

OFFICIAL

World-class research that shapes the future of health

Central Adelaide Local Health Network Research Strategy 2022-2027

Contents

Helping shape future health	2
A research strategy aligned to our vision	2
Our commitment to ground-breaking research	3
Delivering research outcomes	4
Vision and strategic ambitions	5
Research is embedded across our network	5
Part of a bigger research ecosystem	6
Expanding our world-class flagships	7
Comprehensive Cancer Centre	7
Surgical and transplantation excellence.....	7
Personalised medicine and patient-focused care	8
Excellence in Aboriginal health	8
AIML-Health centre for intelligent health solutions.....	8
Healthy ageing.....	9
Driving CALHN research	10
We collaborate and partner to drive research excellence in an academic health science network	11
We increase access to the latest innovations and treatments for our patients to improve health outcomes and access to clinical trials	13
We harness patient data and use informatics and multidisciplinary research and science to deliver innovative solutions to long-standing problems	16
We cultivate local and recruit world-class research leaders to drive clinical research and future-focused practice innovation	18
We apply innovation and discovery to improve practice and commercial success that creates economic opportunities.....	20
We engage with our community and support the needs of our researchers to achieve optimal research performance and health industry visibility	22
Tracking our success	25

Helping shape future health

The Central Adelaide Local Health Network (CALHN) has a bold vision to be in the top 5 health networks in Australia and top 50 in the world. We are dedicated to improving the health and wellbeing of South Australians through world-class research and integrated healthcare, hospitals and state-wide services.

A research strategy aligned to our vision

This research strategy aligns with CALHN's vision as a global leader in health-related research and health care. It will also build scale, promote collaboration both within our organisation and with partners, and help develop commercialisation at CALHN.

Health-related research vastly improves lives and contributes to greater social wellbeing. Our innovative technologies and novel scientific discoveries have led to new treatments, new ways of thinking, providing care and operating our organisation.

Our partnerships with local and international universities and health networks allow us to share, learn and collaborate across clinical and educational areas to deliver world-class research. This is fuel for us to become a leading academic health sciences network (AHSN), capable of rapidly translating research into best practice care.

We believe that continued strategic investment in health and medical research will lead to greater understanding of the mechanisms of disease, and improved measures to prevent disease. Research also yields new discoveries, treatment options, diagnostic tools and better predictive tools to measure disease progression.

Research addresses pressing community issues, including the ageing of our state's population, and the health inequity experienced by our Aboriginal¹ and disadvantaged consumers, especially those in regional and remote locations.

Research also capitalises on opportunities, including the role of the consumer voice in improving healthcare access and delivery.

We value the academic clinicians who achieve health science advances, such as a collaborative clinical trials platform. This gives patients access to the latest treatments, research to optimise patient care, and the benefits of 'big data', machine learning and 'real-time' analytics. These elements are all critical to a contemporary and responsive strategic plan that will help CALHN to achieve our ambitions.

¹ The term 'Aboriginal' also includes Torres Strait Islanders, as articulated in our Aboriginal Strategy.

Our commitment to ground-breaking research

As we look ahead, we are excited about how CALHN can influence public health outcomes in South Australia and beyond.

Ours is the most densely populated of all the health networks in South Australia, servicing almost 27% of the state's population.

We look beyond our role as healthcare providers in the local community, to the vast possibilities exposed by the work of our top-quality researchers. CALHN's access to unique partnerships allows us to combine efficiencies, infrastructure and expertise to create the strongest impact and outcomes.

These mutually beneficial partnerships will result in innovative new treatments, care practices, technologies and solutions to entrenched healthcare problems.

CALHN is also committed to fostering scholarships, training and ongoing education to promote not only the spirit of discovery and interrogation, but also commercial acumen and awareness of intellectual property. We want to nurture and reward our researchers through developing a supportive culture, the right alliances and networks, and succession planning for solid leadership and strategy.

Underpinning our goals is good governance, with improved patient experience, efficient business operations and sound financial performance. The establishment of governing boards has brought decision-making on health and wellbeing services closer to the community where services are delivered. Our intent is to shape the health of the citizens of South Australia, not just to provide healthcare services.

Research helps us do this in powerful ways, through new or better ways of working in:

- clinical trials to develop or test novel treatments or technologies, or to prevent, detect or treat disease with new drugs or combinations of drugs, procedures or devices
- intelligent health systems to transform healthcare delivery using artificial intelligence, machine learning and evidence-informed diagnostics, decision-making or treatment
- partnerships with local, national or international allies all working together for mutually beneficial outcomes, pooled resources and expertise.

Raymond Spencer
Governing Board Chair

Professor Lesley Dwyer
Chief Executive Officer

Delivering research outcomes

To shape the future of health in South Australia, CALHN must not only deliver connected care that revolves around the patient, but also ask 'the difficult questions' through a spirit of curiosity that compels us to always do better.

We know that impactful, innovative research thrives in a supportive, strategic environment. It requires a willingness to work with others, share resources or ideas, and collaborate with industry or other partners. It also benefits from commercial acumen and the conscious development of intellectual property.

If we want CALHN to be a place that attracts and develops highly respected research talent, we must have a strategy that acts as our roadmap to achieve this.

With a focus on 6 high levels areas of action, CALHN will create a future that delivers health solutions for our population, even beyond our state's borders.

Precinct and industry partners will be critical here, along with the creation of an academic health sciences network and other scholarly collaborators, as well as a new clinical trials platform. This will enable best commercial success and economic opportunities.

Doing more with 'big data' through aligned or shared technology, analytics and multidisciplinary research, including informatics, is also a key pillar of success.

Recruiting or cultivating local, top-quality research practitioners and leaders across medical, nursing and allied health disciplines must be a renewed focus area for CALHN. We must promote lifelong learning and future-focused practice innovation, visibly communicating and supporting the work and needs of our researchers.

Integrating research, education and health care between universities, health services, medical research institutes and industry will help South Australia to accelerate the pace, scale and impact of improvements in patient outcomes.

This key strategy will be incorporated into CALHN's governance framework, with its implementation, monitored, and reported every 6 months.

Professor Andrew Zannettino

Executive Director, Research Strategy

Vision and strategic ambitions

To shape the future of health with world-class care and world-class research, and within 5 years, to become one of the top 5-performing health services in Australia and one of the top 50-performing health services in the world.

