The School of Health and Human Sciences really engages the nexus between research and teaching, combining cutting edge clinical practice with the study of the health workplaces of the future, the role of the new digital landscape in health services, the significance of communication for health, as well as research that improves Indigenous health outcomes and the lives of children and families around the Northern Rivers. This is world class research that reflects the university’s commitment to serving our local community. With stunning ERA results and record numbers of enrolments in Nursing and other newer courses the future of research in these fields and in the region looks very bright.

Professor Mary Spongberg  
Deputy Vice Chancellor (Research)
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Research in Review 2018

Head of School,
Acting Director of Research

Professor Iain Graham

I write this year’s report from the perspective of Dean and Head of School, but also as Director of Clinical Services for the University and the Acting Director of Research.

A skilled workforce requires knowledge and ability in the field of research, both with regard to its translation and endeavour. Evidence Based Practice (EBP) and the use of methodological approaches for care provision is fast becoming the guiding factor globally for health workers; this is seen as a core capability of qualified practitioners working at the top of their scope of practice. To help services grow and meet the consumer need of our community for health and wellbeing, our School has fostered partnerships and research activity which enables us and our service provider colleagues to merge our agendas and seek relevant outputs. Increasingly the accreditation bodies are asking for evidence of this in our curriculum design and student experience, not to mention the ERA and its impact factors aimed at our work being seen as contributing to the betterment of the community. These evolutionary steps by the bureaucracy of health care are aimed at driving society to a different future of health care provision and activity.

While it is hard to predict the future, we now know that genomics, digital healthcare, artificial intelligence and robotics will have an enormous impact on patients, clients and the health and wellbeing workforce, over the next ten to fifteen years. In step with these expectations, we jointly hosted the first conference on Artificial Intelligence and robotics with the Primary Health Network’s Centre for Healthcare Knowledge & Innovation, and SCU’s School of Business and Tourism. A follow up symposium is scheduled for 2019. The School’s annual HDR symposium and Nell Riordan lecture also focused upon the changing landscape of health and wellbeing due to the impact of digital health. A summation from these events is included in this report.

Digital technologies are transforming our ability to empower patients and the general public so they can actively participate in their own health and wellbeing agendas. Emerging health technologies aim to prevent disease and disability, to predict the most appropriate care and treatment regime and to personalise the management of one’s health. Research, and therefore the School’s research focus should gravitate to exploring the impact of this evolution. The future is about personal health empowerment, not professional.

The School’s research focus is now working from a philosophical stance of person centredness in learning and care activities. We have the objectives identified to support this. And now we also understand the reason in the fast changing landscape of health and wellbeing, what needs to be done.

We need answers to how technological, (genomics, digital health, artificial intelligence and robotics) and other developments will change the roles and functions of the health and wellbeing workforce and, importantly, how we will educate them for lifelong learning? We need to know the implications of these changes for the skills required. Which new occupations will emerge and how will they be evaluated against impact and value?
We must consider both what patients and clients will require and how the public will be educated about these technologies, remembering that compassion and empathy, choice and diversity need to be accounted for too! We are in the people business.

In order to achieve our philosophical stance and the objectives which support it, we have focused our research business into three domains in order to better report our findings and activities. The strategy of research, the effectiveness of the research and the outcomes of the research form the business structure we align with. Also we have instigated a teaching excellence and capabilities framework to run alongside this in order to build capacity and ability. The role of the SCU clinic as a research and interprofessional learning centre is proving to be a major asset with regard to this. Partnership with the Primary Health Network and other universities is proving beneficial, too with an eagerness to do more.

Over the last year, a reappraisal of our partnerships has taken place, partly due to the impact and emerging EBP agenda and partly due to some of our significant partners changing their leadership teams. However these changes are good. With our partnerships we have established research activities and secured funding which will drive reputations, build capability amongst academic and non-academic staff, contribute to improved client and patient care, enrich our pedagogical activity and engage staff in professional development activity. The purpose behind these relationships is to support a culture where research evidence supports patient care. We are part of several networks which seeks to improve the engagement in research of various practitioners, and inform and develop knowledge pertinent to continuous quality care. Supporting leadership development is an important aspect of building such a culture and we are active partners in this work.

In many ways 2018 was a benchmark year which enabled the School to look at what it was doing in its research business. This coming year will see further gains in these areas of research endeavour as we work with various public and private health care providers, some specific NGOs, such as CHESS and Headspace, as well as education, social and aged care providers, and hopefully national and international university partners. We have to be mindful of our need to adhere to the School strategy and its stated objectives so to be effective and achieve quality outcomes. The emerging health and wellbeing landscape of the digital and genetic future will provide opportunities for the School as it moves forward. We need to seize these opportunities and make our future coincide with this landscape.

Professor Iain Graham PHD, RN
Dean, Head of School
Director of Clinical Services
Acting Director of Research
The School’s research strategy seeks to understand and explore the fundamentals of human experience based on humanistic principles. Comprehending how practitioners learn their art and science and how clients and patients experience the application of that is at the heart of our scholarship.

A humanistic, person-centred approach to understanding and helping people is rooted in a phenomenological tradition. The phenomenological view of the person does not try to impose any theoretical construct on the learning or caring experience, but seeks to make sense of the experienced behaviour either from a subjective or objective perspective.

We seek to explore the learning and caring worlds that we all inhabit.

