

24th June 2024

Maddison Evans
Research Officer
Education and Health Standing Committee
Legislative Assembly of Western Australia

Subject: Inquiry into the State of Health and Medical Research in Western Australia

Submission on behalf of the School of Biomedical Sciences, The University of Western Australia

Dear Ms Evans,

On behalf of the School of Biomedical Sciences (SBMS) at The University of Western Australia, we appreciate the opportunity to contribute to the inquiry regarding the state of health and medical research in Western Australia.

SBMS carries out world-class teaching and research across a range of biomedical, preclinical, and health-related disciplines. Our membership includes internationally recognised Teaching & Research academics, Research-Intensive staff (including early and mid-career researchers [EMCRs]) and higher degree by research (HDR) students. Together, we aim to understand the basis of human health and disease, develop new, innovative therapies, and address worldwide health challenges ranging from viral pandemics and antimicrobial resistance to the diagnosis and treatment of cancer.

The following document represents the collated opinions and responses from SBMS members following an internal survey and workshop concerning the *State of Health & Medical Research in WA*. Our response addresses the **three challenges** outlined in the invitation, plus it includes a series of **key recommendations** and some **measures of success**.

Thank you for considering our submission.

Sincerely,



A/Prof. Nathan Pavlos
(Chair, SBMS Research Committee)



A/Prof. Jason Waithman
(Deputy Chair, SBMS RC)



W/Prof. Jeff Keelan
(Head of School)

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The state of Health & Medical Research in WA
A submission from the School of Biomedical Sciences
The University of Western Australia

EXECUTIVE SUMMARY: Addressing the three key challenges.

1. Determining Health and Medical Research Priorities

- The current process of determining research priorities in WA lacks appropriate and comprehensive stakeholder engagement and transparency. Discovery research, in particular, which is pivotal in providing the pipeline for innovations and commercialisation, is often neglected, and is challenging to fund. Each stage of the medical research pipeline needs support and should be considered in the consultation and planning process.
- A lack of leadership capable of bringing together all the major medical research stakeholders to promote multi-institutional collaborations and set agreed priorities has also been a barrier to success, resulting in a comparative decline against other states (e.g. SA and QLD) and lost opportunities. Addressing this leadership gap is a priority.
- We should aim to embed a culture of clinical research into health, by encouraging participation in research training, removing organisational barriers, and establishing research pathways and KPIs within WA Department of Health. This would enhance the medical research workforce, grow clinical research expertise and teams, and improve the implementation of research-led healthcare delivery and policy.

2. Impact on Research and Areas of Need

- The primary impact of underfunding on the sector is loss of jobs and talent, and a diminution of the state's contribution to the health of its community.
- There is also likely a significant loss of return in investment, particularly regarding the failure to support biomedical discoveries to the point of commercialisation.

Key recommendations

- a. Improve transparency and inclusivity of strategic funding allocation decision making and priority setting, ensuring all major stakeholders have a voice.
- b. Establish and empower an independent strategic leadership and coordination entity to grow the local WA research ecosystem and foster a more collaborative research culture within the state.
- c. Establish a state-based health & medical innovation precinct on the QEII Campus.
- d. Invest in critical research infrastructure.
- e. Incentivise and promote cross-institutional collaborations through targeted funding programs.
- f. Celebrate, support, and invest in the local research workforce (including clinician researchers) to nurture and retain local talent, at all levels.