CALHN's strategic ambitions focus our efforts on the delivery of world-class care and world-class research that will shape the future of health in South Australia.

They express our commitment to care, community, investment, research, technology:

- Our care is connected and revolves around the patient in their (and our) community
- Our curiosity compels us to always do better – research and innovation drives everything
- We invest in what matters
- Our technology enables excellence
- We attract and foster world-class talent.

Research is embedded across our network

Upwards of 15,000 dedicated staff contribute to the health and wellbeing of the community through our sites and services across CALHN.

Many of our staff undertake dual clinical and research roles. This reflects CALHN's appreciation of the vital role played by hospital-based researchers to the health outcomes of our patients when we take the latest treatments from the laboratory to their bedside.

With staff from all professions, including nursing, allied health, medical, dental, pharmacy and pathology, CALHN's research is holistic – investigating optimal care options, genomics, as well as innovations in medicine.

Our research is conducted across primary sites such as the Royal Adelaide Hospital (RAH), The Queen Elizabeth Hospital (TQEH), Hampstead Rehabilitation Centre, Glenside Health Services and the Repat Health Precinct.

Our community health services also lead the way in health research with Adelaide Dental Hospital, SA Dental, SA Prison Health, DonateLife SA and our Intermediary Care Services focusing on a niche client base and speciality services.

Our state-wide clinical support services with SA Pathology, BreastScreen SA, SA Medical Imaging and SA Pharmacy lead the world in specialised research.

Part of a bigger research ecosystem

We believe in fostering scholarship excellence and a spirit of discovery. In keeping with this ethos, CALHN conducts cutting-edge, transformative research with the objective of delivering world-leading health outcomes in our state and beyond.

Health research has vastly improved the lives of many in our community. Innovative technologies and novel scientific discoveries have led to new treatments, new ways of thinking and better health policy and service delivery.

CALHN employs many internationally recognised researchers in our hospitals and partner organisations. We promote productive research collaborations with local, national and international stakeholders including:

- local universities (University of Adelaide and University of South Australia)
- the University Health Network (UHN, Toronto) and other health networks (such as Northern Area Local Health Network and the Women’s and Children’s Health Network).

Collaborating with partners, CALHN researchers perform leading discovery, commercial and health services research that improves patient care and treatments.

Located in the Adelaide BioMed City, the RAH is an engine room of clinical research that translates into patient outcomes. These clinical and discovery researchers are vital to developing and taking the latest laboratory treatments to patients. The RAH’s unique breadth of services, including burns and kidney/islet transplantation, benefit from this pioneering research.

In the west, the Basil Hetzel Institute for Translational Health Research (BHI) is the productive research arm of CALHN’s TQEH. CALHN researchers work closely with those from the University of Adelaide and the University of South Australia to lead intensive care discoveries and create synergies with cancer and ear-nose-and-throat surgery. To assist our ageing population, the work at this site also has a focus on research into advances in surgery, rehabilitation, fitness and mobility, musculoskeletal disease and population health.

SA Pathology partners with the University of South Australia in the Centre for Cancer Biology, a medical research institute focused on cancer research.

CALHN also has a partnership with the University of Adelaide to create the \$80m South Australian ImmunoGenomics Cancer Institute. Its objective is to consolidate and catalyse the overall growth of cancer research in our state. Together with SA Pathology, it will enable genomic profiling of cancers for patients, and offer cutting-edge cancer therapies, including immunotherapies.

CALHN research at a glance

	2018-2019	2019-2020	2020-2021	2021-2022
New clinical trials	110	134	172	155
Total clinical trials	410	576	635	840
Total clinical trial income	\$14.2M	\$14.1M	\$14.5M	\$16.9M
New clinical research projects (not CT)	137	191	247	228
Total research projects	958	1061	1221	1680
New grants	147	125	129	147
Total grant funding income	\$10.5M	\$6.7M	\$5.8M	\$6.0M
Publications	677	557	950	1200+

Expanding our world-class flagships

CALHN has a proud history as a healthcare leader, delivering a range of complex clinical ‘super speciality’ and speciality flagship services, many of which have a statewide catchment.

Some of CALHN’s current flagship services are:

- lung transplant services
- oral and maxillofacial surgery
- Adult Burns Service
- Central Northern Adelaide Renal Transplantation Service
- State-wide Trauma Service
- Neuroscience Service
- State-wide Rehabilitation Services.

Over the next 5 years, CALHN will further advance our capabilities as a national healthcare leader delivering and investing in a suite of specialist complex care, described as ‘clinical flagships’.

Our research will enhance these ‘clinical flagships’, advancing the high value, patient-centred care that CALHN will be known for delivering.

This research underpins our strategic ambitions to become a world-class service.

Comprehensive Cancer Centre

Under the aegis of AHIP, CALHN will play a leading role in establishing the Bragg Comprehensive Cancer Centre (BCCC). The BCCC will be the coordination headquarters for cancer research, education and patient care. It will be an organisation where associated institutions will work together so that South Australians may have access to optimal cancer care that markedly improves health outcomes.

The BCCC will harness the unique strengths and research opportunities created by the new Bragg Centre for Proton Therapy and the South Australian immunoGENomics Cancer Institute. The BCCC will form part of a federated National Comprehensive Cancer Centres Network. This network will give our local community the benefits of national collaboration, so that improvements in cancer treatment here keep pace with those nationally and internationally.

Surgical and transplantation excellence

Grow expertise in head, neck, oral and skull-base surgery

CALHN’s clinical teams including skull-base surgical teams at the RAH are amongst the best in the world for removing non-cancerous and cancerous growths from the skull base. This cancer is one of the most resource-intensive cancers to treat, and as result one of the most expensive. Over the next 5 years, we will investigate how to improve diagnosis and treatment of head and neck cancers, collaborating with our research and education partners.

World-leading transplant care

Leveraging off the nationally recognised renal and transplantation services, CALHN will continue to advance best practice transplant care, including pre- and post-transplant care for advanced heart and lung transplants. Over the next 5 years, we will elevate our status to a national and global leader of life-saving transplant services from pre-admission counselling to post-transplant outpatient care delivered in collaboration with research and academic partners. We will investigate opportunities for advancing Aboriginal-specific models of care and exploring opportunities to improve heart and lung transplant care.

