Flinders University | Medicine & Public Health

Emerging Leaders

SHOWCASE

College of Medicine and Public Health

23-24 November 2023

Alere Function Centre
Flinders University, Bedford Park

Contents

Welcome

Dr Helen Harrison

Dr Dusan Matusica

This year we are thrilled to present the College of Medicine and Public Health (CMPH) Emerging Leaders Showcase (ELS) for 2023, a two-day event that offers a captivating journey into the realm of our future luminaries in research, education, and professional services.

Welcome to our Emerging Leaders Showcase 2023 Program! We have decided this year to take a more sustainable approach and provide this booklet in digital format only.

We are excited to host ELS, in person, at Flinders University's Bedford Park campus and virtually, connecting with our community of academics, researchers, clinicians, professional staff, and HDR students across the Flinders footprint. As we celebrate ELS's 5th year, we reflect on the remarkable transformation and advancement that has occurred across the college over the past 5 years. CMPH leads various performance benchmarks in research and teaching activities, with significant uplift driven by Early- and Mid-Career Academics (EMCRs), as well as a five-year high in HDR enrolments and completions.

The 2023 Showcase Committee has devoted considerable effort over the past year to craft a dynamic and engaging program that highlights the diverse and innovative endeavours of the upcoming generation of fearless leaders. We extend our heartfelt gratitude to all ELS sponsors and express our special appreciation to the CMPH and Flinders Health and Medical Research Institute (FHMRI) Executive teams and our Vice President Executive Dean, Professor Jonathan Craig, for their unwavering support of the Showcase. We also acknowledge the support of Flinders Foundation as a continual Platinum Sponsor over the past 5 years. The 2023 ELS program is inspired by FHMRI themes, including Medical Biosciences, Healthy Communities, and Clinical Translation. Over the course of two days, you will have the privilege of hearing from accomplished leaders across varied fields of research and education and learn about the pathways and strategies that have led them to become successful in their leadership roles. Following this, a vibrant and diverse program awaits, featuring approximately 50 short talks and poster presentations that showcase the best of our CMPH community.

Day 1 of the proceedings will commence with an official Opening by Professor Damien Keating, interim Dean Research and FHMRI Director. Our first plenary will be Professor Michelle Picard, Pro-Vice Chancellor Learning, Teaching, and Innovation, who will share her insights on leadership challenges in changing times, followed by Professor Claire Drummond, Deputy Dean Rural and Remote Health SA, who will share her experiences in following a not so linear path to moving forward in research. The first day then includes two sessions of short-talks, along with poster presentations and will culminate with an excellent networking opportunity on Thursday evening. You don't want to miss this!

Day 2 starts with an opening address by Professor Billie Bonevski, incoming Dean (Research) and FHMRI Director followed by a plenary session featuring Professor Steven Wesselingh FRACP FAHMS, Chief Executive Officer at NHMRC, who will delve into the future of our most significant funding organization. This will be followed by Professor Anand Ganesan, Professor and Matthew Flinders Fellow in Electrophysiology, providing his experiences and insights into leadership as a clinician researcher. A panel discussion centred on "Unlocking Education and Research Synergies with Industry and Community " will follow, featuring highly respected panel members, including Ms. Nalini Klopp, Dr. Lauren Thurgood, A/Prof Andrew Vakulin, and Dr. Adeline Lau.

Friday afternoon offers a special session introducing the Higher Degree by Research (HDR) student 3-minute thesis showcase, themed "The Future." The session will commence with an opening address from Dr. Yee Lian Chew, one of the HDR Theme Advisors, and will be complemented by an HDR Mentor opportunity during Afternoon Tea. We are also excited to host The Conversation for guidance on enhancing the impact of research and educational outputs. The program culminates with a second round of short talks, leading to the highly anticipated Showcase Award presentations.

On behalf of the entire Emerging Leaders team, we extend our sincere appreciation for joining us, and we hope that you will find this year's program both inspiring and enjoyable. Your presence will undoubtedly contribute to the success of this extraordinary event.

Helen Harrison and Dusan Matusica

ELS Co-Chairs, 2023

Program

DAY 1 | THURSDAY 23 NOVEMBER

08:30 - 09:15
Guest arrival – Registration & Coffee

09:15 - 09:25
Welcome to ELS | Dr Helen Harrison and Dr Dusan Matusica, ELS Co-Chairs

Acknowledgement of Country and Opening Address
Professor Damien Keating, Interim Dean (Research) and FHMRI Director, Deputy Director FHMRI (Discovery Biosciences)

09:25 - 10:30
Plenary
Professor Michelle Picard, Pro-Vice Chancellor Learning, Teaching and Innovation
Professor Claire Drummond, Deputy Dean Rural and Remote Health SA

10:30 - 11:00
Morning Tea

11:00 – 13:30
Session 1: Short Talks
Mixed Themes
Chairs: Dr Dan Thorpe and Ms Emma Thomas
Presenters:
Dr Nicola Parkin and Dr Maxine Moore
Dr Yuri Ogawa
Ms Jessica Chao
Dr Emmanuelle Souzeau
Dr Jenni Suen
Ass/Prof Christine Barry
Ms Pip Henderson
Ms Sue Bertossa
Ms Maddison Dix
Dr Norma Bulamu
Dr Jean Winter
Ms Cricket Fauska

13:30 - 14:30
Lunch & Poster Presentations
Presenters:
Mr Michael Luppino
Ms Andreea Popa
Ms Nadine Smith
Ms Emma Thomas
Mr Eshetu Andarge Zeleke
Dr Karissa Barthelson

