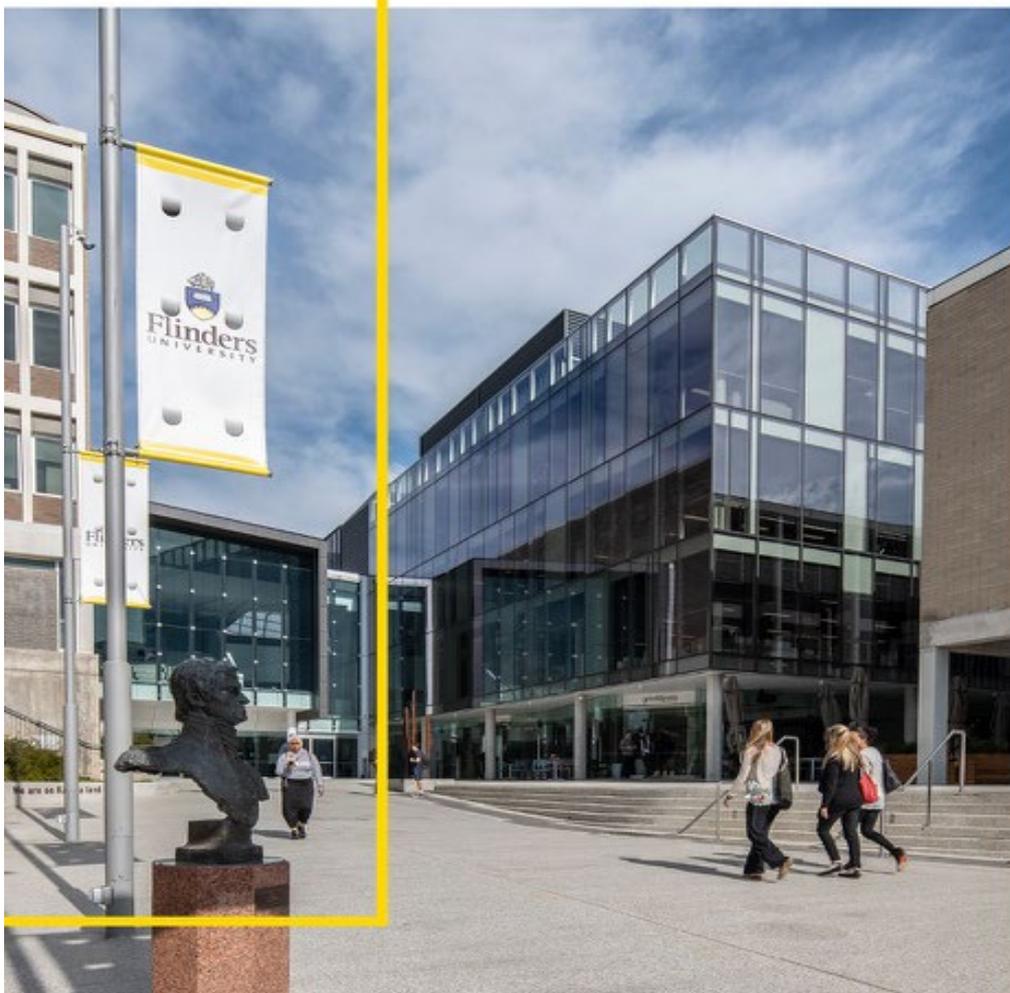


**Flinders University Response to the  
South Australia Productivity Commission Health and  
Medical Research Inquiry – Draft Report**

**October 2020**



## Contents

<b>INTRODUCTION</b> .....	<b>3</b>
<b>EXECUTIVE SUMMARY</b> .....	<b>3</b>
<b>FLINDERS UNIVERSITY CONTEXT</b> .....	<b>4</b>
<b>FLINDERS UNI FUTURE INVOLVEMENT IN SAHMRI AND THE NORTH TERRACE PRECINCT (ABMC)</b> .....	<b>5</b>
<b>FLINDERS MEDICAL PRECINCT</b> .....	<b>5</b>
<b>SUCCESS THROUGH A TWO-PRECINCT MODEL</b> .....	<b>6</b>
<b>DRAFT RECOMMENDATION 5.1</b> .....	<b>6</b>
5.1.1 A) AND 5.1.1 B) .....	6
5.1.2 AND 5.1.3 .....	7
<b>DRAFT RECOMMENDATION 6.1</b> .....	<b>7</b>
<b>DRAFT RECOMMENDATION 7.1</b> .....	<b>7</b>
<b>DRAFT RECOMMENDATION 7.2 AND 7.3</b> .....	<b>7</b>
<b>INFORMATION REQUESTS</b> .....	<b>8</b>
3.1 – FUNDING TRENDS .....	8
4.1 – WORKFORCE SIZE AND NATURE .....	8
4.2 – DIVERGENCE BETWEEN PUBLICATION AND FUNDING PERFORMANCE .....	8
4.3 – HEALTH RESEARCH IMPACT ASSESSMENT FRAMEWORKS .....	9
4.4 – HOSPITAL PERFORMANCE AND PUBLIC HEALTH OUTCOMES .....	9
5.1 - NMA AND EFFICIENCIES IN HMR RESEARCH APPROVALS .....	9
5.2 – SAHMRI STRUCTURE .....	10
6.1 – CLINICIAN ACADEMICS .....	11
6.2 – WORKFORCE ATTRACTION AND RETENTION .....	11
6.3 – HMR WORKFORCE .....	11
7.1 – BIG DATA MEDICAL ANALYTICS .....	12
7.2 – DATA GAPS AND INEFFICIENCIES .....	13
7.3 – WHOLE OF STATE DATA STRATEGY .....	13
7.4 – DATA INFRASTRUCTURE GAPS .....	13
8.1 – PROOF OF CONCEPT FUNDING .....	14
8.2 – IP FRAMEWORK .....	14
8.3 – CENTRALISED APPROACH TO COMMERCIALISATION .....	16

## Introduction

This submission has been prepared by Flinders University in response to the South Australian Productivity Commission draft report: Inquiry into Health and Medical Research in South Australia, released on 2<sup>nd</sup> September 2020.