Research Strategy of SHHS

1. **PROMOTE QUALITY AND EXCELLENCE IN HEALTH RESEARCH**
   Support strategic priority research areas that leverage research strengths, align with our values and mission, and deliver significant benefit and impact to society (regionally, nationally, internationally)

2. **BUILD COLLABORATIONS**
   Build a collaborative research community, securing growth through entrepreneurial initiatives

3. **BUILD THE SCHOOL’S RESEARCH CAPACITY**
   Target research capacity development in line with our key research priority areas

4. **INCREASE SHHS’ RESEARCH IMPACT AND REPUTATION**
   Enhance the School’s reputation for producing research with regional, national and global impact and relevance by promoting person-centred science, technology and innovation and translating these findings into teaching and clinical practice in health

5. **INCREASE THE NUMBER AND QUALITY RESEARCH OUTPUTS**
   Increase the School’s publications in high impact journals and the number of successful national and international competitive grants
Artificial Intelligence in Healthcare

Lucy Shinners

There is a growing body of evidence demonstrating the ability of Artificial Intelligence (AI) technology to improve job performance and care delivery in the discipline of health. Research in this area has largely focused on the technology itself, where to connect it, and how to leverage its use in the healthcare setting. However, to support a sustainable healthcare workforce equipped to meet this rapidly changing digital healthcare environment, another central component to consider is the human at the centre of these developments.

Internationally, there is a drive to become the global leader in AI application and use, with the world collectively focusing on the development of infrastructure, research excellence, collaboration, and education, as well as the development of economic, ethical and legal policy around AI use. With the creation of digital hospitals, new data, capture technologies and digitally-enabled consumers, healthcare professionals in Australia and the world need to improve their digital literacy and understand how AI technologies will be used in healthcare.

The focus of Lucy Shinners’ research is on the healthcare professional and the impact that AI will have on their ability to deliver care. The literature clearly shows that very little research has explored this area. Healthcare professionals’ trust and understanding of emerging AI acts as a key determinant of intention to adopt the technology, as their primary concern is the impact on the patient. The interface between technology and the healthcare professional needs to be further examined. This research includes a Delphi Study to aid in the development of a questionnaire for a large national survey of healthcare professionals about their experiences and understanding of AI in the delivery of patient care. The results of this study can provide insights on the impact that this technology is having on healthcare professionals. Lucy’s future research will focus on the skills and education required in the healthcare setting and university curricula, the theoretical underpinning of AI use in the clinical setting, current ethical frameworks and the evolution of the role of the healthcare professional.
Quality and excellence in health research

Preparation of student nurses and midwives for registration and health care delivery: a prospective cohort study

Nicola Whiteing

The decreasing numbers of nurses nationally has been acknowledged and strategies have begun to emerge to address the situation. However, in the main such strategies have focused on the recruitment of nurses rather than retention (Buykx et al., 2010). Figures from Bennett, Brown, Barlow & Jones (2010) noted an attrition rate of new graduates in urban and metropolitan areas of between 20 and 50% increasing to 86% in rural and remote areas. These figures highlight a need for studies to ascertain the reasons behind a nurse’s decision to remain in, or leave undergraduate training, a clinical area or the profession. In collaboration with the Northern NSW Local Health District (NNSW LHD), Principal Investigator Nicola Whiteing, with Dr Christina Aggar and Jonathan Magill, is undertaking a longitudinal prospective cohort study which aims to understand and support the quality of clinical placements for student nurses/midwives and supervising registered nurses/midwives.

This study will follow a cohort of students attending clinical placements in Northern NSW and going on to work as Registered Nurses (RN) or Registered Midwives (RM) within the LHD for six years. The prospective cohort study utilising a mixed method design (questionnaires and focus groups) will identify the barriers and enablers of quality clinical placements for students and supervising registered practitioners. First year student nurses and midwives enrolled in a Bachelor of Nursing/Midwifery degree completing a clinical placement and RN/RM employed at the NNSW LHD in 2019 will be invited to participate in the study. The longitudinal approach being used in this study that focuses on student and RN/RM experiences, impact of Work Integrated Learning (WIL) and support mechanisms and intention to remain has not been previously explored. Studies that have explored relationships between student experiences and graduate choices have tended to use retrospective data (Boyd-Turner, Bell & Russell, 2017). The study is expected to provide practice, educational, organisational and policy contributions through a greater awareness of the barriers and enablers to successful WIL models, transition to practice programmes and RN/RM supervision models. The expected outcomes of this study will support the organisational change processes and provide information to assist students in clinical practice placements and the registered practitioners supporting them. This study is significant in contributing towards retention of nurses/midwives and ensuring a workforce that is fit for practice.
Quality and excellence in health research

Tracking MyHR data in the Emergency Department: Effects of enhancing uptake in a high-risk Aboriginal patient group

Dr James Donnelly

To understand factors affecting the uptake of My Health Record (MyHR) among patients with Type 2 diabetes at Galambila Aboriginal Health Service (GAHS), SCU Psychology researchers (James Donnelly and Bethany Bradhurst) joined with community partners at GAHS (Kristine Garret, Jon Rolph, Paul Feronon, Tyson Morris) and Coffs Harbour Base Hospital (Alan Tankel) to conduct a qualitative enquiry. The project was funded in part through the MNCLHD, Research Support Program.

The use of MyHR purportedly helps people manage their own health care journey and improve health outcomes, so the team wanted to understand GAHS clients’ views about MyHR: what they knew about it, how they might use it, and their perceptions of the potential benefits or drawbacks of this electronic health system. There was an expectation that MyHR could be particularly helpful to Indigenous clients with diabetes who may see several healthcare providers and may travel to other communities and seek medical care in rural services.

Over several months, the School’s psychology researchers collaborated with GAHS partners in the design of semi-structured interviews. As the Aboriginal Health Workers (AHWs) had trusted, positive relationships with the local Indigenous community, they offered to serve as interviewers to hopefully allow clients to freely share their unique views about MyHR. Feedback was also sought on the efficacy of MyHR within the Emergency Department. With cooperation from the ED Director, medical staff were trained to report on gaps in the clinical information currently available in each participants’ MyHR. This information was to be fed back to the Galambila GPs so that each MyHR could be updated and the information flow among health centres improved.