Personalised medicine and patient-focused care

Personalised medicine involves the individual consideration of a patient's biological and genomic data, as well as their lifestyle and environment. Research into testing and translating advances in treating immune-mediated diseases (mainly through pharmacotherapy, using both novel biological and traditional drug-mediated pathways), has exploded over the past 5 years. This has correlated with a greater understanding of the human genome and molecular immune pathways.

The disciplines of rheumatology, immunology, clinical pharmacology, pharmacy, genetics and other chronic disease-management disciplines will work together to deliver increasingly effective and complex drug-based therapies. These will require rigorous safety monitoring in the development, delivery and response assessment. These treatments will be overseen by teams with a strong academic and research force, to drive value-based outcomes. This work builds on our tradition of excellence in clinical pharmacology and our partnership with the University of Adelaide.

Excellence in Aboriginal² health

A Centre of Excellence for Aboriginal Health, established under the auspices of AHIP, will assist partner organisations to meet their aspirations for a more equitable health system. By bringing together the best Aboriginal researchers, health practitioners and educators are creating the environment required to re-think health systems in South Australia and translate Aboriginal knowledge into new practices. The overarching goal of the centre is to improve health outcomes through the tenets of value-based health care. This promotes the primary goal of better health outcomes for patients.

AIML-Health centre for intelligent health solutions

Over the coming decades, Artificial Intelligence (AI) and Machine Learning (ML) are technologies that will transform healthcare.

CALHN has a unique opportunity to become an internationally recognised destination for AI in health research, education and training, and applied clinical care, supported by industry investment.

Medical applications of AI offer the potential to tackle the growing burden of lifestyle-related chronic non-communicable diseases and rapidly reduce the impact of socioeconomic status and regional living on health outcomes. Working with the University of Adelaide, relevant industry and other health networks, AIML-Health will better enable evidence-driven decision making in the face of complex data, systems and solutions. It will also significantly improve diagnostic capabilities and transform personalised medicine, facilitate next-generation clinical trials, dramatically reduce costs, overcome skill shortages, and influence consumer lifestyle decision making.

With AIML, CALHN will combine superior algorithm development capabilities with the vast data-repositories with our organisation, to create AIML-Health. This centre will have sufficient critical mass to attract funding from a broad range of sources, such as the South Australian Government and Australian Government, MRFF, NHMRC, ARC, foundations, philanthropic organisations and industry.

² The term 'Aboriginal' also includes Torres Strait Islanders, as articulated in our Aboriginal Strategy.

Healthy ageing

By 2056, one in 4 Australians will be over the age of 65. As many chronic health conditions such as cardio-metabolic disease, neurodegenerative disease and diabetes are more common as we age, the increase in the size of the 'greying population' will have far-reaching consequences for our healthcare system. To address this problem, there is an urgent need to develop interventions that can extend our health span – the period of life spent in good health.

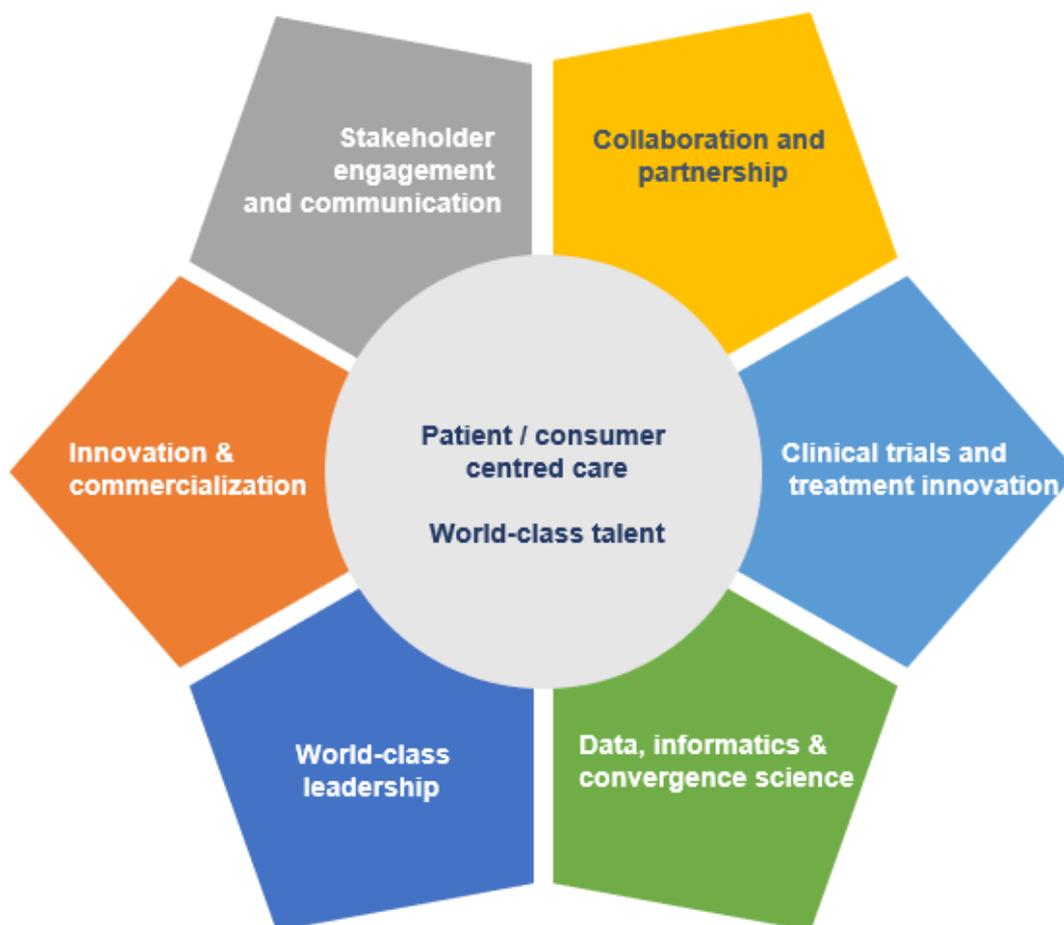
CALHN has research expertise in a broad range of common diseases, with strengths that span basic biomedical discovery research to applied population health and policy studies.

Together with our partners, we can access a wealth of research expertise in genetic and epigenetic determinants of health, cardio-metabolic health, cancer, ageing and frailty, and the social/environmental influencers of disease that affect our population. These conditions often present in a context of multi-morbidity.