We thank the Commission for its detailed analysis and recommendations aimed at increasing the scale and impact and reducing barriers that limit productivity and translational impact of health and medical research in South Australia.

SA has the opportunity to be a state of excellence and ambition for health and medical research, but to realise this vision and to bring economic benefits to the state this will require, of all stakeholders, a commitment to transformative leadership, structural change and collaboration.

## Executive Summary

- We welcome the recognition of the importance of a two-precinct model (a North Terrace Precinct and a Flinders Medical Precinct) to build capacity within the State. The review remains silent on the structure and function of the Flinders Medical Precinct and also on the question of how the two precincts might most effectively complement one another to maximise synergies and optimise outcomes. We recommend that these issues be considered as part of the review of the future of SAHMRI (below).
- The formal recognition of the Flinders Medical Precinct appropriately acknowledges the existing strong partnership between SALHN and Flinders University, forged in common infrastructure, personnel and culture, and shared commitment to the complementarity of clinical care, research and education.
- We stress that comments made by the SAPC about recent infrastructure investments on North Terrace are appropriate to the North Terrace precinct, but that enhancement of the Flinders Medical Precinct requires significant infrastructure investment following many years of neglect.
- We recommend a much stronger statement about the key role for the presence of SA Pathology and SA Imaging activities that support research and teaching in *both* precincts, noting that the majority of South Australian health professionals are trained in the Flinders Medical Precinct.
- We support revisiting the governance, structure and role of SAHMRI, noting that while Flinders University has its major research focus in the Flinders Medical Precinct, as a founding co-member of SAHMRI, we also anticipate an ongoing role in the future of SAHMRI.
- With regard to the architecture within which SAHMRI sits, we do not support a specific alliance of SAHMRI either with a Local Health Network (CALHN, as proposed) or with any single University. We therefore favour the third option, a modified governance structure for SAHMRI. The future model must *integrate* the SAHMRI facility with HMR activities across all three universities and with clinical research activities across the entire LHN network, noting that the Northern and Southern networks are the demographic regions of growth. As such, the governance/management structure(s) should be designed to work collaboratively with the universities (as principal drivers of HMR) to identify key research priorities to be delivered in partnership with LHNs to maximise outcomes.
- To this end, we propose that the SAHMRI members commission work to define the future governance/management structures.
- We strongly support the appointment of additional medical scientists to increase the scope of basic and applied research within public hospitals and increased clinical academic positions supported jointly by LHNs and universities. Joint clinician academics should include a balance of medical, nursing and allied health positions. This requires a multifaceted approach, broader than simply 'parachuting' in a handful of nationally recognised clinical academic leaders, including accountability by all stakeholders to 'develop

our own', with explicit expectations of equity, and that research is a shared responsibility for all those engaged in healthcare.

- We support some centralised functions within SA Health to support access to key research enablers such as data. However, this centralised function must be balanced against local decision making and capability building at the LHN and precinct level to capture full benefits of developing a strong research culture with positive local elements of research governance and IP management.
- We emphasise that research capacity in rural and remote health and Indigenous health should be prioritised, in keeping with SA's historical position as an infrastructural provider across Australia's central corridor.

## Flinders University context

Flinders University has a proud history as an innovative leader in health and medical research and education for over 40 years. Health and medical research activities contribute approximately two-thirds of the total research income to Flinders University and we are the largest provider of medical and allied health education in the State and play a substantial role in health and medical workforce development across South Australia. With a significant rural and regional footprint, we collaborate with both metropolitan and country LHN's in delivery of teaching and research outcomes. Our research spans the breadth of health and medical research and covers the entire basic to clinical translation pipeline. Industry engagement occurs across all elements of our health and medical research activities. Our main campus at Bedford Park in Southern Adelaide is co-located with the Flinders Medical Centre and Flinders Private Hospital and we have strong partnerships with the Southern Adelaide Local Health Network (SALHN) spanning research, education, and clinical activities. Our campus at the Tonsley Innovation District catalyses collaboration and partnerships with medical device, digital health, ageing and other key health and medical industry sectors to deliver strong translational outcomes of our research.

With a focus on research excellence and collaboration, our health and medical research activities occur through flagship research institutes and centres including:

- Flinders Health and Medical Research Institute
- Órama Institute for Mental Health and Wellbeing
- Caring Futures Research Institute
- Medical Device Research Institute
- Digital Health Research Centre
- Research Centre in Palliative Care, Death and Dying

Our activities are strongly aligned to each of the six health and medical industries subsectors as described in the Department for Trade and Investment's Health and Medical Industries sector plan 2020 -2030. With strong industry and clinical partnerships into each of those sectors, we are well positioned to contribute to investment attraction to SA. Of particular note are our strengths, at both the National and International levels, in the sub-sectors: Aging Well and the Care Industry; Digital Health and Medical Devices and our major investment in growing Clinical Trials activity and expertise. With targeted support through a precinct model Flinders University is well positioned to contribute to the future success of these subsectors, and to the SA economy.