The qualitative data yielded from the semi-structured interviews did not provide rich or meaningful insights into the experiences of the participants with regard to MyHR; this may be accounted for in several ways. First, the AHWs reported that the research interviews were more structured than how they would typically interact with clients. Although home or phone interviews were considered, data collection was scheduled to occur either before or after participants’ appointments at a regular monthly Diabetes Clinic at GAHS. This proved to be untenable as the AHWs were also involved in providing clinical services to the research participants. Occupying dual roles (i.e., clinician and researcher) may have affected both parties as the interviewer was required to ‘wear both hats’ at the same appointment. Using SCU interviewers did not result in any richer data. Additionally, the subject matter may not have been personally salient for participants.

Shortly after the project began the Commonwealth ruling that MyHR would now be an ‘opt-out’ instead of ‘opt-in’ system also changed the entire psychological and administrative landscape at Galambila and around the country. Existing suspicions about data security and challenges for those with limited computer literacy were exacerbated.

While the results were not as expected, important lessons were learned through this collaboration, including the complexity of conducting applied psychological research in a busy health sector. Fostering true community collaboration was again essential from project design, through ethics approval and attempts to collect information in a culturally appropriate way. The aspirations shared by the Indigenous and non-Indigenous investigators were also not necessarily of interest to patients seeking care. However, graceful acceptance of not ‘getting the data’ helped grow a relationship with wise colleagues for future work together; a clearly positive project outcome.
Quality and excellence in health research

The reliability and validity of a digital inclinometer app to assess weight-bearing ankle dorsiflexion range of motion in an athletic population

Adequate ankle mobility is considered important for functional movements such as squatting, balance tasks and movements of daily living. Given the foot’s location in the kinetic chain, injury or poor ankle mobility at the ankle can lead to injury further up the kinetic chain, such as at the knee or hip joints. Long-term consequences of ankle injury for athletes can be varied and may include limiting their ability to run, jump, kick and change direction. As a result, identifying if an athlete has a restricted range of movement (ROM) at the ankle may help in the design and implementation of strategies for preventing further injury. In this context, assessing functional weight-bearing lunge dorsiflexion range of motion (DROM) appears crucial for determining potential injury predisposition, as well as performance capacity.

The term “mHealth” has been coined in the literature and is used to describe the use of mobile devices in public health and medicine. With the rapid expansion of smartphone usage, a wide range of apps are now available that can assist clinicians, coaches and strength and conditioning specialists to examine or assess their clients efficiently in the performance of their respective roles. These apps make use of inbuilt smartphone sensors (e.g. camera or accelerometer) to obtain measures which can be used in practice. A digital inclinometer for instance, which uses a digital display to provide the angle of slope of an object with respect to gravity or relative to the ground (the zero point), is one such app. However, as an emerging technology, these mobile apps need to be appropriately validated and assessed for reliability to ensure their effective operation.

Research led by A/Prof Rudi Meir, along with Zach Crowley-McHattan, Sonja Coetzee, and John Whitting aimed to determine the efficacy (reliability and validity) of a digital smartphone inclinometer app as compared to standard goniometry for assessing weight-bearing ankle DROM in an athletic population. Nine physically active female and six male volunteers (mean age = 26.5 ± 6.2 years; range = 19-37 years, height = 1.73 ± 0.85 m, mass = 76.5 ± 18.6 kg) participated in this study. Ankle DROM was assessed using three methods: i) knee-to-wall; ii) standard goniometer; iii) a smartphone inclinometer app. All three methods were found to be highly reliable for both the right and left ankle (p < 0.001; ICC ≥ 0.950). Further, the inclinometer app was strongly correlated with the goniometer (r² = 82-97%), with high levels of agreement and low levels of bias confirming its validity. These findings demonstrate the potential of this convenient digital technology. Such technology may provide strength and conditioning coaches with another tool that allows rapid and reliable large scale screening of athletic populations as it relates to functional assessment of ankle DROM.
Figure 1a: Digital app being “zeroed”; smartphone attached to steel rule.

Figure 1b: Using the digital app to determine ankle DROM; steel rule aligned with identified landmarks.
**Research Collaborations**

**Conjoint Nursing Research Academic**

**Dr Christina Aggar**

The Conjoint Nursing Research Academic (CNRA) position provides academic leadership in clinical nursing research capacity and capability across the Northern NSW Local Health District (LHD) and the School of Health and Human Sciences (SHHS).

With a focus on the translation and implementation of research outcomes into nursing practice, the position specifically works with nursing and midwifery clinicians and academics to:

- Maximise nursing contribution to clinical and workforce initiatives, including the increased use of evidence based practice in patient care;
- Promote quality and research endeavours in nursing, including increasing engagement of clinical staff in research activities and the publication of research findings;
- Develop academic and clinical partnerships that contribute to the academic research development of the profession.

The position also develops and implements research education, research support services and skill acquisition programs to develop clinician skills required to initiate, facilitate and engage in research projects. These include monthly online presentations, bi-monthly workshops and regular focus groups to support and promote evidence based practice and provide opportunities where nurses can engage, develop and share research ideas. A monthly online newsletter summarises conference and grant opportunities and relevant research information.

To date, the position has successfully negotiated and supported the development and implementation of 8 Nursing Honours scholarships worth $20,000 each over the next 4 years. The position has supported a number of research collaborative partnerships between clinicians and SHHS academics including a longitudinal cohort study exploring undergraduate nurse preparation for practice; nursing students’ knowledge and attitudes of the management of patients with a drug and/or alcohol substance use disorder; and a 3 year study investigating gestational diabetes, screening rates and health outcomes for women in the Northern NSW LHD.

Projected work will continue to support the opportunity for clinicians and academics to work collaboratively on research projects and curriculum development, particularly in the areas of informatics, health promotion, preventative health, behaviour change and workforce development. The overall aim of the position will continue to grow a reputation for quality research projects and partnership opportunities with clinicians, academics and industry partners to support the translation of evidence based research into clinical practice.
Research Collaborations

Nell Riordan Lecture

From modest beginnings as the daughter of a Richmond River dairy farmer, Ellen Riordan (1889-1978) was awarded seven medals for her service in the ANZAC Nursing Corps in both World Wars. The School of Health and Human Sciences honours the local nurse’s legacy with an annual lecture series. Instigated by Professor Iain Graham after he was inspired by the story of the Northern Rivers’ own Florence Nightingale, the 2nd annual Nell Riordan lecture was held on Wednesday 10th October 2018 at the SCU Gold Coast campus. The public lecture series is aimed at stimulating discussion around the provision of health and healthcare, currently undergoing profound changes nationally and internationally.

