## SCHHS Research Themes 2016-2021

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Executive Summary

This paper has been generated as a key element in the development of the SCHHS Research Strategy (2016-2021). The areas of research that the HHS will pursue following opening of the Skills, Academic and Research Centre (SARC) at the Sunshine Coast Public University Hospital (SCPUH) require consideration of the health needs of the population, the present level of SCHHS research activity and our academic partners’ ambitions. Further consideration is also given to identifying a targeted niche for translational and health service research that will provide unique opportunities for the SCHHS.

It is proposed that the SCHHS Research Strategy (2016-2021) incorporates the following multidisciplinary research themes:

(i) Aged care, cognitive impairment and stroke
(ii) Cardiovascular and renal disease
(iii) Health services research
(iv) Trauma, critical care and emergency care
(v) Infectious disease

The following areas are considered as possible future, but not immediate, areas of focus:

(vi) Centre for Health Investigation, Improvement and Emerging Futures (CHIIIEF) project
(vii) Mental health
(viii) Chronic disease
(ix) Oncology
(x) Maternal and child health
(xi) Care of the surgical patient

The proposed themes are intended to be inclusive of all medical, nursing, allied health and administrative disciplines; and are not intended to exclude research from occurring in other clinical fields. However, identifying the SCHHS research themes within SARC should guide prioritisation, recruitment and resource allocation around a more detailed research strategic plan over the next 5 years.

This document does not aim to address drug or device clinical trials and is limited to a discussion on themes for locally initiated research that will inform the next Research Strategic Plan 2016-2021.
1. **Background**

The SCHHS Transformation and Transition (TnT) Program aims to ensure that the SCHHS makes the most of the opportunities that the SCPUH project brings to Sunshine Coast communities and health care delivery. The Research Workstream is integral to that transformation and is essential to the delivery of a tertiary level service by embedding research in every element of activity, particularly patient care.

This paper forms a key element in the development of SCHHS research activity and provides the basis for a research strategy. In developing this paper, it is recognised that there is significant participation in pharmaceutical and externally driven collaborative trials across the SCHHS and that this important component of research activity will continue within the dedicated clinical trials space in SCPUH and other facilities in the SCHHS. Large multi-centre clinical trials are essential for providing access to new and novel therapies, developing research culture within the facility, developing future collaborations which may foster investigator driven research, and providing financial resources for investigator research. However, the primary purpose of this document is to identify areas for investigator initiated and SCHHS driven research (as opposed pharmaceutical or external collaborative trials/studies where SCHHS is more likely to participate as a site only) that will provide the SCHHS with the opportunity to develop a unique research profile.

This paper has been generated following discussion and consultation with key personnel in the SCHHS. Departments directly consulted include Emergency Medicine, Cardiology, Oncology, Infectious Disease, and Stroke and Rehabilitation. Input has been received from the TnT Research Committee and the SCHHS Research Committee. A formal consultation period inviting members of the Executive Leadership Team (ELT), Service Directors, and clinical and non-clinical leads for comment was also undertaken.

2. **SCHHS Current Research Activity**

Tracking research activity in the SCHHS is at present problematic. The Research Governance and Development Unit maintain records on all approved research and the SCHHS library keeps a list of publications by all SCHHS staff. SCHHS publications can be accessed via the Queensland Health intranet: [http://qheps.health.qld.gov.au/sunshinelib/staffpublications.htm](http://qheps.health.qld.gov.au/sunshinelib/staffpublications.htm) and includes medical and non-medical staff.

Research activity by medical staff is perhaps best recorded in the Sunshine Coast Clinical School Research Group report 2013-2014 ([http://www.som.uq.edu.au/research/research-centres/sunshine-coast-clinical-school-research-group.aspx](http://www.som.uq.edu.au/research/research-centres/sunshine-coast-clinical-school-research-group.aspx)). Of note, not all staff were based at SCHHS and some medical staff may not have University appointments and therefore publications are not recorded.

The following diagrams illustrate current research activity in the SCHHS and have been created using information available through existing research tracking mechanisms. All data presented below has been collated over the period 2011-2014.

**Approved Research:** Over the 4 year period, 212 projects were approved to commence in the SCHHS. Of these, 165 research projects were directly associated with the SCHHS through staff being listed on the ethics and/or site application as an investigator. Figure 1 illustrates the number of projects by department over the 4 year period. Departments with an average of at least one project per year have been individually identified in the graph. Figure 1 also shows the percent of projects for each department that could be classified as investigator initiated or local collaborative research.
Publications: 124 publications were identified as associated with SCHHS staff. Figure 2 illustrates publications by departments. Departments with an average of at least two publications per year over the 4 year period have been individually identified.

