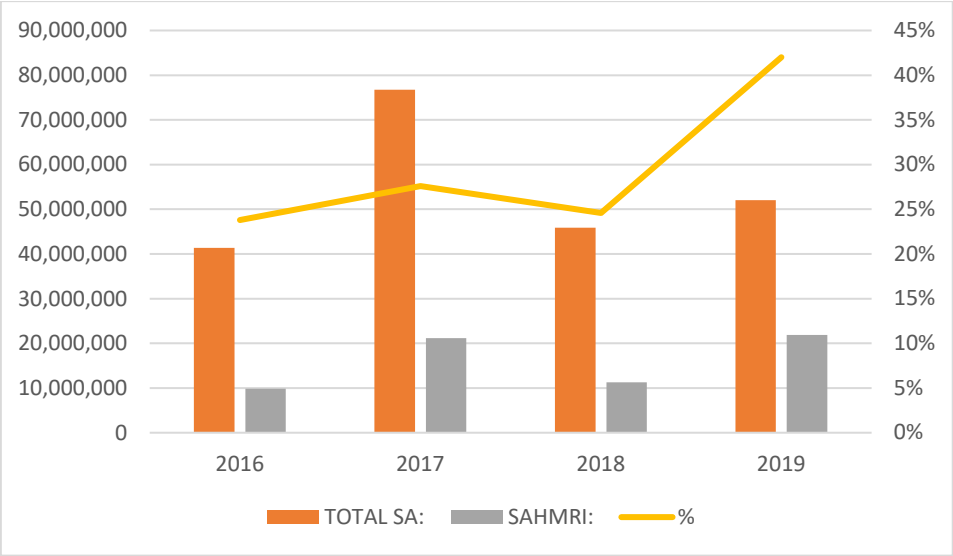


Figure 5.2 on page 127 of the Commission's report attempts to provide NHMRC data relating to SAHMRI grant funding as administering institution 2010-2020. It appears that the Commission has failed to recognise this key point regarding the administration of SAHMRI's grants via the Universities when presenting this graph.

We therefore respectfully request that this graph is removed from the final report given the skewed data that it presents, specifically a misleadingly negative picture for SAHMRI.

Appendix IV: MRFF Funding Success In South Australia (For The 2020-2021 Period)

Funding Opportunity	Administering Institution	Participating Institutions	Project Name	Total Funding
Genomics Project Grants	University of South Australia		Genomic autopsy of perinatal death	$3,400,000.00
MRFF Clinician investigator	The University of Adelaide	SAHMRI	Understanding molecular pathogenesis of therapy related myeloid neoplasm	$620,205.00
MRFF Clinician investigator	University of South Australia		Evidence-based digital technologies for health behaviour	$1,118,593.01
MRFF Clinician investigator	Flinders University	SAHMRI	Meeting psychological needs to improve the quality and safety of aged care	$420,078.91
Congenital heart disease	The University of Adelaide	SAHMRI	Maternal exposures, congenital heart defects, and child development	$3,041,595.00
Indigenous Health research	SAHMRI		Strengthening primary mental health care for Aboriginal and Torres Strait Islander (Aboriginal) adolescents	$1,997,344.00
Indigenous Health research	Flinders University	SAHMRI	Improving health treatments for diabetic retinopathy as a leading cause of blindness among Aboriginal Australians	$1,436,870.80
COVID Response: Respiratory Medicine Clinical Trials Research	Flinders University	SAHMRI	Precision antibiotic strategies to reduce invasive mechanical ventilation and mortality in COVID-19	$535,291.00
Clinical Trials Activity - RCRDUN Neurological Disorders*	The University of Adelaide	SAHMRI	Iodine supplementation in pregnancy to improve early childhood neurodevelopment: how much is enough?	$3,235,960.00

Clinical Trials Activity - Rare Cancers, Rare Diseases and Unmet Need Initiative (RCRDUN)	The University of Adelaide	SAHMRI	Precision Medicine for Chronic Myelomonocytic Leukaemia: Phase II Trial Studying the Efficacy of Lenzilumab or High Dose Ascorbate plus Azacitidine Based on Molecular Profiling Compared to Risk-matched Historical Cohort	$1,619,122.00
Traumatic Brain Injury	The University of Adelaide		Forecasting Impairment and Neurodegenerative Disease risk following Traumatic Brain Injury (FIND-TBI): A computational neurology-driven method to predict long-term prognosis	$1,987,160.00
Preventive and Public Health	The University of Adelaide		The Begin Better Randomised Trial	$2,790,917.00
Preventive and Public Health	The University of Adelaide		Time-Restricted EATing to reduce the risk of developing type 2 diabetes (TREAT)	$1,012,420.00
Preventive and Public Health	The University of Adelaide		A pragmatic randomised controlled trial to test whether incentives and carbon monoxide monitoring help pregnant women quit smoking	$987,207.00
Primary Health Care Research	The University of Adelaide	SAHMRI	Translation of culturally informed diabetes training for Aboriginal Health Practitioners on Aboriginal patient outcomes: a cluster randomised trial of effectiveness	$1,299,036.00
Primary Health Care Research	University of South Australia		Healthy Choices: Co-designed community programs to enhance healthy lifestyle choices for people with chronic conditions	$780,760.00
Primary Health Care Research	University of South Australia	SAHMRI	Using big data to create evidence-based primary health care service delivery and policy for the Australian aged care sector- a nationwide study	$1,435,801.00
			TOTAL	$27,720,149*