Multiple, strong, and trusted collaborative partnerships with health services, industry, consumers, and government allow Flinders University to translate our world-class research to benefit the local community and beyond. We are creating the next generation of health and medical researchers in SA with a focus on collaborative industry-ready skills and translational research outcomes.

Notwithstanding the current COVID-19 fiscal pressures, Flinders University has enjoyed considerable growth in recent years. We see health and medical activities as providing significant opportunities for future growth and economic benefits to both the University and the State. Flinders University have committed to

undertake significant investment in infrastructure projects focussed on health and medical research, to enable further growth, building on our success. We are investing heavily in a new Flinders Health and Medical Research building. This state-of-the-art facility will form the centrepiece of our 'Flinders Village' development and early works are set to commence in the second quarter of 2021. The initial building, which will deliver critical infrastructure from which to develop a global health, research, and education precinct, is planned to be followed by further investment in research capacity across the health spectrum.

Committed to developing a successful Flinders Medical Precinct, Flinders University will be looking to secure investment to attract and retain talented people and to provide specialist research infrastructure within the precinct. We are committed to continued development of our people and to further strengthening our valued partnerships to realise the benefits of an enhanced precinct.

## Flinders Uni future involvement in SAHMRI and the North Terrace Precinct (ABMC)

Flinders University proposes a mutually beneficial relationship with SAHMRI, in which we maintain future relevance to SAHMRI, and by default the North Terrace precinct, and vice versa. Flinders Uni high calibre staff are located within the SAHMRI building on North Terrace and hold leadership roles within SAHMRI. Particular research activities are reliant on access to specialised infrastructure, data and equipment located at SAHMRI facilities on North Terrace.

While Flinders University seeks to continue our involvement with SAHMRI, we support revisiting the structure of SAHMRI, including its role, and governance. We propose that the SAHMRI members commission work to define the future governance/management structures of a re-defined SAHMRI with a view to establishing an organisational structure that will integrate the SAHMRI facility with HMR activities across all three universities and with clinical research activities across the entire LHN network. The governance/management structure(s) should be designed to work collaboratively with the universities (as principal drivers of HMR) to identify key research priorities to be delivered in partnership with LHNs to maximise outcomes. We think it critical to revisit SAHMRI governance in this way to enable stronger alignment of member interests.

Flinders University are also members of Adelaide Biomed City (ABMC). Our future involvement in ABMC will most likely focus on those Flinders Uni staff who are geographically located within the North Terrace precinct, but also provide input into planning and management of shared research infrastructure and collaborative research across the State.

Clarity on the composition and roles of stakeholders within the North Terrace precinct, including the future role of ABMC, SAHMRI and Health Translation SA, are crucial to the effective functioning of a two-precinct model within the State.

## Flinders Medical Precinct

Flinders University is co-located with SA's largest comprehensive quaternary hospital, the Flinders Medical Centre, in addition to the Flinders Private Hospital. We are pleased that the Commission has recognised and acknowledged the reality of and potential for growth in the Flinders Medical Precinct, stemming from our strong and established partnerships with the Southern Adelaide Local Health Network (SALHN). This partnership is enduring and built on trust and mutual benefit. We have a shared commitment to engage in health and medical research, education, and clinical services to deliver improved local health outcomes. SALHN represent the only birth-to-death public health service in the State. Taken together as the Flinders Medical Precinct, we are uniquely placed to further grow and develop health and medical activities to benefit South Australia.

The Flinders Medical Precinct will realise value from the recent State investment in extension of the Flinders rail line, a crucial transport connection to enable close linkages between the established North Terrace Precinct, the Tonsley Innovation District and the Flinders Medical Precinct. The Flinders Medical Precinct will

also see value from investment in the Flinders Village development, initially in a Health and Medical Research Building, and through further investment planned to support Flinders Medical Precinct development.

Notwithstanding these infrastructure development plans, following many years of neglect, the Flinders Medical Precinct requires significant investment to enable it to realise its full potential at pace. We recommend that this need for investment be recognised by the SAPC as crucial for the success of the Flinders Medical Precinct.

The Flinders Medical Precinct will allow pooling of resources towards centralised functions between Flinders University and SALHN. This will maximise efficiencies and enable local decision making at the precinct level on issues related to research principles and practice including ethics, intellectual property, commercialisation, and access to data.

## Success through a two-precinct model

Notwithstanding the promise of the Flinders Medical Precinct and the significant investment required to achieve this vision, there are key considerations and attention to detail which must be considered to ensure success of both precincts.

1. While the precincts are likely to further develop distinct strengths, in part based on the needs of the co-located stakeholders, including the LHN's, universities and industry, there must be a shared focus on research excellence and commitment to developing and maintaining collaborative research activities that capitalise on the strength of both precincts and enhances competitiveness for research funding at the National and International level and promotes translation and commercialisation opportunities.
2. Some core research infrastructure, including SA Medical Imaging and SA Pathology services, must be based in both precincts to enable effective research operations.
3. Specialist research infrastructure (eg Cell Screen SA based at the Flinders Medical Precinct or SA Genomics facilities based at the North Terrace Precinct) should not be duplicated and should be shared between precincts in an open and collaborative manner.
4. Precincts must be appropriately resourced to be effective. Support for collaborative programs and functions are critical to drive growth in capacity and to allow the State to realise its full potential.