The successful event was well attended, including three members of Nell Riordan’s family, Monica Doyle, Michelle Klumpp, and Amanda Doyle, and opened with a thought provoking Welcome to Country, presented by Aunty Jackie McDonald.

Guest lecturer, Ms Jennene Buckley, CEO of Feros Care, presented the topic of “Practical application of digital technology in person-centred care”. The engaging lecture highlighted the amazing influence digital technology is having on the community and aged care clients served by Feros Care. Jennene, also a local woman, became the CEO of Feros Care 17 years ago; at the time a small non-profit single locality, residential provider of 95 clients in Byron Bay. Today it is one of the fastest growing aged and community care services in Australia, supporting over 50,000 people per year and spanning six states and territories’ along the east coast of Australia. It leads the industry in digital service models, customer led design and creates innovative and energetic service cultures. Jennene was inducted into the Aged Care IT Hall of Fame in 2016 and the company has won many national and international awards for their innovation and digital transformation. Feros is an important research partner of the School and it was an excellent insight into their ongoing innovations in digital health care.

The establishment of this lecture series has the purpose of bringing together local health leaders and provide them with a venue to hear the debate about these profound changes in health care provision. Being local but informed globally is the key to this event.
Research Collaborations

Artificial Intelligence in Healthcare Symposium

Bronwyn Thirkell
Coordinator, Centre for Healthcare Knowledge & Innovation

On Saturday 16 June 2018, Southern Cross University (SCU) partnered with the Centre for Healthcare Knowledge & Innovation (the Centre) to deliver a one-day symposium on Artificial Intelligence in Healthcare. Facilitated by Professor Dian Tjondronegoro, Professor of IT, School of Business and Tourism at SCU, the intensive program invited 120 students, educators, tech developers, entrepreneurs and health and social care providers to SCU’s Gold Coast campus.

The day was introduced by keynote speaker Rachel DeSain from Codesain, who explored the evolution of artificial intelligence (AI) and discussed AI as a spectrum. Nicholas Therkelsen-Terry then grounded participants by taking a look at AI in 2018 from the viewpoint of prediction modelling and its application to clinical medicine. Other presentations included: Achieving Digital Maturity Ahead of Emerging Technologies, AI in Clinical Decision Support, and Getting the Balance Right When Designing for Rural and Remote Communities.

Professor Tjondronegoro’s masterclasses proved popular, offering Machine Learning 101 (for dummies), Machine Learning to Understand Patient Need, and the opportunity to get hands on with virtual and augmented reality. Other masterclasses included Safe Value-Driven Predictive Analytics, The Application of Data Spanning Imaging, and Machine Learning for Consumer Engagement. Susanna Carman (SC Design) also ran a design thinking workshop on innovating amidst disruption.

The day ended with a series of case studies from the PreventIT healthy ageing program, IntelliHQ and Metro North Health. Participants were then encouraged to mingle outside and make connections.

The symposium received a positive response with participants claiming that the event gave them a clearer understanding of where AI is most disruptive and where it can make the most impact. The symposium explored current uses of AI and its possibilities, the types of disease that can be diagnosed, treated or predicted with AI, and how to separate the hype from what’s really happening in the field. Master of Science in Health student, Lucy Shinners, took advantage of the symposium, surveying participants both before and after the event. Ms Shinners plan is to use her research to improve the confidence and knowledge of the health professional workforce in the use of AI.

A second AI symposium is planned in partnership with the Centre in June 2019. Feedback from the event calls for more time for networking as the broad range of participants at the symposium provided an excellent platform for making connections both within the private and public sectors.
Building Research Capacity

Director of Higher Degrees by Research Training

Dr Joanne Bradbury

Last year saw an increased focus on industry engagement for the Higher Degrees by Research Training (HDRT) program. This includes providing training opportunities for HDR students towards the development of skills for a career in industry and/or academia. We strive to support our PhD graduates to become drivers of innovation in industry. Australian Government policy aimed to forge closer collaborations between universities and industry will see greater emphasis on the preparedness of HDR students to work in industry after graduation.

Our School has a history of active engagement with Local Health Districts (LHDs) and is in the process of broadening engagement with industry partnerships. There are many HDR students within the School who are also employed within LHDs or in other areas of NSW or QLD Health. Multiple pathways into HDR training are being developed by the School to help to prepare and support students who are working full time as health practitioners and who wish to upskill through a HDR degree program.

All School HDR supervisors are encouraged to engage with industry to develop potential partnerships. HDR students are increasingly seeking industry experience through research industry placements. Such arrangements are a win-win for both industry and the university, as HDR students bring innovative problem solving skills to industry problems, while industry partners help to provide industry experience for the HDR students. This has also resulted in several industry funded and co-funded HDR scholarships.

Research needs to be relevant. To ensure this, we seek engagement with industry partners in our school-based HDR training events. Ideally all Confirmation of Candidature and In-Candidature Review panels include an industry stakeholder to provide an independent review from the industry perspective. This facilitates direct feedback on the likely impact of the research for industry and to try to help steer the research into an industry-ready direction. Industry stakeholders are included as independent reviewers in approximately 80% of Confirmation panels.

The near future of the School’s HDR training programs includes the development of a Professional Doctorate in Health Practice, and the expansion of a Multi-Badged HDR Degree. The Prof Doc will provide a more graduated pathway from industry to a doctoral qualification than is offered under the traditional doctorate degree. It will increase industry engagement by providing joint academic-industry pathways for working people to solve real world problems in the workplace. It is currently under development but is anticipated to include exit points at the Graduate Certificate and Diploma levels as well as Masters or continuation to the full professional doctorate. Multi-Badged Degrees involve an MOU with a partner university, where the student is enrolled in both universities and graduates from both universities.