Appendix V: Measures of Research Success

In order to measure the impact of SA health/research organisations, a series of metrics can to be identified that can be measured on a regular basis to demonstrate impact in a number of key areas.

Publication metrics

This measure relates to the quality of research being undertaken by researchers, and the ability to compare this quality to other institutions (within SA and nationally) and across research fields.

Measure	Data Source
Total number of publications	InCites
Publications in Q1 – Q4 journals	
Publications in Top 1% and Top 10%	
Total Citations	
Citation impact	

Research Grant Funding

This measure relates to the volume of grant funding being awarded to researchers, across all categories of Research Funding e.g. competitive NHMRC, philanthropy, contracts/tenders.

Measure	Data Source
Grant funding awarded NHMRC MRFF Other Federal State International Philanthropic Commercial research, R&D	Institutional Research Management database or equivalent
Administering institutions split	Institutional Research Management database or equivalent
Grant funding pending to Researchers	Institutional Research Management database or equivalent
HERDC vs Non-HERDC	Commonwealth data

Collaboration

This measure will demonstrate the rate at which researchers are collaborating internationally, nationally, within the State and with individual sectors (e.g. health, industry).

Measure	Data Source
Publications with international and interstate co-authors	InCites
Top 10 institutions that institution collaborates with	
Publications within SA institutions e.g. Uni's, Hospitals MRIs	
Publications where all three SA Uni's and SAHMRI are listed as co-authors	
Industry collaborations	
Publications with consumer listed	
External contracts	Legal databases or equivalent
Identification of future collaborations e.g. health economics, biomedical engineering, artificial intelligence and machine learning	Research Leadership discussions
Clinical trial income and publications	Research Management database / legal database or equivalent

Innovation

This measure will demonstrate innovative research undertaken by researchers.

- Note: National Innovation Metrics are currently being considered – any metrics developed as a result of this review will then be considered in the context of this particular measure.

Measure	Data Source
Number of patents	Legal databases or equivalent
Licencing – options assignment	
Commercialisation/spin outs	
Creating new products or sales growth	Legal database / Finance database or equivalent
Innovation for the health care system e.g. introduced equipment, methodologies etc such as proton therapy.	Research Leadership discussions
Vignettes that demonstrate innovation e.g. research into magnesium intake for pregnant women and the direct translation to changes in health care. The vignettes will demonstrate the flow of research to policy change to health care change.	

Translation

Measure	Data Source
Top 10 stories that demonstrate translation impact within the State and the relevance of this in a national and international context. The stories will demonstrate the economic value of the translation, including health care savings, as well as the research evidence	Research Leadership discussions
Links with Health Translation SA	As evidenced by collaborations
Number of research groups with active end-user engagement	Consumer Registries/Institutional Research management databases
Number of consumers on HTSA/SAHMRI registry and other registries	
Number of publications with end-users as co-authors	InCites
Total number of citations	
Media mentions	Communications data
Policy and Guideline change	Number of policies/guidelines contributed to

Workforce

This measure will demonstrate researchers contribution to the State's workforce, including recruitment of global leaders, staff retention and student education.

It will also be a forward-looking measure, providing ways in which research can continue to contribute to the workforce within the State.

Measure	Data Source
Recruitment from overseas/interstate – numbers	HR database
Retention and turn-over of staff	
Staff who have left	
Number of clinician researchers Number of staff with PhDs	
Number of PhD students – and breakdown across field e.g. clinical, biomedical, population health	
Co-working spaces in the building	Facilities database
Publications with clinicians	InCites

Leadership

This measure will highlight where an institution has provided both State, National, International leadership in a specific field e.g. Top 10.

Measure	Data Source
Infrastructure and technology leadership	Research Leadership
Data leadership	
Policy leadership	
Translation	
Frontier technology capability	
Scale up	