## Draft recommendation 5.1

### 5.1.1 a) and 5.1.1 b)

Flinders University is generally supportive of draft recommendations 1a and 1b in providing focus and accountability to improve long term performance of the public health system. We welcome the focus on working closely with research collaborators and partners including universities, alongside the decluttering of policies and simplification of regulatory frameworks. This will establish an environment which is ideal for outstanding research outcomes and will drive a strong collaborative research culture required for translational outcomes. Attention to detail in implementation will ensure that activities within precincts will be complementary and will build capacity. This will position the State for improved performance in National and International settings.

It is noted that the proposed approach will require significant investment in research management policies, processes, infrastructure and investment in research administrator roles within SA Health to give effect to the recommendations. The current resourcing within each of the Department for Health and Wellbeing (DHW) and the LHN's is not likely to be adequate to deliver on expectations.

In relation to recommendation 1b(v) our response to information request 5.1 provides further context.

We do not believe that a consolidated HREC and single point of entry, even alongside the SA Health Single Ethical Review Model (SERM) will achieve the outcome of reduced duplication to enable rapid

commencement of multi-site trials within the State. Confounding factors such as the National Mutual Acceptance (NMA) and Site Specific Assessment (SSA) will otherwise dilute anticipated efficiency gains and may significantly reduce improvement in net performance related to clinical trials. We maintain that streamlining bureaucratic processes including the SSA will be required to see this benefit.

### 5.1.2 and 5.1.3

Flinders University is supportive of recommendations 2 and 3. Flinders University would like to see ABMC direct focussed activities towards delivering State-wide benefit, and to demonstrate intent to work together with the Flinders Medical Precinct to build capacity for the State.

## Draft recommendation 6.1

Flinders University is strongly supportive of this recommendation and we welcome increased numbers of both medical scientists in addition to clinical/academic joint positions. We are pleased to provide professional development programs for HMR researchers in that context, including facilitating networking between researchers and industry through our established industry engagement programs such as the Medical Device Partnering Program, the New Venture Institute, and our Researcher Education and Development hub (RED).

## Draft recommendation 7.1

Flinders University is supportive of establishing ongoing security and stability of SA NT DataLink, and the recommendation to work with SA Government to support and assist sourcing and securing stable multi-year funding. Flinders University would further recommend that any proposed SA Government investment in SA NT DataLink is considered in light of an open and transparent investment framework and decision tree that might be applied equitably across the many requests for investment into building SA HMR research infrastructure as a whole, including bio-banks. Flinders University would anticipate that any request from SA NT DataLink to State Government for cash investment would be accompanied by a convincing business case outlining clear benefits to the State.

## Draft recommendation 7.2 and 7.3

Flinders University is extremely supportive of recommendation 7.2 and 7.3, and adoption of a legislative instrument to provide certainty and clarity in relation to data access and privacy protection. As outlined in our response to the corresponding information requests, only with clear data policy, governance, and infrastructure will privacy and security concerns be addressed to allow effective HMR involving data.

Flinders University encourages policies that enable data access and analytical activities to be undertaken by organisations outside of DHW and SA Health. This will benefit the public who may see a new and diverse research approach from a variety of sources including university and industry and may result in highly innovative and entrepreneurial solutions. This position is in keeping with our response to the Commission in May 2020 regarding the Issues Paper expressing the obligation for Australian's health data to be used efficiently and appropriately to improve medical treatment and healthcare.

## Information Requests

### 3.1 – Funding trends

*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?*

The Commission has in general provided a balanced and reasonable assessment of grant funding trends and sources of HMR funding available to SA Institutions.

HMR funding is also available through the SA Government Department of Innovation and Skills, through the South Australian Research, Commercialisation and Start-up Fund, stream 1 “Strategic research initiatives”. This stream largely targets and supports co-operative research centre (CRC) applications with a presence in SA. It has the potential for increased support of HMR through the provision of strategic matching funding towards supporting large MRFF grants to benefit the State.

This role of SA Government, in a COVID-19 year, is arguably more important than ever with financial pressures significantly impacting universities’ ability to co-invest in research. For example, in the recent MRFF Biomedical Translation Bridge (BTB) program, the Medtech Ventures Case Manager reported a significant number of grant applications with strong scientific merit from SA. However, these applications did not proceed beyond expression of interest stage due to lack of matching funding which is a requirement of the scheme.

There is an urgent need to address and support universities, MRI’s and industry in satisfying matching cash requirements in grant applications to be competitive in the MRFF scheme against other States and to increase South Australia’s share of Australian Government funding for health and medical research and development.

### 4.1 – Workforce size and nature

*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.*

We refer the Commission to our previous response in which we provided this information.

### 4.2 – Divergence between Publication and funding performance

*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?*

NHMRC is only one source of research funding that supports HMR research. Publications derive from multiple sources. For example, Higher Degree Research scholarships in the HMR area are likely to be a strong contributor to HMR publications. In addition, publication numbers are only one measure of research performance, where publication practices may prioritise fewer publications in higher impact journals or vice versa. Considerably more refined analysis would be needed to answer this question.

### 4.3 – Health research impact assessment frameworks

*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?*

The Commission notes the "Framework to Assess the Impact of Translational health research (FAIT)" on page 101 of the draft report. Developed by Hunter Medical Research Institute it is a hybrid of three proven methodologies for measuring research impact, namely a modified payback method, social return on investment, and case studies or narratives of the process by which research translates and generates impact. Researchers at Flinders University are supportive of this approach, and its adoption in South Australia.