Measurement of success

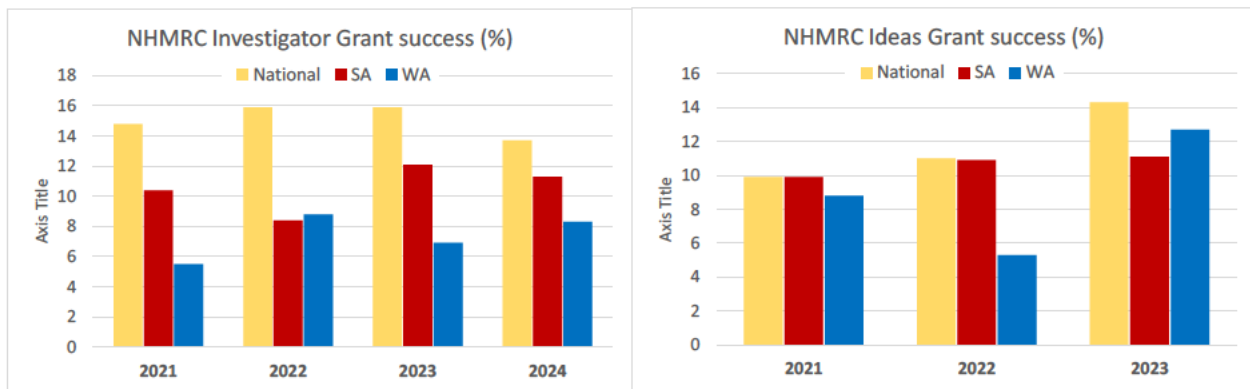
- i. Increased numbers of national competitive grant applications being submitted and increased success rates.
 - ii. Establishment of a flagship health & medical research and innovation precinct.
 - iii. Establishment of a WA health & medical research coordination organisation/institution with a strategic planning remit.
 - iv. Increased funding of multi-institutional collaborative research projects.
 - v. Improved retention and expansion of local clinical and scientific research staff.
 - vi. Attraction to WA of biotech start-ups, establishment of new industry partnerships and support systems for the commercialisation of discovery research.
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The state of Health & Medical Research in WA

Current Challenges:

1. Limited share of national competitive funding:

Over the last decade, Western Australia has consistently received a smaller proportion of national competitive funding for health and medical research compared to other states. For example, when benchmarked to South Australia, despite a comparable population and research output, Western Australia's success rates and net allocation of National Health and Medical Research (NHMRC) funding for Investigator and Ideas Grant Schemes has been consistently lower (except for the 2023 Ideas grant round).



In the 2024 NHMRC Investigator Grant round alone, WA received an allocation of \$13.5M (8.3% of total funding, 9/108 applications) compared with South Australia \$22.6M (11.3%, 12/106 applications), representing a disparity of 41%.

Unsurprisingly, all SBMS respondents surveyed rated WA's share of national competitive funding for health and medical research as either inadequate or very inadequate. Several factors were identified which likely contribute to this imbalance; these include:

- **Geographical isolation:** WA's physical separation from the Eastern states makes collaboration more difficult, reduces our visibility and inclusion, makes contact and lobbying more sporadic and expensive, and fosters a 'them and us' attitude that pervades funding decisions.
- **Negative perception and bias interstate:** Because of the issues highlighted above, the Eastern states research community tends to undervalue WA's research capability or achievements; we are often seen as a backwater. This can result in unconscious bias that penalises WA grant applicants during funding decisions.
- **Infrastructure limitations:** The Eastern state's infrastructure spend far exceeds WA's due to strategic State Government funding, economies of scale and the inevitable aggregation of resourcing around well-funded hubs. This relative lack of research infrastructure impairs innovation and reduces funding competitiveness, high-impact research, and staff retention.
- **Historical bias in funding distribution patterns:** Since *success breeds success*, the historical underfunding of health & medical research in WA has had the impact of slowly reducing the state's competitiveness, hindering recruitment and retention of top talent, reinforcing the downward spiral. This slide will likely continue unless urgent action is taken.
- **Lack of state-wide medical research coordination:** In SA, the establishment of [SAHMRI](#) has had a significant impact on state-wide collaboration and growth of critical mass and infrastructure, resulting in a coordinated health and medical research institution of significant scale and impact. Our own WAHTN has struggled to exert a significant impact in growing collaborative research and harnessing our collective talents. The lack of statewide research leadership and advocacy has

impaired growth and resulted in missed fundraising opportunities and a relative decline in WA's medical research performance.

- **Barriers to clinician researcher participation:** Lack of support and expectations for clinical staff within DOH to undertake research and partner with universities and MRIs to form multidisciplinary teams and drive clinical research, translation, and implementation.

2. Determining Health and Medical Research Priorities:

SBMS members support the Department of Health *WA Health & Medical Research Strategy (2023-2033)* and *Future Health Research and Innovation Fund* initiatives. However, there is a perception that the current process of determining research priorities in WA lacks appropriate and comprehensive stakeholder engagement, transparency and accountability. While members acknowledge that efforts have been made to align with national health priorities, local needs and emerging research strengths often receive inadequate consideration or representation.