The School will continue to train research students in how to conduct high quality research that has the potential to make innovative contributions to industry, the community and ultimately to individuals.

Dr Joanne Bradbury
PhD(Nutr Pharmacol.), BNat(Hons), BA(Psych/History), Grad Dip (Biostats), Grad Cert (Acad Prac)
The School of Health and Human Sciences HDR symposium is an annual event that highlights the quality and variety of research undertaken by our Masters and PhD candidates. Now in its 5th year, this year HDR students were invited to present on the theme of research-led innovation.

Attendance has grown significantly, with 70 registered attendees including 26 HDR presenters; presentations were held in two concurrent streams to manage these unprecedented numbers. All presentations were of an exceptionally high standard both in content and delivery. Congratulations to all the HDR presenters and to all the supervisors. The four prize winners were:

- **Best overall presentation**: Brianne van Rhyn; *Life as experienced within and through the body beyond 85-years: an existential phenomenological inquiry*. Supervisors: Associate Professor Michelle Donelly and Dr Alex Barwick

- **Best overall presentation runner up**: Phillip Ebrall; *An exploration of chiropractic*. Supervisors: Professor Stephen Myers, Dr Elizabeth Emmanuel and Dr Paul Orrock

- **Best innovation in research**: Allison Peck; *Mapping correlates and predictors of youth perpetuated domestic and family violence on the mid to north coast of New South Wales*. Supervisors: Associate Professor Marie Hutchinson and Dr Steve Provost

- **Best innovation runner up**: Simon Rogers; *Profiling movement in teenage athletes: Informing the coaching conversation*. Supervisors: Prof Peter Hassmen, Dr Alison Alcock, Dr John Warmenhoven and Emeritus Prof Wendy Gillear

The following synopses of the prize winners’ research highlights the diverse and innovative work of our HDR students and the School’s staff who supervise and support them.
Building Research Capacity

Life as experienced within and through the body over the age of 85-years

Brianne Van Rhyn, PhD Candidate

Brianne Van Rhyn’s research project explores the lives of individuals who have celebrated their 85th birthday; she is interested in their everyday physical, social and existential experiences. In particular, how these dimensions of life manifest, conceal and reveal themselves within and through the body. The over 85-year-olds are the fastest growing group in the Australian population, however we know surprisingly little about their everyday lives. This is partly due to the fact that large scale population ageing is a new phenomenon. Consequently we are navigating unexplored terrain medically, culturally and ethically. Existing conceptualisations of this stage of life are framed in narrow, stereotypical ways. Most of what we know is conjecture and assumption, from the vantage point of the young and middle-aged. Rarely have we consulted individuals living life at this age for first-hand accounts of their lived experiences.

Schools of philosophical and academic thought have long viewed the body and mind as separate. In biomedical discourse, the body is often described as a machine, comprising various parts that perform complex functions. What has been neglected is the experience of everyday life in all its dimensions – physical, social, and existential – within and through the body. The material body is often viewed as subordinate – a ‘brain taxi’ or worse, as described by Plato – a ‘prison’ for the soul. The French philosopher Maurice Merleau-Ponty (1908-1961) encourages us to think of our bodies in a different way. Firstly, he proposes that from a subjective view, the body and mind are a single, inseparable entity. This is often likened to a Möbius strip, which is one continuous structure with no beginning or end and no inside or outside. He proposes that human experiences happen simultaneously and indistinguishably in both the body and mind. He calls this lens ‘embodiment’.

Embodiment can be defined as your experience of your body, as yourself. A highly individualised perspective, as your experience can only be known to you. Embodiment research enables rich, fluid and nuanced accounts of lived experience. This lens on life enables us to understand and empathise with how others may be experiencing reality. Merleau-Ponty reminds us that our body is not only the ever-present vehicle we use to navigate this life, but the very medium which allows us to exist. Our body is also the reason we eventually cease to exist, and for that reason the body has significant bearing on our existential view of life.

This research project aims to apply Merleau-Ponty’s philosophy of embodiment in an over 85-year-old population. Brianne would like to know: How is everyday life experienced within and through the body at this age? The answers will have important implications for moving knowledge forward from a foundation of truthfulness and fidelity to the individuals in this group. By 2050, almost 1 in 5 Australians will be over the age of 85-years. Now is the time to obtain foundational knowledge of the everyday lives of this cohort, rather than make generalised, homogenous assumptions about their lived experiences. Through the knowledge gained in this research, it is hoped that their first-hand accounts of life at this age will lead to better understanding, more empathy and genuine curiosity in those they encounter. In this way, embodiment research fosters an appreciation and openness to the diversity, worth and potential of the individuals in this group.
An exploration of chiropractic. What is going on behind your back?

Phillip Ebrall, PhD candidate

Every day some 2 million people are treated by a chiropractor in about 100 countries, however we know very little about what is actually happening during these encounters. We know 40 countries have legislation and 50 institutions train people to become chiropractors and that society has a rough idea that associates relief from back pain and headache with a crack in the back from a chiropractor.

Despite the legitimacy of this practice, the philosophy of chiropractic is not agreed, being debated for the past 115 years. Divergent views within chiropractic about the founder’s core concept of subluxation are not representative of a pervasive polarisation, rather they allow for a determination of different schools of thought within the profession which is healthy sign of professional growth.

The literature on subluxation in chiropractic is currently mixed with some scholarly papers using critical methods to assess its validity, while others do not meet the criteria for scholarly discourse. To date no one has attempted to consolidate the literature in a systematic review on subluxation.