Research undertaken at our Centre for Healthy Ageing will facilitate and enhance our strengths in this area. It will create functional themes to inform capabilities across the Academic Health Science Network to address these challenges in new and holistic ways.

Driving CALHN research

As a research-informed leading healthcare provider, CALHN will foster scholarship and a spirit of discovery and interrogation. This ethos drives our research through a series of high-level actions over the next 5 years. These actions will enable us to deliver on our research strategy and ambitions.





We collaborate and partner to drive research excellence in an academic health science network

CALHN will integrate research, education and health care by engaging with precinct partners to create a highly respected academic health sciences network.

This integration – including between universities, health services, medical research institutes and industry – is essential to accelerate the pace, scale and impact of improvements in patient care.

CALHN is part of the Adelaide Bio-Med City (ABMC) precinct. Research within the ABMC benefits from close collaborations and shared scientific capability, research infrastructure and cross-disciplinary capacity with precinct partners. Valued partners include:

- the University of Adelaide
- the University of South Australia
- South Australian Health and Medical Research Institute
- Health Translation SA
- Centre for Cancer Biology
- South Australian Immunogenomic Cancer Institute
- Basil Hetzel Institute for Translational Health Research.

CALHN cannot achieve our research ambitions alone. The Adelaide Health Innovation Partnership is an exciting collaborative venture between CALHN, University of Adelaide and South Australian Health and Medical Research Institute. This partnership combines individual attributes and strengths to develop innovations that will benefit all 3 organisations, as well as patients.

CALHN also integrates research, education and health care through meaningful engagement with stakeholders. The resulting academic health sciences network will work closely with national and international allies to combine knowledge, ideas and expertise.

Adelaide Health Innovation Partnership (AHIP) and other important local connections

Founded in 2021, CALHN is proud to be a member of the Adelaide Health Innovation Partnership (AHIP). This partnership:

- facilitates and advocates for change and improvement
- stimulates ideas
- leads project management of key initiatives
- identifies and removes barriers to working better and smarter.

AHIP is focused on attracting and retaining outstanding clinical research leaders and clinical scientists. Stimulating jobs growth, economic investment, and increased research grant funding in our state is also critical for the partnership.

Other local research partnerships and collaborations are also important. Examples are the Adelaide BioMed City and the Basil Hetzel Institute for Translational Health Research. These types of connections lead to innovation and excellence in commercialisation of health and medical research and healthcare delivery.

Academic Health Science Network

Through the AHIP conduit and the Academic Health Science Network, CALHN aspires to deliver the kind of respected research that other academic health science centres in America, Britain, Holland, Sweden, Japan and Singapore have produced for several decades.

These partnerships have the tripartite mission of delivering high-quality research, medical education and clinical care by harnessing the expertise of each partner organisation. Celebrated centres of healthcare excellence include King's Health Partners and the Mayo Clinic.

To be successful, a health science network must be collaborative, with a mutual agreement on priorities. These may incorporate research with an established track record into areas of interest to local or broader populations, or projected health priorities.

Priorities may also include the development of models of care or evaluating new services.

These networks use research platforms to retrieve and acknowledge all research activity (such as grants or publications).

Areas of focus and priority

The network invests in areas of discovery health research such as genomics, proteomics and bioinformatics. It has access to specialists in disciplines such as engineering, physics, chemistry, mathematics, computing, engineering, and social sciences.

Collectively, these resources provide the network with the capacity, expertise and requisite discipline knowledge to address long-term, disease-related and health system problems.

CALHN and the Academic Health Science Network will:

- create a culture of scientific rigor based on a foundation of innovation and cooperation across specialties and institutions
- leverage the strengths of our precinct partners in basic science, technological capacity and cross-disciplinary research
- consolidate and enhance existing relationships between research partners
- foster and establish new relationships with local, national and international institutions and partners to drive research impact and health improvements
- foster greater engagement with community consumers and stakeholders
- develop a strong research governance framework to facilitate ethical research practices
- support opportunities for research exchange with precinct-wide research presentations, ‘research days’ and workshop for researchers
- establish shared research priorities and opportunities and ensure priorities are aligned with the expectations of our consumers and stakeholders
- develop common research skills and training workshops for early and mid-career clinical researchers
- embed research in clinical care and develop a culture where research is seen as an ‘essential service’ offered by CALHN
- establish common spaces and facilities to connect research with our staff, consumers and partners.

Desired outcomes

- Research, education and health care are integrated
- There is improved community health and wellbeing through increased knowledge and productivity
- There is better access to the latest innovations and treatments for our patients, by optimising our clinical trials platform
- The practice of research is embedded in how health care is delivered
- There is improved impact, efficiency, safety and quality of CALHN health care
- We have harmonious partnerships with industry, philanthropic and investment sectors.



We increase access to the latest innovations and treatments for our patients to improve health outcomes and access to clinical trials

Why clinical trials are important

Clinical trials are fundamental to making new discoveries and bridging the space between discovery science/technology and patient care and outcomes. Evaluation and monitoring of the effect of a treatment (drug or device) or population health measure are achieved in the process of clinical trials.

Through clinical trials, we will develop and test new diagnostic procedures, new drugs or devices or apply technology in new ways to beat disease or illness. A vibrant clinical trials platform will also create other benefits, such as revenue and industry reputation for our network and partners.

All clinical trials have ethics and governance approvals so consumers can trust that trial activities are conducted to the highest standards. Our clinical researchers work on investigator-led and industry-funded trials in all phases of development (phase 1 to 4).

The National Commission for Safety and Quality in Health Care has developed National Standards for Clinical Trials and tested these in 14 trial sites that included CALHN hospitals (RAH and TQEH). When implemented, these standards will provide further assurance that clinical trials will be nationally uniform, following best practice models of care.

The PARC research group is part of CALHN and conducts clinical research for the pharmaceutical and biotech industries. PARC has expertise in assessing products (drugs, devices or vaccines) in the early phases of development.

Formation of the Adelaide Clinical Trials network (ACTN) and Adelaide EpiCentre

CALHN will optimise a best practice clinical trials platform to drive the design, delivery and transformation of clinical trials in South Australia.

This strategy aims to improve performance of our clinical trials ecosystem by working with precinct partners and industry for better process reliability and efficiency. Through the Adelaide Health Innovation Partnership, we will be a founding contributor to the Adelaide Clinical Trials Network (ACTN). This network will create agile research partnerships and work closely with the Department of Health and Wellbeing to:

- implement a standardised patient pre-consent process
- help recruit research participants into clinical trials
- implement clinical investigator training.