### 4.4 – Hospital performance and public health outcomes

*The Commission seeks information and views on:*

- *What empirical evidence is available on the causal relationship between HMR public hospital performance and public health outcomes, particularly at the state level? Please provide details.*

It is difficult to provide empirical evidence requested here as the conduct of HMR within public hospitals, the delivery of healthcare services and resulting public health outcomes is complex and performance is dependent on many variables. Furthermore, this research has largely not been conducted and patients aren't systematically followed to enable these insights.

In public hospitals HMR, evidence informed practice and best-practice healthcare delivery is derived from multiple sources and is not readily distinguished at a State level. Public health research itself forms part of the broader HMR activities within the State and within public hospitals. It has not been otherwise acknowledged in this Draft report. Public health research has an important role in developing innovative new means to keep the population healthy, reduce health inequalities and contributes to reducing demands on acute health services. It is reasonable to conclude that locally developed and investigator-led HMR in public hospitals and universities will deliver benefits and respond to needs of the local population and that this will be reflected in improved public health outcomes. However, we do not have data or evidence to support this conclusion.

### 5.1 - NMA and efficiencies in HMR research approvals

*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?*

Although the NMA system was designed to reduce duplication of review, due to the different State and Territory legal and regulatory requirements, additional review is often required. This is a well-known drawback of the NMA and has been discussed at length in other jurisdictions.

The SA Health Single Ethical Review Model (SERM) together with a proposed and consolidated Human Research Ethics Committee for the State (HRECS) to offer a single point of entry for ethics approvals may seemingly reduce duplication within the State and streamline processes. However, in practice the perceived efficiency gains may never be realised due to the requirement to review applications originating from other jurisdictions resulting from the NMA process. Furthermore, neither SERM nor HRECS offer solutions to reducing the onerous local Site Specific Assessment (SSA) approval process which is an essential element for governance at each local site. The SSA will continue to present delays in study commencement across multi-site projects. The high recruitment needs of large trials such as sponsored trials or MRFF funded investigator-led trials will demand multi-site solutions. Despite the suggested recommendations presented by the Commission, we believe that the current frameworks around NMA and SSA will continue to present rate-

limiting factors resulting in duplication and delay and will continue to adversely affect our competitiveness in securing Clinical Trial activity against other States.

We continue to recommend that a streamlining of bureaucratic processes, including the SSA will reduce the compliance burden for researchers/institutions and enable rapid study commencement. A consolidated HREC and single point of entry will not necessarily achieve this outcome.

## 5.2 – SAHMRI structure

*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.*

Flinders University is a proud founding member of SAHMRI and we are actively involved in governance alongside contributing significantly to the research outcomes of SAHMRI. We acknowledge significant prior State Government investment into SAHMRI alongside co-investment by the universities. We agree that there has been substantial investment in HMR infrastructure on North Terrace. While this can be seen as being at the expense of funding of the research talent pool, the provision of suitable infrastructure is also a prerequisite for advanced HMR. Notwithstanding, Flinders University has some 33 staff located within the SAHMRI building on North Terrace, with some holding significant leadership roles within SAHMRI. These staff contribute significantly towards the research performance of SAHMRI and include:

- Prof Derek Chew, Theme Leader of Lifelong Health
- Prof David Lynn, Director of Computational & Systems Biology Program within Precision Medicine and Interim Director of the South Australian Genomics Centre
- Prof Geraint Rogers, Director of Microbiome Research within Precision Medicine
- Prof Stuart Brierley, Director, Hopwood Centre for Neurobiology, within Lifelong Health
- Dr Cedric Bardy, Group Leader of Human Neurophysiology and Genetics, within Lifelong Health

We further acknowledge that membership of SAHMRI provides Flinders University with access to unique research infrastructure including facilities, equipment, registries and bio-banks.

We support the findings of the Commission that SAHMRI was established with a purpose that can create tension in its relationship with its University Members. In our view, the core of the issue lies in the hybrid nature of SAHMRI, first as a co-employer or location of University researchers but also as an independent medical research institute governed by a Board whose focus is, understandably, solely on the success of SAHMRI as a medical research institute and not, as Flinders University perceives it, a vehicle to support HMR research activity across the state. We therefore propose a modified option 3 for SAHMRI by revisiting structure, including role and governance, to create greater synergies between the major HMR institutions within South Australia.

In particular, we propose that the future model must integrate the SAHMRI facility with HMR activities across all three universities and with clinical research activities across the entire LHN network, noting that the Northern and Southern networks are the demographic regions of growth. As such, the governance and management structure(s) should be designed to work collaboratively with the universities (as principal drivers of HMR) to identify key research priorities to be delivered in partnership with LHNs to maximise outcomes. We therefore propose that the SAHMRI members commission work to define the future governance/management structures.

## 6.1 – Clinician academics

*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?*

It is important to acknowledge clinical academics and clinical researchers in their broadest context, beyond the medical model and encompassing nursing and allied health researchers. Furthermore, medical scientists have a significant role to play alongside clinician researchers, particularly related to basic and applied research activities and can often catalyse research activity within a clinical unit.

We note that the Commission has not taken into consideration the impacts of basic and applied science and the interplay with clinical outcomes in the draft report.