14:30 - 16:30
Session 2: Short Talks
Mixed Themes
Chairs: Ms Andrea Morello and A/Prof Andrew Vakulin
Presenters:
Prof Jaquelyne Hughes
Ms Shanti Omodei-James
A/Prof Courtney Ryder
Mrs Lucy Heil
Dr Emma Kemp
Miss Amandi Hiyare
Dr Antonia Kolovos
Mr Dylan De Bellis
Ms Razia Rahman
Mr Rahkesh T Sabapathy
Dr Charlotte Downes

16:30 - 17:30
Drinks & Networking

DAY 2 | FRIDAY 24 NOVEMBER

08:30 - 09:00
Guest arrival – Registration & Coffee

09:00 - 09:15
Acknowledgement of Country and Opening Address
Professor Billie Bonevski, Dean (Research) and FHMRI Director

09:15 - 10:15
Plenary
Professor Steve Wesselingh FRACP FAHMS, Chief Executive Officer National Health and Medical Research Institute
Professor Anand Ganesan, Professor and Matthew Flinders Fellow in Electrophysiology

10:15 - 11:00
Panel Discussion
Unlocking Education and Research Synergies with Industry and Community

Panellists: Dr Lauren Thurgood, Ms Nalini Klopp, Associate Professor Andrew Vakulin, Dr Adeline Lau
Chair: Dr Dusan Matsuica

11:00-11:30
Morning Tea

11:30 – 12:30
Session 3: HDR: The Future
Chair: Ms Nicole Grivell and Ms Alana White, HDR Representatives
Speaker:
Dr Yee Lian Chew, HDR Theme Advisor
3-Minute Thesis (3MT) presenters:
Mr Zegeye Abitew
Ms Laura Gantley
Mr Mulugeta Gobezie
Mr Marshall Smith
Mr Yee Chern Tee
Ms Meseret Molla
Ms He Lin

12:30 - 12:40
FHMRI Consumer Advisory Board
Ms Evelyn Bennett and Mr Chris Tretheway

12: 40 – 13:00
'The Conversation'
Ms Jane Howard, Deputy Editor, The Conversation

13:00 - 14:00
Lunch

14:00 - 16:00
Session 4: Short Talks
Mixed Themes
Chairs: Dr Norma Bulamu and A/Prof Andrew Vakulin
Presenters:
Dr Pramod Nair
Dr. Bronwin Patrickson
Dr Miia Rahja
Dr Ashlea Bartram

Flinders Foundation Funded Session
Dr Natalie Stevens
Mr Ali Habib
Miss Jessica Williamson
Dr Ash Hocking
Dr Molla Wassie and Team
Dr Fiona Taverner
Mr Wondale Getinet Alemu

16:00 - 16:30
Afternoon Tea
Mentorship Program 'Meet & Greet'

16:30 - 17:00
Prizes & Conclusion of Showcase
Chairs: Shannon Macfarlane
Closing: Dr Dusan Matusica and Dr Helen Harrison

Organising Committee

Dr Helen Harrison
Senior Lecturer, Human Physiology

Dr Dusan Matusica
Senior Lecturer, Human Anatomy

Dr Norma B. Bulamu
Research Fellow, Health Economics

Mrs Shannon Macfarlane
Senior Lecturer, Paramedicine

Mr Brad Mitchell
Senior Lecturer, Paramedicine

Ms Andrea Morello
Senior Lecturer, Behavioural Health

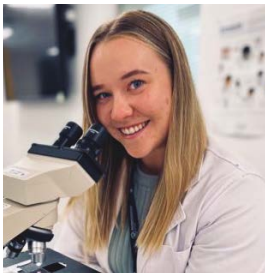
Ms Vibha Singh
Organisational Development Project Officer

Dr Dan Thorpe
Lecturer, Human Physiology

Dr Sara Tommasi
Associate Lecturer and Medical Scientist, Clinical Pharmacology

HDR

Ms Nicole Grivell
PhD Candidate, HDR Representative Clinical Translation



Ms Alana White
PhD Candidate; HDR Representative Molecular Biosciences

Ms Emma Thomas
PhD Candidate; FHMRI Sleep Health

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THE CONVERSATION

QUANTUM

Plenary Speakers

DAY 1

Professor Michelle Picard

Pro-Vice Chancellor (Learning Teaching and Innovation)

Presentation title: 'Carrying the boxes' and 'directing the buses': Higher Education Leadership in times of change

Michelle Picard currently serves as Pro-Vice Chancellor Learning and Teaching Innovation at Flinders University.

Michelle Picard started working in education and education leadership in 1989 where she led a donor funded Saturday school program for over 700 high school students in South Africa while studying in her first year at university. She has taught at every level from Primary and Adult Basic Education and Training to Researcher Education programs to PhD and post-doctoral fellows. Her university work has spanned enabling/Foundation programs, ELICOS, academic language and learning and lecturing, leading researcher education programs and supervising within Schools of Education, Business, Arts and Social Sciences.

Michelle has lived and worked in Australia, South Africa, the United Arab Emirates, and The Sultanate of Oman and regularly taught programs in Singapore.

Michelle has held a number of higher education leadership positions prior to joining Flinders including Associate Dean of the Faculty of the Professions and Director, Researcher Education at the University of Adelaide, Director of Studies at two ELICOS centres and numerous coordinator positions. She served as Deputy Director within the English Language and Foundation Studies Centre at the University of Newcastle from July 2016 to July 2019. She then worked as Dean of Teaching and Learning in the College/Faculty of Arts, Business, Law, and Social Sciences at Murdoch University from July 2019 to October 2022 as well as various stints as Dean Academic Operations and as Acting Executive Dean from March to October 2022. Throughout her career in higher education, Michelle has walked the line between academic and administrative roles and lead both academic/teaching and professional staff teams.