In addition, the network will increase the number of clinical trials conducted by CALHN researchers. This platform will supervise the design, delivery, and transformation of clinical trials. ACTN will develop and implement the goals listed above as well as:

- robust, digital tools, ethics and rigorous governance processes
- infrastructure and resources that support day-to-day functions
- processes for initiating, conducting and monitoring clinical research.

Adelaide EpiCentre

A dedicated centre of clinical epidemiology and data-driven service planning will be established through state-of-the-art health informatics and biostatistics, health economics and epidemiology leadership, delivered through Adelaide EpiCentre.

The Adelaide EpiCentre will operate within the realm of health services research, which looks at population access, cost, efficiency and efficacy of health services. It considers the skills required to better translate research ‘from bench to bedside’.

It will be a collaborative research centre that supports high quality clinical, non-clinical and biostatistical methodological studies. The centre will assist with clinical study design, including:

- developing protocols
- identifying and selecting primary and secondary desired outcomes
- conducting comparative power analyses and statistical analysis approaches
- developing statistical analysis plans for safety and efficacy reporting, statistical analyses, and statistical and clinical reporting
- developing and managing a central clinical database
- assisting to develop an electronic case report form
- developing and managing an electronic study database and arranging webhosting
- training project research staff
- conducting randomisation services
- developing and managing data safety and monitoring committees.

Adelaide EpiCentre will work closely with JBI (formally the Joanna Briggs Institute), founded at the RAH more than 25 years ago. JBI is now based at the University of Adelaide and is recognised as an international research organisation for evidence-based health information, software, education and training.

Adelaide EpiCentre encompasses practices of ‘improvement science’ in clinical care delivery focused on better systems, processes (and health outcomes), as well as ‘implementation science’. This is about delivering new processes to maximise research impact. It relies on patient-reported outcome measures so that the patient perspective is at the centre of evaluations.

Areas of focus and priority

Adelaide Clinical Trial Network and EpiCentre will:

- optimise the system for ethical and governance approval within the AHIP partners
- identify RAH, TQEH and hospital-adjacent sites where clinical trials can be conducted
- implement an optimised research workflow platform and clinical trial management system
- enhance consumer engagement and support research recruitment by establishing a consumer advisory council for research
- identify, educate and support clinician-researchers to provide academic leadership, boosting new clinical trials activity across their discipline
- implement the National Standards for Clinical Trials and embed this into CALHN Clinical Governance Framework
- increase awareness and build capacity of support services for investigator-led clinical trials, including medical, nursing and allied health-led research, and increase the number and quality of investigator-led trials in the AHIP partners
- facilitate the sharing of resources across AHIP partners, including documents, standard operating procedures and teaching and training
- attract more commercially sponsored trials to the AHIP partners
- support evidence synthesis, implementation science, and impact evaluation as central to all research questions
- adopt National Mutual Acceptance for ethics approval for multi-centre clinical drug trials so that clinical researchers only require ethics approval once, and that approval is accepted by all participating institutions.

Desired outcomes

- There is greater patient access to the latest treatments and new therapies
- More patients participate in clinical trials
- There is increase economic development in this area of growing need and opportunity
- There is increased international competitiveness, attracting sponsored clinical trials by minimising sector fragmentation and duplication, increasing CALHN competency and efficiency
- There is revenue growth for South Australian health services
- Streamlined and timely ethics and governance processes create more success in meeting participant recruitment targets and completing trials within agreed timeframes
- There is improved accuracy in data collection and a process for reporting clinical trial performance across the state.



We harness patient data and use informatics and multidisciplinary research and science to deliver innovative solutions to long-standing problems

Health and biomedical data improves healthcare delivery, safety and quality of care

Ethically harnessing the power of patient data and informatics will be at the core of CALHN's research success.

Following the recommendations of the SA Productivity Commission review into health and medical research, we are relying on legislative and governmental policy changes for workable, transparent processes to protect the privacy and interests of participants.

We also need effective population-based, inter-jurisdictional data linkage, such as socio-economic, employment, education, and criminal justice data with health systems data. This will help us understand the role and impact of the social determinants of health.

To make best use of the revolution in data analysis, CALHN will collaborate with the Australian Institute for Machine Learning (AIML) at the University of Adelaide. The establishment of AIML-Health will provide a supportive research environment that partners with industry to translate research into health solutions that have direct social, economic and technological impact.

Convergence science – that is, integrating knowledge, methods and expertise from different disciplines and forming new frameworks to catalyse scientific discovery – is a key strategy. We will seek out linkages in the fields of physics, chemistry, mathematics, computing, engineering and social sciences to help us deliver innovative solutions for health services, biomedical engineering, precision medicine and genomics.

This broad evidence base will inform real-time clinical decision-making, as well as new clinical applications, medicines, devices and diagnostics.

Using 'big data' to deliver health solutions

We will harness the power of this diverse data and combine it with our expertise to answer the 'big research questions'. Patient data, informatics, and convergence science capability all play an important role in delivering innovative health solutions. This approach will improve overall public health.

CALHN accesses the state-wide SA Health electronic patient medical record (EMR) and hospital service data to support research that will create the next wave of health solutions.

The EMR is the most comprehensive record system in Australia, but it does not currently support health and medical research. EMR does not identify patients involved in clinical trials or research projects, and nor does it deliver project data or patient consent to participate in research.

The EMR information and other digital health services data could benefit CALHN and the state in multiple ways, such as:

- helping to inform clinical research questions
- assisting us to evaluate care delivery
- giving us the opportunity to rapidly interrogate data at scale
- improving capability for clinical trial feasibility assessments
- providing us real-time data on clinical trials
- assisting patient recruitment to clinical trials/research studies
- contributing to goals to standardise care, create a harmonised platform for health services research and reveal commercial opportunities for CALHN.

Our network faces challenges here, including access to high-quality, shared data, in the correct format, and in a timely manner. Data and technology are currently not standardised, and valuable clinical information remains hidden in the EMR. There are also insufficient bioinformaticians, biostatisticians,

mathematicians, computer scientists and engineers with transdisciplinary knowledge who understand biology and clinical principles and concepts.