Research Day Participation: Figure 3 presents the number of abstract submissions to the SCHHS Research Day (total of 90 abstracts) and the percent of abstracts accepted by department. Departments with an average of at least one submission per year over the 2011-2014 period have been individually identified.
**Other Research Activity:** Conjoint university appointments have been established across a range of departments including Cardiology, Renal, Intensive Care, Stroke/Geriatrics, and Women’s and Families. The SCHHS has attracted external PhD students in Emergency and Cardiology. In addition, existing staff across the following departments were identified as having commenced a research higher degree: Stroke/Geriatrics, Orthopaedics, Renal, Physiotherapy, Women’s and Families, Nursing Education, and Pharmacy.

It would be reasonable to say that research remains in its infancy within SCHHS although progress is being made with the establishment of a Research Committee, Wishlist Grants, research support and governance staff, annual Research Day and a number of conjoint and honorary appointments with University partners (University of the Sunshine Coast (USC) and The University of Queensland (UQ)). Consequently over the last few years a slowly growing research culture with output has been evolving. Furthermore, the ELT and SCHHS Board are committed to the development of research.

3. **SARC Partner’s Research Activity**

The SARC collaboration will involve SCHHS, USC, Qld TAFE, and a yet to be appointed Medical School Provider. Currently TAFE has limited research output but is keen to increase its portfolio through the SARC Partnership. The Medical School Partner’s commitment to research in this region is yet to be determined. While the SCHHS must set its own research themes and objectives, it is vital to consider the strengths of our partners in the SARC collaboration.

USC has commenced a body of work to identify its healthcare research themes for the future, including examining the concept of a “Sunshine Coast Regional Health Research Institute”. The current areas being discussed include:

- Emerging genetic basis of disease, cure and prevention
- Health improvement research
- Biomedical science
- Health professional workforce development
- Health service research
The focus of USC clinical research and biomedical science groups has been on bench top (laboratory) and bench to bedside (translational) in the areas of cardiovascular disease/nephrology/endocrine, oncology, chronic disease, wound management, vascular access, infectious disease, maternal and child health, mental health and well-being (a new Mind and Neuroscience Research Institute is proposed) and patient safety. The genetic basis of disease is likely to focus on the proposed Centre for Health Investigation, Improvement and Emerging Futures (CHIIEF) project.

These themes will incorporate some of USC’s basic science groups such as INFLAME and Nurture, as well as their planned clinical trials department.

4. Considerations for Research Development in SARC

In developing research in the SCHHS, there are a number of key components that should be considered:

• Mechanisms for funding to support and enhance research
• Research methodologies
• Relevance to our population
• Existing research strengths, particularly investigator initiated research and ability to produce outcomes
• Linkages with research partners
• Acknowledgement that the SCHHS is currently a small research centre and will be unable to compete with existing large research facilities in the short term.

There are three potential mechanisms for the development of research capability:

(i) Organic – focus on areas/departments that already have research interest and output
(ii) Opportunistic – recruit talented staff that value adds to the SCHHS. These staff would have research higher degrees, grant track records, supervise higher degree students, a research network, and possibly their own research programme. Consideration of how this fits with both the research strategy and service delivery requirements is vital.
(iii) Strategic - identify niche areas where the SCHHS has a competitive advantage

The SCHHS also needs to consider what type of research (methodology) is undertaken:

(i) Basic biomedical science
(ii) Translational (investigational trials)
(iii) Health practice and policy (models of care, health services, patient safety, workforce education and training)
(iv) Population health (comparative effectiveness, registries, epidemiology)

5. Proposed Research Themes

The proposed health themes that sit under the four types of research, prioritised using criteria detailed in Section 4 above are:

(i) Aged care, cognitive impairment and stroke

This theme currently includes multidisciplinary teams working in aged care, geriatrics, neurology and rehabilitation and could be expanded to include falls, community care, orthopaedics and exercise science. It would link with the Mind and Neuroscience Research Institute, the work being conducted in exercise physiology (mobility, balance, strength) and biomechanics at USC. This grouping is very relevant to our demographic with one of the ‘oldest populations’ in Australia.

(ii) Cardiovascular and renal disease

These areas already have a growing research output with structures in place to expand over future years. Furthermore, they reflect the Sunshine Coast population demographic. There are potential links
with USC through the INFLAME Research Group, and an emerging body of work being conducted in micro vascular, macro vascular, cerebrovascular, non-invasive investigation and cardiovascular metabolic research.