Professor Claire Drummond

Deputy Dean Rural and Remote Health, SA

Presentation title: Moving forward in research does not always have to be linear!

As the Deputy Dean of Rural and Remote Health in the College of Medicine and Public Health, Professor Claire Drummond is a strong believer in Flinders University's commitment to Rural Health in facilitating high quality multidisciplinary health education and research across rural communities in South Australia. Prior to her Deputy Dean role, Claire was the inaugural Academic Lead of Exercise Science and Clinical Exercise Physiology and is passionate about Exercise as Medicine. Claire has had success in several research areas such as Physical Activity, Body Image, Gender, Health, Biomechanics and Exercise Prescription. Most recently Claire has been involved in important sport and mental health research including a significant project on men and mental health that spans a range of ages and demographics including Aboriginal and Torres Strait Island males. She is also an integral member of the team that is evaluating the South Australian Sporting Mental Health Charter being implemented throughout South Australian sporting clubs. As a versatile and responsive researcher Claire has also been engaged in sports science research working with athletes conducting a range of max and sub-max fitness tests and metabolic measurements testing fitness levels. Claire also has a proven history in higher education particularly in innovation and new course development across Health and has vast knowledge in Teaching and Learning, particularly in Allied Health and Medical courses.

Plenary Speakers

DAY 2

Professor Steven Wesselingh FRACP FAHMS

Chief Executive Officer National Health and Medical Research Council

Presentation title: NHMRC-What's next?

Professor Wesselingh took up the position of the Chief Executive Officer (CEO) at the National Health and Medical Research Council (NHMRC) in August 2023.

Professor Wesselingh is an infectious diseases physician and researcher in HIV, vaccine development and the impact of the microbiome on human health. He undertook his undergraduate and doctoral training at Flinders University/Flinders Medical Centre in South Australia and his post-doctoral training at Johns Hopkins in the United States.

Until July 2023, Professor Wesselingh was the inaugural Executive Director of the South Australian Health and Medical Research Institute (SAHMRI) and the Research Director of Health Translation SA. He was also a member of NHMRC Council, Chair of Research Committee, and the President of the Australian Academy of Health and Medical Sciences (AAHMS).

Professor Wesselingh brings a wealth of medical experience, clinical leadership as well as national and international success. Between 2007-2011, he was Dean of the Faculty of Medicine, Nursing and Health Sciences at Monash University and from 2002-2007, he was Director of the Burnet Institute an independent medical research institute specialising in infectious diseases, immunology and global health.

Throughout his career, Professor Wesselingh has consistently worked towards the integration of high-quality medical research with health-care delivery, leading to improved health outcomes for Australia and the poorly resourced countries of the region.

Professor Anand Gansean

Professor and Matthew Flinders Fellow in Electrophysiology

Professor Anand Ganesan is Director of Cardiac Electrophysiology at Flinders Medical Centre, and Professor of Medicine at Flinders University. Anand leads an active program of research into atrial fibrillation. Anand's team studies AF using approaches derived from complex systems, physics, biomedical engineering and cardiac electrophysiology to gain insight into the patient-level mechanisms of arrhythmia.

Panel Speakers

DAY 2

Unlocking Research and Teaching Synergies Through Industry and Community Collaboration




Panel Speaker Biographies:

Ms Nalini Klopp

Nalini is the Manager of Work Integrated Learning and Careers and Employability and is part of Curriculum Impact team in the Deputy Vice-Chancellor (Students) portfolio at Flinders University. Within this role she supports the development of career ready graduates through facilitating, coordinating and managing the university's strategic approach to embedding work integrated learning and career-readiness into curriculum and student experiences. Critical to the success of these programs is collaboration with industry to co-conceptualise, co-design and co-deliver 'real world' learning experiences that empower students to apply their learning into practice, whilst exploring their professional identity. Prior to this role, Nalini has worked across both WIL and Careers at Flinders providing direct connections between students, academics and industry, and now leads a team who can mobilise their expertise to support the creation of meaningful connections between learning, industry experience and future careers.

Dr Lauren Thurgood

Lauren completed her PhD in 2011 in kidney disease at Flinders University. For the past 5-years, Lauren has been involved in several teaching and leadership roles at Flinders University, including the Chair of the College of Medicine and Public Health Honours Committee, Course Coordinator for the Bachelor of Clinical Science and topic coordinator for several topics in CMPH. She has extensive experience in course accreditations, curriculum design and building industry connections through her role as placement coordinator for laboratory medicine. Her current educational focus is centred around integrating Work Integrated Learning (WIL) into the Bachelor of Clinical Science, with the aim of enhancing the overall student learning experience. As a researcher, she has been well supported by several successful grant applications, including an ECR Beat Cancer Research Fellow as well as grants from the NHMRC and Flinders Foundation. Her research efforts are primarily directed towards investigating novel therapies in blood cancers, where she works closely with clinical staff at SALHN and engages in multidisciplinary partnerships, ensuring that her research adopts a translational approach.

Associate Professor Andrew Vakulin

A/Prof Vakulin has research interest and expertise in investigating the impact of sleep loss and sleep disorders on daytime sleepiness, sleep neurobiology and neurobehavioral function, particularly in relation to operational performance and motor vehicle accident risk. His research focuses on biomarker discovery to develop innovative ways to assess fitness to drive/work in patients with sleep disorders. More recently he has also focused on sleep health services research developing simplified models of care for sleep disorder screening, diagnosis and management in primary care setting. Particularly, he has been leading the development of innovative online sleep health decision support tools and digital sleep health solutions, utilising new sleep monitoring technologies for simplified screening, diagnosis and management of sleep disorders in the community and primary care. He is a Board member of the Sleep Health Foundation (SHF), Chairs the newly formed SHF Consumer Reference Council and the Australian Sleep and Alertness Consortium Steering Committee.