A scalable platform technology is critical too, with the right analytical tools and informatics researchers to retrieve, analyse, integrate, visualise and interpret data and information.

Machine learning and data linkage

Health and biomedical data will improve the coordination of healthcare delivery and the safety and quality of patient care.

The Australian Institute for Machine Learning (AIML) conducts globally competitive research and development in machine learning, artificial intelligence, computer vision and deep learning.

In collaboration with AIML, CALHN will identify key problems requiring a data-based solutions. AIML will provide expert algorithm development capabilities for a collaborative and supportive research environment. It will partner with industry to translate research outcomes into solutions of direct social, economic and technological impact.

We also work with the SA NT DataLink, which provides data linkage services for research, policy development, service planning and evaluation. SA NT DataLink is supported by the Population Health Research Network, a member of the Australian Government National Collaborative Research Infrastructure Strategy and Education Investment Fund Super Science Initiative.

SA NT DataLink provides the infrastructure and access to accurate and unbiased information held by government agencies and other organisations. This allows population researchers to collaborate within and across jurisdictions. The de-identified data linked for large or entire populations represent inclusive, representative, and unbiased datasets to better understand and monitor the population health and wellbeing impacts of policy and investment decisions.

Areas of focus and priority

CALHN and partners will:

- work with the South Australian Government to develop state privacy legislation to address the need for access to patient-related data
- collaborate for access to public health system data for state universities and South Australian Health and Medical Research Institute
- build online capability for partners to access all forms of public health and patient data
- improve the coordination, integration and use of health and biomedical data, information and knowledge
- establish a digital health strategy, and identify opportunities to integrate new technologies into the EMR.

Desired outcomes

- Patients are empowered and better informed
- New biomarkers are developed through top quality genomics research
- Timely evidence is provided to inform public health, policy and clinical decision making
- Transdisciplinary researchers are better equipped to address the challenges faced in genomics, biomedical engineering and health services research
- Health and medical research data assists policymakers to improve the coordination of health service delivery (continuity of care, safety and quality of care, population health management)
- Involving pharmaceutical companies improves patient stratification in clinical trials
- New clinical applications, medicines, devices and diagnostics are developed.



We cultivate local and recruit world-class research leaders to drive clinical research and future-focused practice innovation

To foster the next generation of research leaders, we will develop our existing talent and recruit rising stars.

South Australia has a highly skilled, diverse health and medical research workforce of academic clinicians (doctors, nurses, allied health professionals) and health and medical research scientists. Opportunities to create joint hospital-university appointments and affiliations will be critical to ensure succession planning for researcher leadership roles.

CALHN's research environment will support research participation, gender equality, job security and career progression, along with continuous education and training.

We will articulate researcher expectations and performance outcomes through role statements that allow sufficient time to perform the highest quality research.

Mentoring of early and mid-career clinician researchers across all discipline areas is also important. We see a researcher's acquisition of core competencies in translating research into economic opportunity as key.

We will encourage the active research participation of medical professionals via the Learning Innovation and Leadership Institute. The institute will play a vital role in training clinicians in translational skills that directly link research with patient care, including clinical practice improvements and audits.

CALHN will provide dedicated training in clinical research through a program endorsed by the National Health and Medical Research Council, Good Clinical Practice, along with ongoing education in clinical research skills. A new clinician researcher training pathway (MD/PhD program) will also offer pre- and post-vocational training opportunities to develop a pipeline of clinician researchers for the future.

Recruiting and retaining world-class research leaders

We must find and nurture the next generation of research leaders who will conduct this ground-breaking clinical research and future-focused practice innovation.

CALHN cultivates research leadership excellence. We strive to support existing and future leaders by developing their knowledge and skills to make a positive impact, be effective and encourage a high-performing research culture. As an organisation, we will champion lifelong learning, teaching and research, including through responsive training opportunities.

To meet our strategic ambition of being 'a place that attracts and grows world-class talent', we acknowledge that CALHN must:

- create a durable platform to support the education and training of current and future clinicians and researchers
- support the academic clinicians and research leaders already working for us
- attract outstanding clinician researchers and scientists to Adelaide.

Through joint hospital-university appointments and affiliations, a body of inter-related, shared expertise will:

- ensure succession planning for key health and medical research leadership roles
- mentor early and mid-career clinician researchers across all discipline areas
- help develop a state clinician researcher training pathway (MD/PhD program)
- provide pre- and post-vocational training opportunities to develop a pipeline of clinician researchers for the future
- identify and appoint young clinicians of exceptional academic potential.

CALHN will invest in creating an environment and a culture that values research and recognises that research is fundamental to the delivery of excellent clinical care and the implementation of new

practice. We will provide quarantined 'research' time as part of attractive, aspirational career pathways for clinician-researchers across our services.

Learning Innovation and Leadership Institute (LILI)

Aligned with our vision and ambition to attract and grow exceptional talent, CALHN will establish this new institute. Like similar entities elsewhere (such as the Michener Institute of Education, the Cabrini Institute or the Monash Partners Academic Health Science Centre), LILI will integrate clinical practice, research and learning, plus promote strategy and innovation that will deliver better healthcare and health outcomes in South Australia.

Through LILI, CALHN will implement a whole-of-CALHN leadership development framework that places a focus on identifying and building the capabilities of effective leaders, succession planning and talent mapping. This framework will list opportunities for existing and aspiring leaders, at all levels, and in all contexts.

This investment in people and leadership skills is critical to embed a change in culture, where we not only acknowledges the importance of health and medical research, but give staff the 'runway' to ensure that research can 'take flight' to create agile healthcare solutions.

Areas of focus and priority

CALHN and LILI will:

- embed a clinical research culture among all clinical units
- provide 'quarantined research time' for clinicians
- hold annual research showcase events
- establish a program research leadership scholarship as well as scientific and clinical fellowships and scholarships
- increase investment in training and mentoring for emerging researchers and the development of clinician-scientists career pathways with our AHIP partners
- provide postgraduate research opportunities
- attract students, postdoctoral researchers and clinician scientists
- support our early to mid-career researchers through strong supervision and mentorship
- retain and develop the best researchers at all levels by providing clear career pathways
- increase joint clinical and academic appointments, including in hospital leadership, as well as early and mid-career researchers
- facilitate an academic environment allowing interaction between basic and clinical scientists
- engage with the community, research partners and funders to identify unmet clinical problems to be answered at a local, national and international level
- embrace the 'learning healthcare system' as a critical tool
- create of 'communities of research practice' of scientists, clinician (medical, nursing, allied health) to promote research-led clinical practice innovation and quality
- enhance mentoring programs for existing and emerging leaders
- use strategic talent mapping for succession planning.