This thesis brings a mixed methods approach to questions about subluxation to address hypotheses around interpretations of subluxation. Phillip Ebrall’s research question seeks an answer to the central question of subluxation and its interpretation, understanding and application. Phillip is undertaking a systematic review of the indexed literature and a document analysis to identify schools of thought and their interpretations of subluxation. Understanding the interplay between schools of thought and occupational regulation will provide an understanding which will inform aspects of the profession including its regulation, education, and research agenda.

The anatomy of the problem: a pain generating motion unit in the spine. (Source: Complete Anatomy 3D4 Medical, with permission)
Dimensions and patterns of domestic and family violence among children and young people: building a localised evidence base to inform decisions about future actions

Allison Peck, PhD Candidate

This research aims to undertake a series of studies to model and test predictive pathways for domestic and family violence (D&FV) involving children and young people on the mid to north coast of New South Wales (NSW). Within the mid to north coast area of NSW, rates of youth-initiated D&FV and children and young people recorded as the victims of D&FV, are higher than most other areas of the state (New South Wales Bureau of Crime Statistics and Research, 2018b, New South Wales Bureau of Crime Statistics and Research, 2018e).

The studies will link routinely collected administrative data held by the NSW Police Force, NSW Department of Family and Community Services (FaCS) and the NSW Ministry of Health to model and test predictive pathways associated with: children and young people who engage in D&FV and children and young people who are victims of D&FV. Approved data from the three administrative data sets will be extracted for each young person from their birth until June 2018 for the NSW Police Force data and from birth until most recently available for the NSW Ministry of Health and FaCS data. Process and pathway analysis will be undertaken to identify and test temporal models of D&FV.

It is anticipated that this research will produce the first large-scale tested temporal models of D&FV involving children and young people in Australia. These models could be used to inform the future development and enhancement of D&FV screening tools, early intervention programs for at risk children and youth, as well as future decisions and actions to address and reduce D&FV on the mid to north coast area of NSW. This study will also be the first study of children and young people who engage in (or are victims of) D&FV to utilise a multi-agency approach and link data across three separate Australian government agencies.

Data requests for the first study have been submitted to all agencies involved and formal approvals have been received from the NSW Police and FaCS to obtain data for the purposes of this research. The NSW Ministry of Health is currently reviewing the data request. It is anticipated that the linked dataset will be available for analysis in early to mid-2019.

This study is being undertaken as an industry partnership between the NSW Department of Premier and Cabinet, NSW Health (Northern NSW Local Health District and Mid North Coast Local Health District) and Southern Cross University. This research is being completed by Allison Peck under the supervision of Professor Marie Hutchinson and Dr Steve Provost.
Building Research Capacity

Investigating movement competency development in youth athlete development

Simon Rogers MSpEx, ASpS2, PhD Candidate

Development of young aspiring athletes is a multifaceted area of research, with many practices underpinning lifelong participation in sport and high performance success. Effective movement strategies and motor skills, regardless of sport, support young athletes to optimise their physical capacity, while reducing risk of injuries and burnout. These movement competency skills (MCS) are one of the foundations in development and training youth, particularly given the accepted positive evidence regarding implementing appropriate resistance training activities for young people. The impact of supervised resistance training interventions has been shown to support the healthy development of strength, speed and even sport specific skills in a range of athletes. Even small doses of non-sport specific movements (e.g. squats, lunges, jumps) performed in a team warm-up are shown to be effective in reducing injury rates. However, the formal assessment of MCS in sports development settings can be overlooked, arising from the wide range of assessments varying in length, difficulty, and reliability in the current scientific literature.

A multi-component musculoskeletal screening tool assesses the quality of movement, rather than solely the outcomes of one’s fitness, such as jump heights or the time to hold a plank. A movement quality or process screen is undertaken against a set of pre-established criteria, where the coach looks at presence or absence of the technique criteria needed to successfully execute a skill. Results of these assessments can aid practitioners to identify poor or inefficient movement control and provide tangible measures of competency for feedback to athletes and to aid individualised exercise-prescription.

Simon Rogers has been working on a PhD project embedded in the Australian Institute of Sport (AIS) on the measurement and development of movement competencies in youth athletes. He has published a practical assessment tool for emerging junior athletes who demonstrate sporting potential, and are primed to be screened for their readiness to enter strength and conditioning training programs. The screen, entitled the ‘Athlete Introductory Movement Screen’ (AIMS-4), has four movement tasks which are common in many resistance training methods and holds the potential to help practitioners and athletes alike correct inefficient movement patterns, prior to entering more senior or elite training environments. The second stage in Simon’s PhD research is exploring the effects of training MCS with a cohort of year-8 students, who received the intervention either at school, or home via an online coaching website, built by the AIS. It is anticipated the results of this research will contribute to the pre-elite athlete training strategies and assessments with the up-coming pathway athletes in Australian sport.
Building Research Capacity

Bachelor of Psychological Science with Honours

Dr Gail Moloney

In 2018, the Bachelor of Psychological Science with Honours was offered internally at the Coffs Harbour campus. The degree, which is made up of course work and a research thesis, can be completed in a part-time or full-time mode. This year we had 44 Honours students in total, with a large majority coming from external universities. Students completed their research thesis on a variety of interesting topics, which were showcased this year at the 15th Annual Psychology Honours Research conference. Every student delivered a 12 minute presentation to the 150 or so conference attendees, which included the students’ family and friends, local psychologists and allied health workers, academics, and interested community members. The opening address to the two day event was presented by a past Honours student, Ms Jodi Wittenberg, who is currently undertaking her Masters in Clinical Psychology.

A further feature of the Honours year was the research proposal poster conference, where students had an opportunity to present their research proposal in the form of a poster to their peers, PhD students and academic staff. Overall, the year was extremely successful, with 42 students graduating with the Bachelor of Psychological Science with Honours.
Highlights of the year

Kevin Lee: Nominated for the Australian Psychological Society prize for the top student in the Honours year and awarded a Highly Commended Conference Presentation (Day 1): How do we think about dementia?