Dr Adelaide Lau

Dr Adeline Lau was awarded a BBiotech(Hons) degree from Flinders University before she joined the Childhood Dementia Research Group. She later completed a PhD at The University of Adelaide. Her research focusses on evaluating potential treatment strategies for early-onset dementias using patient-derived cell and animal models. Over the past two decades, Dr Lau has evaluated various therapeutic approaches, including viral gene therapies, stem cell transplantation, novel small molecule drugs such as pharmacological chaperones and substrate inhibitors, and nanoparticle-mediated gene transfer. Her collaborative research has received support from diverse funding sources, including the Medical Research Future Fund, patient foundations in Australia, the USA, and Europe, philanthropic contributions, and internal schemes. In 2020, she returned to Flinders University as a Research Fellow in Neurometabolic Disorders, continuing her commitment to advancing the understanding and treatment of childhood dementias.

Short talk abstracts

DAY 1 | SESSION 1

Demonstrating navigation behaviour in hoverfly using 3D virtual environments with low delay

Dr Yuri Ogawa

Many animals use visual systems to perform various behavioural tasks, including finding food, locating conspecifics, and navigating within cluttered landscapes. However, we still lack the fundamental system to quantify, represent, and predict trajectories under natural contexts to understand the mechanisms of their visually guided behaviour. Here, we have developed an innovative flight arena using the Unity game engine, and the markerless pose estimation software DeepLabCut (Nath et al, 2019). This combination allows creating 3D virtual environments to subsequently analyse flight behaviour during navigation. We validate the virtual reality arena using hoverflies (Eristalis tenax). We place a tethered hoverfly in the centre of the virtual reality arena and video capture the wing movements of the hoverfly from above. The wing movements control the visual scenery; for example, if the hoverfly' right wing beat amplitude is larger than the left, the scene moved as if she turned toward her left. The scenery changes associated with wing movements produce a perception of moving through a simulated environment. We demonstrated that female hoverflies navigate towards virtual flowers in the scene. Their paths to flowers were significantly straighter than when they fly in a scene having no flowers, suggesting a direct flight. We discuss virtual reality systems' usefulness in studying spatial learning and memory.

In vitro exposure to fatty acids drastically remodels the epithelial landscape in intestinal organoids

Ms Jessica Chao

Pro-obesity diets can drive global changes to the intestinal landscape. A high fat diet (HFD) disrupts the existing gut microbial environment which has direct effects on the epithelial cells lining the gut mucosa. Although many studies link HFD to intestinal dysfunction, little is known about how diet-induced changes to the epithelial composition can drive the development of obesity and type 2 diabetes. Intestinal organoids have been widely used to study epithelial cell function and mucosal regeneration in response to different dietary conditions. We aim to expose intestinal organoids to oleic acid (OA) to investigate changes in epithelial cell composition in response to a high fat environment. The relative densities of different epithelial cell types within the OA treated organoids will be analysed using multi-colour flow cytometry panel with gut-specific epithelial cell markers. FACS analysis of organoid cells after 72 hours of fat exposure indicate an increase in the proportion of transit amplifying cells and secretory progenitors, while the density of absorptive cells and absorptive progenitors decreased. Increased proliferation of transit amplifying cells could explain the increase in crypt depth and organoids size observed during the first 72 hours of OA treatment. The proportion of enteroendocrine and tuft also increased 3 days post OA treatment. These findings indicate that OA exposure steers organoids cells towards a secretory cell lineage. Whether this also augments the long-term density of hormone-producing enteroendocrine cells, which are important regulators of metabolism and gut motility, is yet to be investigated further.

Evaluation of gene association and variant interpretation to improve genetic diagnosis for glaucoma

Dr Emmanuelle Souzeau

A number of genes have been associated with inherited glaucoma. However, the evidence supporting gene-disease relationship and variants classifications varies. The Clinical Genome Resource (ClinGen) promotes international collaboration and evidence-based frameworks to evaluate the association of gene to disease and improve variants classification. To that end, the Glaucoma and Neuro-Ophthalmology Gene Curation Expert Panel (GCEP) and the Glaucoma Variant Curation Expert Panel (VCEP) have been established in 2021. The Glaucoma GCEP's goal is to assess the clinical validity of 70 genes associated with inherited forms of glaucoma and neuro-ophthalmic conditions. Under a standardized framework, genetic and experimental evidence is reviewed based on clinical expertise. Of the 16 genes reviewed so far, 11 had a confirmed association to the disease reported while 5 received a limited or disputed association. Similarly, the Glaucoma VCEP aims to review generic variant classification guidelines and refines them for specific genes and diseases. The group has recently published variant classification rules specific to the Myocilin gene, the most common cause of adult-onset glaucoma. It has curated 265 variants in the gene, all publicly available. Of the 84 variant classifications that were previously published, the VCEP work led to the re-classification of 22% and the resolution of conflicting classifications for 10%. The refined curation guidelines for Myocilin have improved variant classification and increased the number of variants publicly listed. The evidence-based approach to evaluate the strength of association of gene to disease will inform clinicians and testing laboratories on the clinical validity of testing for these genes.