The university does not track data on the total numbers of clinician academics over time, and so we cannot report on these figures. We have provided the Commission with clinical affiliate numbers in response to a previous information request. Flinders University has several joint clinical academic appointments embedded within LHN's. We estimate that within the College of Medicine and Public Health alone, we currently have 21 joint clinical appointments. The majority of these are within SALHN, although we do have an additional two very recent clinical academic appointments within each of CALHN and NALHN through our College of Nursing and Health Sciences.

We have anecdotal evidence that the numbers of clinical academics within the public health system have been declining. Alongside a decline in clinical academics, there has been a substantial progressive decline in numbers of medical scientists employed within our public health system over the past 10 years.

Barriers to attracting and retaining clinician researchers have been adequately captured by the Commissioners in the draft report.

## 6.2 – Workforce attraction and retention

*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?*

Flinders University, in partnership with SALHN, are endeavouring to address attraction and retention of research talent in a variety of ways, including through the development of clear entry pathways into PhDs/Masters for clinicians. The pathway of MD/PhD as implemented at Monash, University of Queensland and other universities is a possible model. Flinders University is also offering Practitioner Fellowships to grow and retain early and mid-career clinician-researcher fellows. While these target clinicians from all areas including allied health and primary care, feedback from the LHN indicates that they would be keen to work more closely to ensure alignment with clinical service delivery of successful individuals employed by the LHN (this could also be extended to other clinical providers). Ideally, these could be co-designed as joint full-time appointments that place equal value on education, research and clinical activities of the individual, creating a potential career pathway for clinical academics.

## 6.3 – HMR Workforce

*The Commission seeks information and views on:*

- *What examples of successful models of joint employment arrangements exist in other states? Please provide details.*
- *What capacity building and skill development programs are currently available for health and medical researchers in South Australia? Which institutions provide them?*
- *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?*

The Commission has reported on Victoria's health and medical research strategy 2016–2020, which outlines an approach including funding Postdoctoral Research Fellowships, and has in the draft report outlined several suggestions for state government funding to attracting, retaining and supporting researchers in South Australia. Flinders University is supportive of all approaches outlined in the report, bearing in mind that this is a complex issue that will require a strategic and multi-pronged approach rather than a focus on only one method.

Flinders University offers extensive and comprehensive researcher training that aims to build researcher capacity and capability. Programs aim to impart the knowledge, key traits, and attributes of effective, highly successful researchers. Supporting all career stages, a range of programs are on offer including:

- Researcher Induction program
- Researcher Mentoring Scheme
- Training and development workshops and information sessions including funding, ethics and integrity, collaboration and external partnership development, IP management and commercialisation.
- One-on-one meetings with key research support teams

The majority of sessions are offered online, proving a flexible and accessible approach to the delivery of workshops and ideally suited to attendance by busy clinicians.

Furthermore, the College of Medicine and Public Health offer discipline relevant and targeted support including establishing community of practices, early-mid career support programs, and industry engagement programs through our Researcher Education and Development Hub (RED).

The impact of COVID-19 on the research workforce, primarily through the loss of international student income impacting on university research capacity, has been extensively reported. The recently announced investment of an additional \$1billion to support university research is a desperately needed contribution, but is only for 2021, perhaps predicated on a return of international students in 2022. However, the level of job opportunity for HMR researchers in South Australia remains uncertain. We suggest that the primary mitigation measure would be to provide local short term 'bridging' support for researcher salaries, similar to the 'JobKeeper' approach, to ensure retention of our key early and mid-career researchers.

## 7.1 – Big data medical analytics

*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?*

South Australia has the building blocks to build big data analytics as an area of strength and strategic advantage for SA. However, to realise this potential will require significant changes to policy, governance, infrastructure, investment and support related to data treatment. Furthermore, there is opportunity through data captured in electronic medical records (EMR) within each of the LHNs, and the alignment of disparate data groups within the DHW to improve accessibility of the data and to enable development of insights from analytics. This unique EMR data and insights has the potential to further add to the unique data registries, linked datasets, AI and cybersecurity strengths within SA.

There is a role for a whole-of-government approach in realising the opportunity that big data medical analytics may afford to SA. Next steps might begin by working closely with the Commission for Excellence and Innovation in Health (CEIH), universities, industry and the Department of Trade and Industries, and specifically to consider the recent Health and Medical Sector Industry Strategy, which lists "Digital Health" as one of the priority sub-sectors for investment and growth in SA.

In recognition of the strategic importance and the need to expand our current activities in this area, Flinders University has recently invested in the establishment of a Health Data Science and Clinical Trials (HDSCT) hub

embedded within SALHN. There is considerable opportunity for co-investment from other key stakeholders including government to expand capacity in this area.

## 7.2 – Data gaps and inefficiencies

*The Commission seeks information and views on:*

- *What are the key data gaps, or deficiencies in data quality, which, if addressed, would strengthen performance of HMR in South Australia?*
- *Why are they important?*
- *What action could be taken by the South Australian Government to address these issues?*

Inefficiencies and barriers to access data result from ‘gate keeper’ behaviour, and this often inhibits data related HMR activities and data access to organisations who fall outside of State government. Accessibility and management of data is key to the development of many HMR projects. A thriving HMR environment would ideally have a diversity of organisations with high quality and deep expertise who may access and analyse data, provide insights and suggestions for continuous system improvements, and generate translatable HMR outcomes for the State.