Maddison Weiss: Awarded the Best Conference Presentation (Day 1): Have you “herb” about this; the effect of cholinergic agonists on motor control.


Briony Paige: Awarded a Highly Commended Conference Presentation (Day 1): Move to your beat: a parkrun study investigating the effects of self-selected music on the performance and experience of exercise.

Elise Rowland: Awarded a Highly Commendable Conference Presentation (Day 2): Deconstructing Mindfulness: Can we cause differential effects on attention, self-judgement or mood?

Danielle Brooke: Awarded a Highly Commendable Conference Presentation (Day 2): Can we deepen the pool of Australian foster carers through enhanced support and training?

Jee-Hee Vivian: Awarded the People’s Choice Award (Day 2): Spinach and frogs may be more related than you think: how priming can affect recall of weakly related lists.
Building Research Capacity

Allied Health Honours

Associate Professor Michelle Donelly

The embedded allied health honours program has contributed to the development and maintenance of a research culture among undergraduate students and SCU’s allied health community. Participants of the honours program were involved in all aspects of the research process and dissemination of research findings. Graduated students successfully completed research activities, and contributed to research knowledge, initiatives and quality improvement in clinical and academic environments. Embedded honours graduates have been highly sought after by employers because of their capacity to address important clinical research questions and translate their findings into practice.

Topics presented by students at the public allied health honours event in 2018 focused on communication and the participation of children and adults in meaningful roles. There was also emphasis on regional and national population groups of significant vulnerability, theory building in the areas of childhood play, cognition, communication and literacy, and interdisciplinary topics.

The embedded honours program provided allied health students with a direct access pathway to PhD and an opportunity to apply for scholarship stipend support in undertaking a PhD. The program’s graduates have been the first SCU allied health graduates to successfully enter a PhD program; this has been particularly significant for students who are the first in their family to attend university. This year, two students from the 2017 honours cohort took up PhD scholarships at SCU and another has commenced PhD at University of Sydney. Two further students from the 2018 graduating cohort have received offers for PhD scholarship. Students also continue to have success with peer reviewed publications and conference presentations. Congratulations to Sophie Slavin who was awarded a University Medal in 2018.

Allied health honours projects were undertaken with community partners to address mutually meaningful research interests based on important community needs. This facilitated recruitment and retention of fieldwork providers and promoted opportunities for community engaged learning and collaboration for advancing clinical research concerns. For example, projects were proposed in new partnerships with Lifetime Care and Support in NSW, the Queensland Department of Education and Training as well as continuing with existing partners such as CHESS. Our honours projects have provided value to our community partners and helped forge important relationships essential for fieldwork and collaborative grant applications.

The program has also been innovative and effective in its structure and achievements in relation to inter professional education [IPE] and practice [IPP]. From the very first cohort, projects were shared between supervisors of different disciplines with a strong inter-disciplinary focus. Enhancing IPE and IPP is an important strategic goal of the School and a priority across the health sector.

The allied health embedded honours program enabled successful candidates to complete a supervised research project and to understand the foundations of research including conceptualising, and undertaking a research project, understanding a topic at much greater depth, increasing the competitive standing of graduates for employment; preparing for a research career in clinical practice, higher education or a research organisation and providing a pathway to higher degree research study. Although the program was officially discontinued this year, the achievements of our graduates indicate that all these goals were realized in the four short years of its operation. Congratulations to all our graduates, PhD scholarship holders and University medalists. We wish you every success in your future careers, it has been such a pleasure to work with you.

Graduate Mikaela Farlow
Research Impact and Reputation

Translating evidence into clinical practice: the SNAPPS model of clinical supervision

Professor Sandra Grace, Brett Vaughan, Bimbi Gray, Andre Kleinbaum

Health professionals have a responsibility to consider relevant research when making clinical decisions. Most health practitioners appreciate the importance of keeping abreast of the latest research, although not all have the skills to efficiently locate and evaluate relevant information. One strategy to build such skills is the SNAPPS model of clinical supervision. SNAPPS refers to steps that guide students when developing a treatment plan for their patients (see Figure 1). The purpose of this research was to evaluate the effectiveness of the SNAPPS model in cultivating evidence-based practice in the Master of Osteopathic Medicine program at Southern Cross University (SCU).

Figure 1: The SNAPPS model of clinical supervision

<table>
<thead>
<tr>
<th>Summarise</th>
<th>Briefly describe the key points in the patient history including current health status</th>
</tr>
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<tbody>
<tr>
<td>Narrow</td>
<td>Choose 2-3 most likely differential diagnoses</td>
</tr>
<tr>
<td>Analyse</td>
<td>Compare the differential diagnoses</td>
</tr>
<tr>
<td>Probe</td>
<td>Ask the clinical educator questions about uncertainties, difficulties or alternative approaches</td>
</tr>
<tr>
<td>Plan</td>
<td>Propose an intervention approach</td>
</tr>
<tr>
<td>Select</td>
<td>Identify and research an aspect of the case to inform clinical decisions</td>
</tr>
</tbody>
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The study used a mixed-methods approach with a cohort of 52 students enrolled in the Master of Osteopathic Medicine at SCU and 12 clinical supervisors, who were invited to complete the Evidence-Based Practice Questionnaire (EBPQ) before and after they had undertaken a training session and implemented the supervision model for one teaching session. They were also invited to participate in focus groups to discuss their experiences at the end of the session. Descriptive and inferential statistics were used to explore EBPQ responses; focus groups were transcribed and analysed thematically.

A significant difference pre- and post-intervention was identified for the student EBPQ practice subscale with a medium effect size, indicating increased use of evidence-based practice. No significant differences were found on any other subscale. Focus groups revealed emerging new skills in students including searching and evaluating the literature: For me, the big education came in understanding the hierarchy of research, not just what makes it a gold standard article and what is relevant but how to access [relevant] journals (Student). Lively discussions ensued among students and their supervisors as they weighed the value of the research evidence over clinical experience. The model also cultivated students’ interest in research: We had a student whose patient was a competitive kickboxer. The student was looking at exercises that would be good for core stability ... this [search] was brilliant because it was very specific ... the student hadn’t realised how interesting it was to [look up evidence] so it really helped to bring that out (Supervisor).