Short talk abstracts

DAY 1 | SESSION 1

Critical features of multifactorial interventions for effective falls reduction in residential aged care: a systematic review, intervention component analysis and qualitative comparative analysis

Dr Jenni Suen

Background: Multifactorial fall prevention trials providing interventions based on individual risk factors have variable success in aged care facilities. To determine the key trial features that differentiate successful trials from unsuccessful trials, intervention component analysis (ICA) and qualitative comparative analysis (QCA) were undertaken. Methods: Randomised controlled trials (RCTs) from a Cochrane Collaboration review (Cameron, 2018) with meta-analysis data, plus trials identified in a systematic search update to December 2021 were included. Meta-analyses were updated. A theory of key features from the trialist's perspectives was developed through ICA of English publications and then assessed through QCA and a subgroup meta-analysis. Results: Pooled effectiveness of multifactorial interventions indicated a falls rate ratio of 0.85 (95% confidence interval, CI, 0.65-1.10; I2=85%; 11 trials). All tested interventions targeted both environmental and personal risk factors by including assessment of environmental hazards, a medical or medication review and exercise intervention. ICA emphasised the importance of co-design involving facility staff and managers and tailored intervention delivery to resident's intrinsic factors for successful outcomes. QCA of facility engagement plus tailored delivery was consistent with greater reduction in falls, supported by high consistency (0.91) and coverage (0.85). Associated subgroup meta-analysis demonstrated strong falls reduction without heterogeneity (rate ratio 0.61, 95%CI 0.54-0.69, I2=0%; 7 trials). Conclusion: Engaging aged care staff and managers to implement multifactorial intervention which tailor intervention delivery to each resident's intrinsic factors could consistently reduce falls in residential aged care. Co-design approaches may also enhance intervention success.

Embedding self- and peer-review in an anatomy program to promote development of professionalism skills for medical students

Associate Professor Christine Barry

Background Effective evaluation of professionalism skills remains a significant challenge in medical education despite decades of research. For health and medical practitioners, professionalism standards correlate with quality of care, health outcomes and career satisfaction. Research indicates that peers are better positioned to assess students' professional behaviours compared to academic staff. This study evaluated the effectiveness of structured self-reflection peer-assessment tasks in promoting professionalism skills development for 2nd year medical students.

Methods: A 5-step peer-evaluation task was integrated into a 12-week team dissection program. 1. Students were given learning outcomes and guidance regarding high quality effective feedback 2. Students completed Questionnaire 1 (self- and peer-evaluation) 3. Academic staff graded feedback quality 4. Students reviewed the feedback and grades 5. Students completed Questionnaire 2 (reflection). Quantitative data was analysed in PRISM and is presented as mean (SEM). Qualitative data was analysed using reflective thematic analysis.

Results: In 2022,158 students completed Questionnaire 1 in 37.2 (3.2) min and 159 completed Questionnaire 2 in 11.3 (0.9) min. Peer-rating (9.4 (1.0)) exceeded self-rating (8.4 (0.1) $p<0.0001$)). Qualitative analysis identified themes including respect, empathy, integrity, communication, teamwork and confidence. Most students (73%) provided quality feedback and most (93%) reported the feedback they received was useful.

Conclusion: Engaging in team-oriented tasks like cadaveric dissection contributes to students' professional identity formation and enhances teamwork skills. Findings support previous studies showing self- and peer-evaluation enrich the learning experience and promote development of self-regulated learning. Specific training in effective feedback can strengthen medical curricula and enhance graduates' preparedness for professional practice.

Opening a space for narratives in the medical curriculum

Dr Nicola Parkin and Dr Maxine Moore

Motivated by a shared commitment to a human-centered pedagogy for medical education, Maxine and Nicola have been exploring how a narrative orientation to teaching and learning can add value to the medical curriculum. Such an orientation is timely, given the advent of a new framework of medical competencies which emphasises person-centered care and the importance of working and learning with patients and communities as central to the educational endeavour. In a narrative orientation, the human story, whether told by patient, student, clinician or community, is granted the authority to teach, and acts as a humanistic, holistic and longitudinal integrator of learning, naturally crossing the bounds of medical disciplines, settings and professional perspectives. In this presentation we tell the story of our thinking to date and outline our intentions for further exploring the role of narratives across the medical program, beginning with mapping the natural narrative opportunities that already exist in our curriculum structures and practices.

Developing culturally competent future epidemiologists: learnings from current epidemiologists and academics

Ms Pip Henderson

The Flinders University's Reconciliation Action Plan describes a vision whereby reconciliation is achieved through social responsibility and accountability, truth-telling, mutual respect and understanding, championing of First Nations' peoples' self-determination, and the "embedding [of these] in the lived actions of the Flinders University community". Including Indigenous knowledges in university curricula is explicitly detailed as key to developing culturally competent graduates, as well as truth-telling and reconciliation. However, there is substantial evidence speaking to the silencing and exclusion of Indigenous perspectives in academia. Fear, discomfort, and uncertainty are often presented as reasons for this.

To support trepidatious academics, or those who are unsure about where to start in their journeys towards including Indigenous knowledges and content in their topics, we have - in conjunction with an Indigenous Reference Group - been developing a framework to guide respectful and authentic inclusion of Indigenous

knowledges into Epidemiology curriculum. To achieve this, we utilised a collaborative action-research approach whereby individual team members took on different roles and then worked together to bring theory and practice knowledge together.

This presentation draws on one key component of this process: qualitative data provided by interviews with academics and epidemiologists working in Indigenous health. Interviews were undertaken to gain insights about what early career and graduating epidemiologists should have included in their tertiary education, and what skills, attributes, and behaviours they would ideally possess and exhibit, in order to ensure culturally respectful and responsive practices by epidemiologists and other public health practitioners in the future.

Working at the community, research and teaching interface to build a culturally informed response to problem gambling in Aboriginal communities.