In particular, the discovery research sector, which is pivotal in providing the pipeline for innovations in therapy development and commercialisation, and which is well-developed in Eastern states, is largely neglected. Health and medical research should be viewed holistically as a pipeline, with different issues and requirements according to stage and maturity. The pipeline starts with fundamental research (including cell/animal models, biomarker discovery, etc.) leading through to patents, industry partnerships and commercialisation, then eventually clinical trials, translation via new therapeutics/tests, and implementation into clinical care and policy. This pipeline takes many years to realise outcomes; each stage of the pipeline needs support and should be considered in the funding allocation process. Current state schemes focus almost exclusively on Innovation and Clinical Translation with very little investment or equivalent funding opportunities available for WA discovery science.

Research leadership and culture are important drivers of inter-disciplinary collaboration, barrier removal, innovation and incentivisation. In this regard, compared to states such as SA which established a flagship medical research institution (SAHMRI), WA has failed to fully capitalise on the promise of the WAHTN. As a result, the various players and stakeholders in the WA medical research community remain siloed and collaboration is impeded by competition; this is a huge lost opportunity. We need to build a culture of collaborative, cross-institutional research, with financial incentives as well as active leadership to maximise the impact and effectiveness of our combined resources.

Bearing in mind WA is the site of the largest health and medical research and teaching centre in the Southern hemisphere (QEII Medical Centre), an opportunity exists to capitalise on this and establish the QEII Medical & Health Research & Education Precinct as an internationally recognised hub for life-science health and medical research excellence, where cutting edge medical/biomedical research, innovation, translation, teaching, and healthcare delivery are brought together.

3. Impact on research and areas of need:

When asked “*How likely is it that you would recommend a career in biomedical research to a student or colleague?*” only 7% of SBMS responders replied in the affirmative. This is a striking reflection of the primary impact of underfunding on loss of jobs/talent and a diminution of the state's capacity and contribution to the health and medical research endeavor.

Even though WA has several innovative and successful biomedical startup companies, the innovation ecosystem is largely uncoordinated and unsupported. With improved resourcing and support, the state's capacity to develop a sustainable biotech/life-sciences industry would be enhanced.

Our state hosts the largest health and medical research and teaching centre in the Southern hemisphere (QEII Medical Centre). An opportunity therefore exists to establish and market the QEIIIMC Precinct as an

internationally recognised centre of health and medical research excellence, combining cutting edge medical/biomedical research, innovation, translation, teaching, and healthcare delivery. Properly funded, constructed, and governed, this Centre could rejuvenate the sector and become a destination of choice for the top research scientists and clinician researchers in the world. This would grow critical mass, establish a culture of multidisciplinary/institutional research and innovation, build teams with sustainable career pathways, and significantly enhance research funding competitiveness and diversification.

While the recommendations would come at a considerable cost, it's worth pointing out that the 2021 CSIRO [analysis](#) estimated that every \$1 of research and development investment creates an average of \$3.50 in returns. This analysis supports previous findings from [Deloitte's Access Economics](#) of a >3 : 1 return in investment from medical research. The recent [impact assessment](#) of Australian Research Council-funded discovery research also revealed a >3-fold return on public investment, illustrating the strong economy-powering returns-for taxpayers from national grant-funded research.

Key Recommendations:

1. Improve Strategic Federal Funding Allocation:

Advocate for a fairer distribution of national competitive funding that reflects Western Australia's research capabilities and health priorities. This will require increased lobbying and advocacy at federal levels and collaboration with national funding bodies to ensure equitable opportunities for researchers in the state.

2. Establish Transparent and Accountable Priority Setting Mechanisms:

Implement a transparent and inclusive process for determining state-specific health and medical research priorities. This should involve wider consultation with stakeholders including researchers at major academic institutes. Representation needs to be inclusive and balanced across all areas of research - including discovery/basic researchers and early-mid career researchers (EMCRs). This broader consultation is especially important during the decision-making processes on state-funding mechanisms supporting research activity.

Agreed research priorities and funding schemes should have tangible and accountable objectives or milestones that can be measured to determine whether goals set are achieved.