Desired outcomes

- Excellence and continuous improvement in health-care is created by integrating and coordinating clinical practice, research and learning across CALHN and partners
- Effective leaders are identified and developed through effective succession planning, talent mapping and mentoring
- Focus areas are identified to 'future proof' our health workforce
- Subject matter experts help to achieve elevated clinical outcomes (such as in information technology, biomedical engineering and health informatics).



We apply innovation and discovery to improve practice and commercial success that creates economic opportunities

CALHN will integrate research, innovation and healthcare delivery to support the rapid translation of research findings. We will stimulate research and industry engagement, innovation and commercialisation for best social and economic impact.

Innovation is a critical factor that drives our state's economy. Collaborations between CALHN, research organisations and industry are essential building blocks in driving this innovation in health. These collaborations lead to more efficient translation of research through sharing of knowledge, ideas, intellectual property, skills, facilities and technology.

This innovation and discovery will deliver better practices and commercial success that maximises investment against economic opportunities. Translating our research into leading-edge medical technologies and treatments is essential to create timely translation of innovation into both health benefits and commercial advantage.

To achieve these goals, we must engage and collaborate with our peers and with industry. Behind the scenes, we need faster contract negotiations, more efficient clinical trials, access to industry-related research opportunities and protection of intellectual property.

With assistance from CALHN's commercial partner, AusHealth, researchers will be supported to develop life-changing innovations leading to investment and CALHN capability improvements. In fact, this will create an entirely new industry in South Australia. To get there, we will stimulate innovation and commercialisation by educating our researchers to identify beneficial opportunities and protect our intellectual property.

AusHealth will provide proof-of-concept funding towards developing intellectual property as we achieve commercial milestones. Together, we will build a business development pathway that includes identifying licensees and strategic industry partnerships.

The environment surrounding CALHN is extraordinarily rich in diverse basic science, bioscience, public health, engineering and social science. The opportunity provided by proximity to this critical mass of researcher and research infrastructure is a major advantage.

CALHN researchers have been at the forefront of innovation, exemplified by examples of commercial success such as ApoMab, Biomebank and Mesoblast.

Our network already undertakes early-phase clinical translational work with partners. We will further expand these relationships with academia, public investment, grant initiatives and industry.

Working with industry and other governments

For industry, the opportunity to develop new compounds and conduct clinical trials with leading discovery scientists and academic clinicians is paramount. CALHN researchers will receive education and training in identifying commercial opportunities and the value of protecting intellectual property (IP).

We want to increase engagement and collaboration between researchers and industry. With assistance from our commercial partner, AusHealth Research, our researchers will make an indelible mark on local and wider health for both individuals and populations. AusHealth will help us build a business development and path-to-market strategy, including identifying licensees and strategic industry partnerships.

CALHN has greater incentive to collaborate with industry through opportunities available in Australian Government programs (such as MTP Connect) and state government programs (such as Department for Trade and Investment and ABMC Intermediary program).

To support the development of state health and medical research and the associated industry sector, the SA Department for Trade and Investment created the Health and Medical Industry Ministerial

Advisory Panel. This panel provides advice to the government on the sector. A sector plan identified an initial 3 enablers for growth that CALHN contributes to:

- the Industry Connectivity Initiative
- clinical trials – through the SA Health Clinical Trials Portal
- the ‘ageing well’ and care sector.

Areas of focus and priority

CALHN and partners will:

- support translational research through engaging clinicians, patients, academic partners and industry
- develop programs in innovation and entrepreneurship to better equip research and clinical workforce to better understand the needs of industry and increase the translation of research outcomes into marketable health solutions
- stimulate CALHN researcher-industry engagement by making our research capabilities and infrastructure more visible
- increase our ability to leverage funding from industry and governments
- leverage industry investment to increase the success rate of early-stage innovation on the commercialisation path
- develop research streams within CALHN that complement industry needs.

Desired outcomes

- ‘CALHN ideas’ are accelerated and promoted to industry
- Contributions from the investment and philanthropic sectors are maximised
- Success in competitive grant and industry funding is maximised
- Patents are secured and return on investment is maximised
- International health partnerships and opportunities are fostered
- More markets, nationally and internationally, are reached
- ‘Spin-out’ companies with value to CALHN are created.



We engage with our community and support the needs of our researchers to achieve optimal research performance and health industry visibility

Expanding research capability and focus, and sharing it with the world, will be a direct result of the input and expertise of CALHN's researchers. We will give our researchers the tools, infrastructure and ability to perform important research. These research services will be reshaped to expand on opportunities locally and beyond, to capitalise on partnerships and commercialisation. This translates to better stakeholder value for our state and community.

To do this, we must attract and retain the right staff and leaders who promote and foster inquiry and culture of partnership – within CALHN and with other organisations or individuals.

Under the aegis of AHIP, CALHN will further reshape the research function by supporting better integration of research services between CALHN, SAHMRI and the University of Adelaide. A director of research operation will lead a Research Services Office. This role will focus on leading a strong customer-service orientated operation that promotes a culture of research excellence in line with shared organisational priority research areas.

A new high-functioning Research Services Office

South Australia also needs a suitable research support model to develop the scope and quality of research in CALHN, performed in a well-calibrated Research Services Office (RSO). 'People power' will be underpinned by enabling technology, research infrastructure and corporate research governance, all of which are critical to research success and scalability.

The RSO will be an efficient support system that takes on the best advice from the 2021 KPMG evaluation. We have a stronger focus now on strategic alignment of clinical target areas and commercial opportunities to drive research excellence. Partnerships and collaborations will be essential in this new version of the RSO.

There will be an expectation of more efficient management of ethics approvals and governance processes, grant submissions and management, site-specific assessments, quality management, researcher education and support, clinical trials design and management as well as biostatistics and epidemiological support functions.

We will establish a clear governance and operating model that outlines people, process and technology layers required for efficiency in research delivery.

A new cultural change program will also embed research within CALHN. Strategies for clear communication frameworks (such as a revised online presence, regular research bulletins and better consumer engagement) will be needed to pair with technology systems that support research governance and operating model arrangements.