Ms Sue Bertossa

For the past 15 years Flinders Aboriginal Gambling Service has developed and provided interventions aimed at minimising the harmful impact of gambling on Aboriginal people living in South Australia. Through community consultation and piloted interventions, the service has amassed a deep understanding of gambling in an Aboriginal context, and is well placed to conduct research and disseminate knowledge that can lead to more positive outcomes for Aboriginal people. In this presentation participants will be introduced to innovative resources used to educate community and health providers on gambling, addressing the very real knowledge gap that exists in relation to behavioural addictions. Participants will also have the opportunity to learn of the current research project piloting the Flinders Yadu Gambling Motivation Questionnaire (FYGMQ), designed to identify the functions of gambling behaviour and motivations for change, while assessing severity of harm. This questionnaire has been devised in consultation with Aboriginal groups, and participants will be invited to consider potential practical applications beyond problem gambling.

What's the SCOOP? How do younger adults feel about colorectal cancer and its surveillance?

Ms Maddison Dix

Background: Colorectal cancer (CRC) incidence in younger adults (<50y) has been rising in Australia. Individuals with an elevated risk are recommended surveillance colonoscopies to reduce CRC-related incidence and mortality. It is important to establish how younger adults feel about CRC and its surveillance to ensure long-term engagement with clinical recommendations. This study aimed to compare attitudes to colonoscopy and fears of CRC between younger and older adults undergoing regular surveillance. Methods: We invited 400 younger (<50y) and 400 older (≥50y) adults enrolled in the "SCOOP" surveillance program (due to a family history of CRC or a personal history of polyps) to complete a survey assessing fears of CRC, and perceived ease of and barriers to colonoscopy. Chi-square and linear regression analyses were performed to explore differences between the two age groups. Results: 102 younger (median age: 41.4y) and 187 older (median age: 68.5y) adults completed the survey. Younger respondents reported fear of CRC scores that were 2.75 units higher than older adults (95% CI: 1.20-4.31, p<.001) and a higher proportion agreed that colonoscopy caused them nausea (31.6% vs 14.5%, p<.001). Approximately half of each age group agreed that having a colonoscopy is unpleasant (<50y: 51.5%; ≥50y: 47.8%, p=.550), despite most agreeing that it is easy to do (<50y: 78.6%; ≥50y: 77.4%, p=.824). Conclusion: Younger adults are more likely to experience increased fears of CRC and colonoscopy-related nausea than those over 50y. Future efforts may be required to address these concerns and colonoscopy-related barriers to ensure continued compliance with CRC surveillance.

Cost-effectiveness and budget impact analysis of a cardiac rehabilitation model of care for patients in rural and remote areas

Dr Norma Bulamu

Aim: To assess the cost-effectiveness and budget impact of implementing a model of CR for patients in rural/remote areas, the Country Health Attack Program (CHAP), compared to usual care (non-CHAP). Methods: Economic evaluation was conducted alongside a prospective cohort study, to evaluate 12-month attendance and completion of CR. Costs and outcomes were analysed from a health system perspective. The incremental cost-effectiveness ratios per CR attendance or completion were calculated. A budget impact analysis was conducted to estimate the financial burden of implementing CHAP for all eligible referrals to CR. Results: CHAP dominated non-CHAP: it was cheaper and more effective in terms of completions (costs: $6,542 vs $8,689; completions: 77.1% vs 57.5%). It was more costly but more effective to attend CR through the CHAP model (costs: $6,205 vs $5,855; attendance: 24.1% vs 23.8%). CHAP had a more than 50% chance of being cost-effective at any willingness to pay threshold for either outcome. Uptake of the CHAP model would result in a cost reduction ranging from $2,110,501 at 20% uptake of CHAP to $2,642,861 if all new patients referred attended and completed CR. The cost increase if they only attended but did not complete, ranged from $344,050 (20% uptake) to $430,834 (100% uptake). Conclusions: The CHAP model had >50% chance of being cost-effective in improving CR completion and attendance. Gradual uptake of CHAP for all patients referred for CR has up to $2.6m savings for the healthcare system if all patients complete their CR program.

Short talk abstracts

DAY 1 | SESSION 1

Effects of quetiapine on sleep and breathing and next day performance in people with comorbid OSA and difficulty maintaining sleep: A randomised crossover trial

Ms Cricket Fauska

Introduction: Quetiapine, is commonly prescribed “off-label” to people with insomnia symptoms. People with undiagnosed obstructive sleep apnoea (OSA) frequently report insomnia symptoms, particularly difficulties in maintaining sleep. Yet, there is limited information regarding the effects of quetiapine on breathing, sleep, and next-day performance in people with OSA. Methods: We performed a double-blind, randomised, placebo-controlled, cross-over study (NCT05303935) in 15 people with OSA who also reported difficulty maintaining sleep. Participants were studied overnight via polysomnography twice ~1 week apart and received either 50mg of quetiapine or a placebo (order randomised) just prior to sleep. 10-minute psychomotor vigilance and 30-minute AusEd driving simulator tests were performed each morning. Results: Quetiapine reduced the apnoea/hypopnea index (primary outcome) versus placebo ([Mean±SD] 20±12 vs. 27±16 events/h, p=0.02), arousal index (25±9 vs. 32±16 arousals/h, p=0.02), and increased sleep efficiency (87±9 vs. 80±11, p<0.01) without worsening hypoxemia (e.g., mean overnight SpO2 94.5±1.5 vs. 94.7±1.2 %, p=0.42). However, next morning vigilance (e.g., median reaction time 382±84 vs. 336±48ms, p=0.02) and driving simulator performance (e.g., steering deviation 95±54 vs. 73±39, p=0.02) were impaired with quetiapine versus placebo. Conclusions: Consistent with a hypnotic effect, a single night low dose of quetiapine reduces OSA severity as measured via the apnoea/hypopnea index and increases sleep efficiency without worsening overnight hypoxemia. However, there is evidence of next day impairment in vigilance and driving simulator performance. Grant support: This study was funded by a NHMRC Investigator Grant (1196261) COI: None of the authors report any conflicts of interest for this investigator-initiated, NHMRC-funded study.