3. Discoveries Need Dollars - invest in discovery (basic) science:

At the national level the introduction of the Medical Research Future Fund (MRFF) has been a vital injection of funds into the Health & Medical research sector, but the MRFF targeted schemes are not open to discovery or life sciences. Science & Technology Australia, the peak body representing > 225,000 scientists, recognise this gap and have proposed the establishment of a [Science Future Fund](#) to turbocharge R&D breakthroughs for Australian economic growth. The introduction of an equivalent scheme at the State level would propel WA researchers to the forefront of discovery science in Australia.

4. Establish a Health & Medical Innovation Hub/Precinct on the QEII Campus:

With support from WA Health and the State Government, plus the state's Universities, MRIs and biotech/life-science/pharmaceutical industry, establishing the Hub could provide an enormous boost to the entire research pipeline, significantly grow our competitiveness nationally, and establish the platform necessary to grow our biomedical innovation/commercialisation sector.

5. Invest in research infrastructure and collaboration:

Promote strategic investment in research infrastructure that supports collaborative research initiatives across institutions and disciplines. Facilitate partnerships between academia, healthcare providers, industry, and government to foster innovation and address complex health challenges collaboratively.

- Sustained investment for core infrastructure is necessary to increase our research capacity and competitiveness. Western Australia is well positioned to be a leader in Biomedical/Life Science

innovation with appropriate investment. The loss of state support for the Animal Resources Centre, for example, has already placed several nationally and state funded projects at risk, directly impacting HDR student training, with flow on effects of delayed research activity impacting productivity and overall reduction in ability to compete nationally.

- Reinstating expired DoH-WA initiatives such as the Medical Health Infrastructure Research Funds (MHIRF) that provided equitable and critical infrastructure support directly to researchers compared to block distributions that are institutionally absorbed under the new Research Infrastructure Support (RIS) program.
- We need to establish and foster a much more collaborative research culture in WA. Recent changes to the NHMRC and ARC national funding schemes have capped the number of grants awarded per investigator which restricts collaboration. The introduction of more collaborative state-based schemes would incentivise more WA researchers to collaborate and encourage a unified and more competitive approach when targeting nationally funding schemes. Fostering and promoting increased participation of DoH clinical staff in research teams and partnerships would also be productive in driving clinical research.

6. Invest in sustainable research and local talent:

- Funding provisions and strategies are urgently needed to support sustainable careers in research. The WA Near Miss Awards (Emerging Leaders and Ideas Grants) are an extremely valuable initiative and go some way towards supporting our early career researchers; however, there is a lack of equivalent schemes to support more senior and/or experienced researchers who often exit science after successive near misses in national funding schemes.
- Increased investment is also required to fund the true costs of researchers in WA. The recent increase in investment in the WA Research Institute Support Program is a welcomed initiative; however, this package covers gaps outside of salaries. Similar support packages are needed to cover funding gaps for research staff whose appointments are only partially covered due to disparities between research funding awarded from grants/fellowship compared with institutional salary levels and associated on-costs.
- Provide more seed funding to support local EMCRs and allow them to flourish. Currently too much emphasis is placed on trying to attract and recruit international researchers to WA at the expense of local talent. This has led to a brain drain in WA as researchers exit to seek more sustainable opportunities interstate and overseas.

Measurement of success

Implementation of the recommendations listed above would be expected to achieve the following measures of success:

- Increased numbers of national competitive grant applications being submitted and funded.
- Establishment of a flagship health & medical research and innovation precinct, with full engagement by stakeholders across the site with a common governance structure and vision.
- Establishment of a health & medical research coordination organisation/institution for WA with strategic planning powers and representation from across the sector.
- Increased numbers of multi-institutional collaborative research projects established and funded.
- Improved retention and expansion of local clinical and scientific research staff, including clinician researchers with dedicated FTE, fellowships, and specified research KPIs.

- Increases in the number of new biotech start-ups and industry partnerships, and the establishment of support systems for the commercialisation of discovery research.

In conclusion, addressing these challenges and implementing the recommended strategies will strengthen Western Australia's position in health and medical research. It will enable us to better serve our community's health needs, generate economic benefits, drive sustainability and innovation, and contribute significantly to national and global health research efforts.