The SNAPPS model appeared to have effectively promoted evidence-based practice in osteopathy students. Further research is required to confirm the results on larger and different cohorts and to evaluate the extent to which the habit of searching for evidence to inform clinical practice is sustained when students graduate.

Students enrolled in the Master of Osteopathic Medicine and their clinical supervisors elected to retain the SNAPPS clinical supervision model as an ongoing strategy to promote evidence-informed clinical decisions. Interest in the project has led to research collaborations with colleagues in Victoria University and Osteobio in France. The SNAPPS model is being trialled in the Master of Health Science (Osteopathy) at Victoria University in 2019.
Research Impact and Reputation

Supporting families, young people and vulnerable patient groups in regional contexts

Professor Marie Hutchinson

Professor Marie Hutchinson is leading a number of studies that aim to inform future strategies to better support parents, children and young people in regional contexts. She is also actively involved in research in the field of patient safety, improving the care journey for vulnerable patient groups, and workforce and student wellbeing.

In regional Australia there is a pressing need for early intervention and improved care and support for children and young people who experience, or are charged with, domestic and family violence. The interface between agencies and sectors has long been recognised as an important issue in mitigating and responding to domestic and family violence. However, current data collection systems provide very limited information exchange.

Marie is leading a multi-level government agency study that will link data at a population level to enhance knowledge of domestic and family violence pathways, predictors and protective factors. The first stage of this digital study will link data from NSW Health, NSW Police and the Department of Family and Community Services that relates to children and young people charged with a domestic and family violence offence over a ten year period. This work is being undertaken in collaboration with Dr Steve Provost who is leading the design of a novel data analytic strategy, and PhD candidate for the project Allison Peck. By linking data that is held separately by each agency, this study will break new ground and is anticipated to provide a valuable resource for understanding pathways to violence and the design of effective interventions and service delivery.

Marie has collaborated with colleagues to design and test an emotional intelligence (EI) intervention. This body of research has demonstrated significant benefit for the health workforce and undergraduate nursing students. Further testing of this work is underway with academically at risk students to determine the effect of EI coaching on academic adjustment and wellbeing.

Her other patient-based studies include the impact of prophylactic dressings on pressure injury prevention in the intensive care setting, factors which influence treatment compliance in patients with head and neck cancer, and the benefits derived from the creation of video storybooks in residential aged care settings.

Professor Hutchinson’s work has been supported by the NSW Department of Premier and Cabinet, the Northern NSW and Mid North Coast Local Health Districts, Tresillian, Sawtell Catholic Care of the Aged, and the Higher Education Participation and Partnerships Program.
Research Impact and Reputation

Communication for health, and health for communication

Associate Professor Sally Sargeant

The single biggest problem in communication is the illusion that it has taken place.

George Bernard Shaw.

Healthcare is a complex system. This is evident in the relentless advancement of scientific inquiry, diversity of clinical specialities and an ever-evolving health workforce. Growing opportunities for healthcare communication in various forms are significant. Episodes of care are now less likely to involve exchanges between one professional and a patient, and instead involve several people. Multidisciplinary teams often contribute verbal and written narratives with the goals of maintaining health and treating illness.

When appraising such complexity one could be forgiven for questioning how anything runs smoothly within primary, acute and community care. Fortunately the pieces of a healthcare puzzle often fit together largely due to effective and meaningful communications, at individual and institutional levels.

This field of study has dominated much of Prof Sally Sargeant’s academic life. One key area is shared decision making (SDM), particularly in cases of serious or life threatening illness. SDM is deemed to be the gold standard of clinical care, where clinicians and patients discuss evidence relating to treatment whilst ensuring that patients are sufficiently informed to consider options (Elwyn et al, 2010). The extent to which this actually happens within preference sensitive care, however, is debatable. Mahmoodi and Sargeant (2017) conducted interviews with women who received adjuvant treatment for breast cancer. While they expressed a desire to be part of the decision-making process, it was clear that their perceived lack of power relative to expert knowledge prevented meaningful SDM from occurring. This highlighted the need to establish patient preferences within this communication framework, and to explore what SDM actually meant to all parties. This work is ongoing and deploying analytic strategies such a conversation analysis to examining what SDM ‘looks like’.

To prepare health professionals to communicate effectively it is essential that relevant training emphasises the critical importance of communication. Many assessments for health professionals rely heavily on objective structured clinical examinations (OSCEs), in which communication is often assessed. It is incumbent upon those of us determining assessment and curricula to continually research and assess the authenticity of these exchanges, and to deploy relevant analytic methods to appraise this. Sargeant et al (2017) used positioning theory to examine accounts of simulated patients (actors playing clinical scenarios) relating to their exchanges with medical students during examination. The actors held dissonant perceptions of students by referring to them in terms that did not align with the students’ emerging professional identities, which may have confounded assessment and feedback. The research certainly raised awareness of the need for continual reflection on the actor/student relationship across the curriculum. It is incumbent upon those of us determining assessment and curricula to continually research and assess the authenticity of these exchanges, and to deploy relevant analytic methods to appraise this.

This piece documents just two examples within a myriad of possibilities within health communication research. As we move into digitised environments in healthcare it is abundantly clear that research opportunities in this broad area will multiply in terms of talk, text and interaction. Health communication is a critical topic that can strengthen the nexus between research and teaching here within the School of Health and Human Sciences. Health professional practice and training has moved a long way from simple communication skills instruction, but a changing healthcare landscape demands a more nuanced appreciation of the individual and systemic elements of information exchange. This is to improve care, no to simply deliver it.

Communication is not merely a small component of care, but the backbone upon which care relies. It deserves continued focussed research.
2018 Publications of School of Health & Human Sciences