The incidence of different genetic mutations in colorectal cancer and how they relate to the performance of a DNA methylation blood biomarker test.

Dr Jean Winter

Background: Colorectal cancers (CRC) are genetically heterogenous, with common mutations in ~50% of tumours. Our group developed a circulating tumour DNA (ctDNA) test for CRC, measuring DNA methylation of BCAT1 and IKZF1. It is unknown whether this test can detect CRC independent of the mutation profile. Aim: To determine the performance of the BCAT1/IKZF1 methylated ctDNA test for individuals with different CRC mutations. Methods: Plasma samples collected from patients with CRC before treatment were assessed for circulating cell-free DNA methylation of BCAT1 and IKZF1. A sample was deemed positive when either gene was methylated. Tumour tissue collected at surgery were assayed for mutations using the Illumina Cancer HotSpot Panel v2. Chi-square and multivariable logistic regression were used to compare tissue mutation status with ctDNA results. Results: 62 participants were recruited with n=11 stage I, n=27 stage II, n=22 stage II and n=2 stage IV CRC. 54.8% were ctDNA positive, with ctDNA positivity dependent on stage (p<0.001) and tumour size (p<0.001). 26 genetic mutations were detected in the tumour tissues, seven that were in high abundance (TP53, KDR, KRAS, APC, PIK3CA, BRAF, and KIT). After controlling for age, sex, tumour size and stage, no significant associations were found between presence of a mutation and BCAT1/IKZF1 ctDNA positivity. Tumours harbouring ATM mutations were significantly more likely to test positive for IKZF1 alone (OR:15.78, CI=1.57-158.73, p=0.02). Conclusions: A methylated BCAT1/IKZF1 ctDNA test is sensitive for detection of CRC independent of the primary tumour mutational profile, supporting its clinical use in all CRC patients.

Short talk abstracts

DAY 1 | SESSION 2

Exploration of barriers and enablers to diabetes care for Aboriginal people on rural Ngarrindjeri Country.

Ms Shanti Omodei-James

Addressing the disproportionate burden of diabetes prevalence in Aboriginal communities is critical. Existing approaches are overwhelmingly dominated by biomedical and behaviourist models that fail to consider Aboriginal ways of knowing, being and doing. Adhering to calls by peak Aboriginal health and research bodies, this qualitative research project adopted a strengths-based approach that privileged the lived experience of Aboriginal people throughout the diabetes care journey. Informed by both Aboriginal and Western research methods, the primary objective was to identify barriers and enablers to diabetes care for Aboriginal people living on Ngarrindjeri Country in rural South Australia. The results demonstrated that major barriers to diabetes care were consistently underscored by the ongoing impacts of colonisation. This was combated by a current of survival as participants identified enablers to diabetes care, including a history of healthy community, dual knowledge of Aboriginal and Western knowledge systems, and diverse motivators for action. Thematic maps were developed to illustrate the interconnectedness of major themes. It was concluded that despite the raft of barriers detailed by participants throughout the diabetes care journey, Aboriginal people on Ngarrindjeri Country are uniquely advantaged to address diabetes prevalence and management. It's argued that future health promotion efforts must acknowledge the sustained impacts of colonisation, while building on the abundance of community enablers, skills and strengths. Opportunities present to do so by adopting holistic, community-led initiatives that shift away from the dominant biomedical approach to diabetes care.

Factors influencing in-hospital death following moderate to severe traumatic brain injury (TBI) in Australia.

Associate Professor Courtney Ryder

Traumatic Brain Injury (TBI) is a leading cause of injury-related hospitalizations and deaths in Australia, imposing a considerable burden on individuals, families, and the healthcare system. TBI is defined as a change in brain function caused by an external force. Factors associated with in-hospital death following moderate to severe TBI remain complex and multidimensional. The Australian TBI National Data (ATBIND) Project is providing Australia-wide outcomes describing TBI incidence and influences. In this presentation we report on Phase 2 outcomes of the ATBIND Project, surrounding factors related to in-hospital death following moderate to severe TBI. Data from the Australia New Zealand Trauma Registry (ATR) were used from 1 July 2015 and 30 June 2020. Participant inclusion required presentation to an ATR hospital and an Abbreviated Injury Severity (AIS) score > 2. Univariable logistic regression analysis examined relationships between participant factors (i.e. cause, age) and in-hospital death. Independent predictors of in-hospital death were examined using a stepwise factor selection multivariable logistic regression model. Data were prepared and analysed in STATA, version 17 (College Station, Texas, USA). Among people presenting to a major trauma hospital in Australia following moderate to severe TBI, multiple factors were associated with in-hospital death. Factors associated with higher odds of in-hospital death included: injury occurrence outside daylight hours, ambulance retrieval, > 60 mins to reach hospital, endotracheal tube introduction prior to hospital arrival, hospital care outside Victoria, or increased length of stay in emergency departments.

Priorities for health restoration identified from Kikir Riu Dan Walmai- Our health ressurrected: An invited Zenadh Community Development partnership.