With clear policy, governance, and infrastructure related to data treatment, concerns related to privacy and security can be addressed to overcome current barriers. Likewise alignment and clarity around roles of the many disparate groups within DHW who have involvement with data including the CEIH who we understand are drawing clinical insights from data to inform service improvement through their clinical networks, Digital Health SA, and Mental Health analytics, combined with the role of the LHNs who nominally are the data custodians would be useful. Policies to enable data access and analytical activities to be undertaken outside of DHW and including universities to benefit a diversity of health and medical research approaches are encouraged.

## 7.3 – Whole of State data strategy

*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.*

A whole of State data strategy is a critical element that would add tremendous benefit to SA combined with open, accountable, and transparent processes. It would benefit the broader HMR activities to enable access to data for analytic purposes and will allow organisations outside of government, and outside of DHW to draw meaningful insights and deliver action research outcomes. This is particularly important in developing a thriving big data analytics capability within SA which interfaces between HMR organisations and industry to encourage research translation and commercialisation.

## 7.4 – Data infrastructure gaps

*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?*

The Commission notes the importance of data assets to the future of HMR in the State. Combined with the lack of a State-wide strategy or policy which incorporates elements of data infrastructure, SA stakeholders have been left to develop individual and siloed approaches, including data infrastructure solutions. Flinders University maintains that the capacity to securely house, store and access data is a critical infrastructure gap which must be addressed at the State government level and managed in the context of research infrastructure and research assets to benefit the State as a whole. The former Adelaide Integrated Bioscience Laboratories (AIB Lab) framework remains a good example of shared infrastructure management to facilitate collaborative and accessible research assets within the State.

## 8.1 – Proof of concept funding

*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?*

Proof of concept funding is a critical element in progressing early stage concepts closer to an investible offering. This style of funding is available through competitive processes including NHMRC Development grants and a variety of MRFF funding schemes such as the Biomedical Translation Fund and other MTPConnect schemes in addition to federal programs such as Accelerating Commercialisation, the CRC program and the ARC Industry Transformation program. The Flinders Medical Device Partnering Program also offers an effective solution to help bridge this early stage gap in medical device and assistive technology development. The SA Government provide some funds through the South Australian Research, Commercialisation and Start-up Fund (RCSF) and the SA Venture capital Fund (SAVC). Universities and tech transfer offices often have access to internal funding including seed funding in support of establishing proof-of-concept, although the current economic climate resulting from the COVID pandemic has seen a scarcity of university internal funds to support research.

SA has previously benefited from the strategic and co-ordinated activities and investment of the State government through BioInnovationSA who were exclusively focussed on HMR activities. They provided not only funding to bridge the proof-concept stage, but also funding towards patent costs combined with valuable specialist networking, education and support functions including business advice and establishing connections. The State government efforts have now focussed on the FIXE strategy alongside the EXCITE strategy and Health and Medical Industries Sector Plan. These renewed activities, whilst worthwhile do not target early-stage concepts, and deliver benefits at more mature technology ready levels delivering downstream commercial benefits.

South Australia does have a significant gap in translating early stage concepts into investible proposals which stems from both lack of funding combined with lack of tangible support programs that bring together researchers, health services and industry to drive a culture of commercialisation within the State.

## 8.2 – IP Framework

*The Commission seeks information and views on an HMR IP framework that better enables collaboration and clinical research.*

- *What are the relative merits of:*
  - o *a centralised IP network covering the local health networks;*
  - o *SA Health, in conjunction with university and industry, developing guidance on intellectual property and commercialisation;*
  - o *addressing intellectual property ownership and treatment in the contractual arrangements for clinician researchers who are employed in local health networks; and*
  - o *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?*

The State Government has an IP Policy that promotes the translation and commercialisation of IP for the benefit of the State. However, a framework that describes the processes to enact the policy does not exist.

The development of an IP framework is the first step in addressing key structural and procedural barriers to efficient IP commercialisation and translation. This framework should be developed in conjunction with SA Health, university and industry, and should be dynamic in providing certainty through centralised principles and policies whilst flexible and adaptable to meet individual needs and respecting local decision making within LHN's.

An effective framework should include a process for:

1. Determining the legal and beneficial rights to IP where the inventors are employees of SA Health and the LHNs who may also hold joint appointments at local Universities.

It is understood that inventorship is entirely based on intellectual contribution of an individual to IP creation and development. Under Australian Law, it generally follows that IP ownership rests with the respective employer of the inventor. Furthermore, the legal and/or beneficial rights to the IP can be contracted to third parties including funders of HMR. This scenario becomes increasingly complex in HMR where there is a joint employment arrangement and often multiple funding sources. An agreed framework between LHNs and universities to determine legal and beneficial rights in IP resulting from researchers who are employed by the LHN and affiliated with a university or employed jointly with the university would provide clarity. These framework agreements should take into consideration the employment affiliations of the individual, the location of research activities, the administration of research funds in addition to the intellectual contribution of individuals to the research activities. It is important in improving efficiencies that these framework agreements are negotiated broadly across LHNs and universities and not limited to interactions within precincts.