(iii) Health services research
A new hospital, in a re-designed Health Service, will provide significant opportunity in this field, and will include research into newer methods of improving patient safety such as falls and pressure injury prevention, medication safety, handover, and inter-professional communication. This field includes organisational design, leadership, human resource management and workforce development. It will require recruitment of staff with the necessary skills including information management, information communications technology, biostatistics and informatics. These skills and resources will also help underpin the development of CHIIEF outlined in (vi) below.

This field is also being pursued by USC and allows for significant multidisciplinary engagement. This field could also prove to be a very relevant research focus for TAFE. It should include work on inter-professional learning (IPL), multidisciplinary services and closing the regional to city divide in health outcomes.

(iv) Trauma, critical care and emergency care
There is increasing clinical research expertise, and output, in both Critical Care and Emergency Care. Both areas have developed internal and external collaborations, with emerging research interests expanding across departments including Anaesthetics. The SCPUH will become a major Trauma and Emergency Centre for a population extending beyond the Sunshine Coast and hence the opportunity to extend research activity in these areas should be encouraged.

(v) Infectious disease
There is significant potential in this field, as local expertise already exists - both within the SCHHS and at USC. Current research activity (eg ARC Linkage Grant) and outputs in this field provide evidence for a growing research base that could be expanded.

The following research themes are seen as areas of future potential but are not considered immediate priorities at this stage. There is an opportunity for these areas to grow over time and be elevated to lead priorities for the SCHHS.

(vi) CHIIEF project
This project will investigate the genetic basis of disease, and would rely on partnerships at SARC. At this stage, it is in the feasibility and planning stage. CHIIEF has the potential to provide a valuable research niche for the region and may well become a lead research theme in the future. CHIIEF aims to link a large Patient Databank across the SCHHS (and Primary Care) with a Biobank based at USC.

Development of the Patient Databank and health informatics will also complement the resources underpinning Health Service Research in item (iii) above.

(vii) Mental health
This is potentially an important field of research in terms of demographic and the reported mental health problems of the population. The SCHHS should investigate if the existing local expertise can be combined into a targeted or coordinated approach for mental health research; and seek to expand activity in this area.
(viii) Chronic disease

Research associated with chronic disease (e.g. respiratory, sleep, diabetes, obesity, mobility) is important in terms of our demographic, both in terms of age and socio-economic status. However there is currently limited local research expertise in these fields and there are numerous national research centres focussing on these areas. The SCHHS should explore if local expertise can be fostered and a niche can be identified.

(ix) Oncology

This is relevant to the demographic with our local Oncology Group having the largest clinical trial programme in the HHS, as well as conducting some clinical and implementation research. However, the unique opportunities for the SCHHS in this area have not been identified and evaluated, particularly as other centres in Queensland have existing significant programmes and are already world leaders in oncology research.

(x) Maternal and child health

This is an area of significant focus in the Sunshine Coast region as there is a bimodal population distribution with high proportions of both older adults and young children in the area. There has been a considerable investment by Department of Health in a jointly appointed Nursing and Midwifery Research Fellow with USC; and the SCPUH will have a neo-natal intensive care unit which will provide many more research opportunities. In the last couple of years, research in this area has started to develop within the SCHHS. Both the paediatrics and maternity departments have plans for growth of research, with an increase in maternity investigator initiated projects already underway.

(xi) Care of the surgical patient

There is a growing programme of multidisciplinary research related to pre, peri and post-operative care of patients. The appointment of a CNC research position in Surgical Services will facilitate growth in this area. Development may fall under, or merge with, theme (iv) above with time.

6. The Electronic Medical Record (eMR)

The eMR which the SCHHS is seeking to implement will have significant impact on the ability to contribute effectively to research in areas such as: comparative effectiveness research, the CHIEF project, health services research, patient safety and epidemiology. Careful selection of the appropriate platform will be vital. If an 'entry level' system is chosen it is hoped that access to the relevant research modules, and support staff, will become available early in the implementation.

7. Conclusion

The research themes listed are intended to be inclusive of research across medical, nursing, allied health and administration disciplines. Whilst the themes provide a framework for prioritisation, decision making and allocation of research resources and effort, they are not intended to exclude the potential for research activity in other clinical areas.

The SARC will be well placed to conduct research which leverages off its co-location with a major regional healthcare facility, and its joint venture partners. It is important that research conducted in SARC is facilitated/prioritised with these factors in mind, and that opportunities are exploited. Development of multidisciplinary research will also be critical and will need to be imbedded in fields that have, traditionally, only produced medical research.