CALHN will acquire and maintain enabling technologies and research infrastructure including biorepositories and registries. A research leadership function and the Research and Innovation Council will be responsible for integrating clinical programs and state-wide, service-based research.

These research leaders will:

- drive more program-led research activity
- provide a critical point of contact for research-related matters within programs
- assist with impact assessments
- serve as a point of contact for data collection and communication of research performance and impact
- mentor junior clinical researchers.

With strategic oversight, the CALHN Research and Innovation Council (CRIC) will consider scale and focus areas, foster research excellence, and build our capacity for collaborative, cross-disciplinary research that responds to the 'big research questions' linked to our Clinical Services Strategy.

Importantly, CRIC will foster and develop several key, future-focussed 'flagship' areas of research that will put CALHN on the international research map.

Our research strategy will be closely linked with AHIP's priorities, such as involving clinicians and consumers in clinical trials and research. Research leaders and the innovation council will also identify opportunities for commercialising research, so that investment in research pays both financial and patient dividends.

Research infrastructure and 'enabling' technology, including biorepositories and registries

Conventional medical specialities and techniques, such as biochemistry and histopathology, will soon be irreversibly changed by developments in genomics, proteomics and metabolomics. Ground-breaking work in high-throughput sequencing, mass spectrometry technologies, data integration, computational biology, biomedical engineering and machine learning are all interrelated with these influential developments.

The availability of such technology, as well as the critical mass of knowledge and human resources that underpin these advances, will be essential for clinical and research outcomes. Investments in infrastructure within the precinct have supported this transformation.

Over the past decade, CALHN and partners have developed several local and national biorepositories and registries such as the:

- South Australian Cancer Research Biobank
- Brain Cancer Biobanking Australia
- Australian Prostate Cancer BioResource and registries
- Myeloma and Related Diseases Registry
- Coronary Angiogram Database of South Australia (a registry of patients undergoing coronary angiography in the state)
- SA NT Datalink
- South Australian Clinical Cancer Registry
- South Australian Prostate Cancer Clinical Outcome Collaboration
- South Australian Birth Defects Registry
- Australian Cardiac Outcomes Registry
- Australian Spinal Cord Injury Registry
- Orthopaedics Joint Replacement Registry
- Australian New Zealand Clinical Trials Registry
- Registry of Senior Australians
- Australian Corneal Graft Registry
- Dental Implant Registry.

CALHN Research and Innovation Council (CRIC) and clinical program research leads

Defining our research priorities requires an analysis of current research strengths, promising growth areas and clinical services that require further development. To do this, the strategic body CRIC will provide oversight and advice on CALHN research projects and directions.

CRIC will also build scale and focus, support research excellence, and expand capacity for collaborative, cross-disciplinary research to answer the 'big research questions'. It will promote early adoption of new models of care and technology.

CRIC will identify teams with sufficient critical mass to deliver highest impact and competitiveness in major research funding opportunities, such as the Medical Research Fund, Bill and Linda Gates Foundation and Wellcome Trust. With assistance of CRIC, this strategy will guide implementation, monitor progress and identify opportunities for improvement.

CRIC will work closely with AHIP to develop a cohesive research strategy, emphasising the importance of clinicians and consumers being involved in clinical trials and clinical research. Opportunities for research commercialisation will be maximised to ensure that investment in research has both financial and patient dividends.

CRIC will partner with LILI for a strategic approach to reviewing research, education and translation into clinical practice.

Programmatic research leads will be responsible for integration of clinical programs and state-wide service-based research. These roles will:

- promote program-led research activity
- provide a critical point of contact for research-related matters
- assist with impact assessments of research
- review and sign off on HREC applications
- mentor junior clinical researchers
- be a point of contact for data collection and communication of research performance and impact.

Sharing leading research with the world

We will enact a fresh communications strategy to promote our ground-breaking research, and our staff as world leaders in their field. This will reinforce CALHN as an employer of choice for researchers.

The strategy will promote the health benefits and economic value that this work brings. A critical goal is for CALHN to be recognised in the top 5 health networks in Australian and top 50 in the world.

We want researchers to feel valued and boost their morale, also giving community members opportunities to engage with researchers talking about their contributions to better health outcomes for all. This may lead to continued philanthropic investment.

Through an externally focused strategy, CALHN will host events to engage the public, industry stakeholders and other researchers, highlighting the research conducted across our network. Sessions will include events such as ‘meet the researcher’, CALHN Research Week (RAHsearch) and a professional lecture series. We will develop videos and podcasts that highlight our research, which can be used across various channels such as social media. We will also create a research communications hub on the CALHN website as a communications conduit for stakeholders, including professional groups, community groups and other institutions.

Areas of focus and priority

CALHN and partners will:

- deliver a unified, high-functioning Research Services Office geared to support stakeholders
- improve research governance, support functions and infrastructure for better efficiency
- establish program research leads to embed clinical research culture among all clinical units
- establish the CRIC to develop a CALHN-wide research focus and help implement the CALHN research strategy
- develop new technologies to enhance information sharing and better ways of collaborating
- identify strategic opportunities to apply emerging research to practice
- implement digital technology to enhance research oversight and management
- implement a new research communication strategy.

Desired outcomes

- Research governance, support functions and infrastructure to support research are improved
- CALHN’s research profile through publications, translation, leadership and engagement with the community is raised
- There is better engagement and connection within CALHN and with partners
- CALHN makes a tangible difference to the lives of patients and to population health.

Tracking our success

CALHN will develop an implementation plan to support this strategy. It will describe the key actions and deliverables under each theme over the 5-year period.

Implementation of the strategy will be incorporated into CALHN's governance framework, monitored, and reported on every 6 months. Progress reports will have a summary of achievements against success measures.

This process will enable an agile approach to implementation. We will adapt any actions not on track and further advance priority actions. We will use clear measures of success and closely monitor progress, along with our already extensive range of clinical and operational performance measures.

We will track progress for a smaller number of measures that help us to see the bigger picture of our performance.

This strategy's key performance indicators will be reported annually in CALHN's Quality Account.

The CALHN Executive Team is responsible for implementing this strategy by monitoring progress against the success factors and regularly reporting to CALHN's board.

This strategy will guide research priorities and research speciality plans.



www.centraladelaide.health.sa.gov.au

Health.CALHNResearchGovernance@sa.gov.au