2. Determining the Party that will be responsible for leading commercialisation and translation of jointly developed IP.

It is important to determine who will be responsible for leading the commercialisation and translation of the jointly developed IP. The South Australian Intellectual Property Policy states:

*“Government is often not best placed to further develop IP. Instead, where there are opportunities for innovation, government should allow staff or third parties to further develop and commercially benefit from IP—provided this can be done on a fair, equitable and transparent basis and clearly generates public benefit, knowledge transfer or innovation, and does not erode the state’s IP.”*

Flinders University agrees with this sentiment. Commercialisation and translation of HMR requires a unique skill-set, which is not currently available within most LHNs or DHW. It makes sense that LHNs utilise the commercialisation resources of the universities with whom their employees are affiliated or have joint appointments. In 2008 the commercialisation arm of Flinders University signed a Memorandum of Understanding with SALHN. This MOU outlined a framework by which Flinders University could commercialise both jointly owned and 100% SALHN owned IP to the mutual benefit of both parties. Under this framework Flinders University bore all upfront costs and risks associated with commercialisation and agreed on a distribution of net commercialisation returns with SALHN. The benefit of this model to SALHN was that it incurred no direct upfront costs associated with commercialisation of research and SALHN did not have to undertake the process of commercialising the research itself. This framework worked well until it was terminated in 2015. Flinders University proposes reinstating this framework.

3. The provision of prompt expert advice to LHN CEO’s to allow them to make an informed decision outside of their area of expertise.

One of the difficulties Flinders University has had in commercialising IP with LHNs is being able to receive timely feedback on commercialisation matters and arrangements. Flinders University understands that it is asking LHN CEO’s to make decisions outside of their expertise and that there is an inherent conflict in a university commercialisation manager putting forward proposals to LHNs for how to manage jointly owned IP.

Flinders University is supportive of the proposal being put forward by Health Translation SA, that calls for the establishment of an independently run expert panel that could provide commercialisation advice to LHNs when required.

### 8.3 – Centralised approach to commercialisation

*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.*

Flinders University's preferred position is to adopt a precinct approach, in which collaborating institutions can pool resources, and enable flexible and local decision making that meet the needs and benefits of stakeholders.

Successful commercialisation of HMR results from culturing a pipeline of activities many of which are undertaken prior to the actual process of commercialisation. These include:

- the training and development of researchers to recognise and develop IP,
- mentoring researchers to develop relationships with industry,
- development of an IP and commercialisation strategy for grant submissions to obtain funding for key proof-of-concept funds, and;
- provision of IP advice when negotiating Contract Research Agreements to ensure that the IP is retained within the institutes.
- the ongoing input and commitment of the research team after a commercialisation agreement has been signed.

With these requirements in mind, Flinders University provides feedback on the merits of the approaches proposed by the Commission.

#### A single organisation, such as AusHealth, to be responsible for commercialisation activity across SA Health

- A single entity may appropriately focus their efforts entirely on driving commercialisation activities, generating deal-flow and securing commercial revenue. The nature of their engagement will be to generate income from activities and achieve commercial returns. However, in doing so they will focus on a small part of the commercialisation spectrum and will not adequately culture and develop a pipeline of emerging HMR commercial opportunities. Important functions that will be missed through a contracted single commercial focussed entity will include providing assistance with IP strategy and planning for major grants (such as NHMRC Development and MRFF), upskilling of researchers through training, and providing skilled IP advice ahead of publications or other disclosures, contract research, material transfer and other exchanges. This assistance is key to developing a sustainable and long-term approach to effective commercialisation of HMR.
- In general commercialisation through a single entity has not worked in other jurisdictions, primarily due to conflict and competitive practices. Notwithstanding, the BioCurate example in Victoria has seen some success, although the Commission has found discreet silos and competitive practices remain within it. UniQuest as another example, were the commercialisation agent for University of Tasmania (UTAS), University of Wollongong (UoW) as well as other Universities. Neither UoW nor UTAS continue to contract UniQuest to commercialise their research, suggesting that the arrangement did not prove satisfactory.
- Local context, relationship building, and continuous improvement are very important. When evaluating a commercialisation opportunity, it is important to respect the researchers work, and make suggestions that enable the researcher to learn and understand the process and how to progress the concept further along the commercial pathway. How you say no or not-yet to an opportunity is just as important as how you say yes.

- Use of a single organisation for this function represents a single point-of-failure and presents a significant potential barrier should they fail to perform. Prior to taking this approach, the Commission should consider whether a centralised commercialisation model has been successful elsewhere and why or why not that is the case, and specifically to explore the role of contractors in delivery of a Central model.
- Awarding this function should be through an appropriate and transparent competitive process, to ensure that this critical function is awarded to the most appropriate entity. Said process should include due diligence against previous performance indicators such as the number of licenses and spin-outs, the average time to negotiate agreements and the capacity of the service to deliver across the broad scope of research undertaken in SA Health.

#### LHNs to have access to a central commercialisation back office support function

- This model could work if it was adequately resourced both operationally (to fund patent costs and a modest commercial proof of concept fund) and with a suitable talent pool of people with the relevant research commercialisation expertise.
- Advantages of this approach is that the staff responsible for commercialisation will be employees of SA Health, thereby creating an environment where activities and actions of the group will be well-aligned with and contribute towards culturing a whole-of-pipeline approach, rather than focussed solely at the deal-flow end.

#### A precinct approach in which collaborating institutions can pool resources.

- This is Flinders University's preferred position. This model is already in place informally between Flinders University and SALHN.
  - SALHN employees who are research active and affiliated with Flinders University already have access to and participate in researcher training in IP, commercialisation and translation.
  - Flinders University commercialisation and contracts staff have provided advice for IP management in contracts and drafted IP management and commercialisation strategy for SALHN staff submitting contracts or grants through the Flinders Research, Development and Support office.
  - Flinders University generally takes the commercial lead in jointly developed commercialisation projects. Implementation of the processes and procedures suggested in 8.2 would greatly improve the efficiency of commercialisation which is currently negotiated on a case-by-case basis and can be duplicative and very challenging.