Professor Jaquelyne Hughes

For millenia tribal governance underpinned the health and survival of Torres Strait Islander people who were (and are) connected within families, islands, waterways, land and marine environments. Type 2 diabetes was first diagnosed in the 1960's in near west Torres Strait. In 2000 the Torres Strait community prioritised to stop diabetes and kidney disease. In the last decade, tribal elders recognise kidney failure has caused lower life experience and survival. They now propose to lead a community driven initiative to open paths to health restoration and interrupt kidney disease. Tribal elders of Badu island invited a partnership with academics* of Wagadagam and Kulkulgal, named as "Kikirriu dan Walmai - Our Health Resurrected." Through prioritising Torres Strait islander leadership, autonomy and cultural protocol, we seek to identify the extent of need for building "Doindai Iawad - the dialysis healing house" on Badu island, within the near western island cluster (Mabuyag island, Badu, and Moa- St Pauls and Kubin, 2021 census population 1243), and families who live and spend time in Thursday Island, Cairns or Darwin. Kikirriu dan Walmai - Our Health Resurrected will prepare a report identifying community need of Doindai Iawad and health restoration. The report will be used to advocate for infrastructure support for very remote located haemodialysis units, and to locally advance collaborative initiatives for additional health-restoration that near west Torres Strait islander people can lead, deliver and champion.

*Prof JT Hughes, Assoc Prof K Canuto, Rural and Remote Health, CMPH, Flinders University

Short talk abstracts

DAY 1 | SESSION 2

Experiences and impact of healthcare transition on young people with Type 1 Diabetes who have transitioned from paediatric to adult care: A Systematic Review.

Mrs Lucy Heil

Globally, the incidence of Type 1 Diabetes Mellitus is increasing, with a growing number of adolescents going through the healthcare transition from paediatric to adult care. Whilst this transition is known to be a high-risk period, there is a lack of high-quality research to inform programs, with insufficient input from emerging adults. The aim of this study is to determine what is currently known about the experiences and impact of healthcare transition with an intention to use the patient perspective to provide a guide for service design & implementation. A systematic review was undertaken, according to the PRISMA guidelines for Systematic reviews, using MEDLINE, Pubmed, PsychInfo and CINAHL. Studies published from June 2014 to June 2023 were considered for eligibility, data extraction and quality assessment. Studies were included if participants were emerging adults with T1DM, who had begun or completed the transition to adult care and reported qualitative data from the patient perspective. Studies were analysed using reflexive thematic analysis, according to the Braun & Clarke 2006 theory. A total of 596 citations were reviewed and 38 studies met the eligibility criteria. Four themes emerged; (i) Shifting the gears of responsibility, (ii) Coordinated care the bridge the limbo, (iii) Owning my diabetes as an adult, and (iv) I'm more than numbers. Whilst these themes highlighted the need for improved transition, few studies demonstrated clear action towards closing these gaps, with a lack of patient centered approach to change or plans to inform local programs and health providers of their findings.

Access to digital health in cancer care: exploring the perspectives of people living rurally and/or with socioeconomic disadvantage.

Dr Emma Kemp

Introduction: Digital health approaches in cancer care can assist in coordinating care and supporting self-management. However, people who already face increased barriers to cancer care due to living with socioeconomic disadvantage and/or living rurally, can face challenges with accessibility, usability and relevance of digital technologies, increasing risk of digital exclusion and widening of disparities in cancer outcomes. This research aimed to examine perspectives of people living with cancer in socioeconomically and/or geographically disadvantaged circumstances on how they can be better supported in accessing digital health for cancer care. Methods: Qualitative interviews were conducted with individuals living with cancer at risk of socioeconomic and/or geographic disadvantage. Participants were approached via promotion (flyers/staff approach) at Cancer Council SA lodge and/or outreach nurse. Interviews were conducted in person or by telephone, using a semi-structured topic guide, and were thematically analysed. Results: Interim data from 10 participants (7 women, 8 rural) indicated digital health resources could be accessible for people living rurally, however some experienced lack of resources/guidance at rural treatment centres. People living with socioeconomic disadvantage more frequently discussed limited internet connection as a barrier, with smartphone access improving resource accessibility for some. Even with reliable internet access, engagement with digital resources was influenced by personal preferences. Conclusion: People with cancer experiencing socioeconomic/geographic disadvantage can be better supported in accessing cancer care resources by ensuring availability of print and smartphone-compatible digital resources, and addressing limited resource availability in rural areas, potentially by linking with large centres and organisations.

Using data linkage to understand the kidney health of a cohort of young people from the ARDAC study.

Miss Amandi Hiyare

Chronic kidney disease (CKD) is a silent, yet progressive, disease that impacts about 10% of the population worldwide. In Australia, the hospitalisation rate for CKD is 5.3 times higher among Aboriginal and/or Torres Strait Islander peoples than non-Indigenous peoples. This health gap is intrinsically linked to the social determinants of health. The 'Antecedents of Renal Disease in Aboriginal Children and Young Adults' (ARDAC) study has linked biomedical cohort data to administrative datasets and is the largest data linkage study on the kidney health of First Nations Peoples internationally. The current study utilised this data linkage to describe the population of young people with and without CKD from the ARDAC cohort. Data sources including hospital, deaths, emergency department, pharmaceutical, Medicare and dialysis, and transplant data were used to characterize the CKD landscape among the ARDAC cohort. A hybrid case definition to identify participants with CKD was informed by an extensive review of published literature and input from ARDAC study chief investigators. Biostatistical analysis consisting of descriptive statistics and bivariate analysis was utilised to provide a comprehensive demographic profile of ARDAC participants. Our early findings suggest most young people may be unaware of their CKD status unless admitted to the hospital for other issues and that early detection is imperative in slowing the progression of CKD. This research is pivotal in understanding the CKD burden among young peoples to ultimately guide interventions and policies aimed at reducing health disparities among this population.

Polygenic risk scores: A novel clinical tool to address the healthcare burden within secondary glaucoma surveillance.

Dr Antonia Kolovos

Purpose: To demonstrate the clinical utility of a glaucoma polygenic risk score (PRS) in caring of patients with ocular pseudoexfoliation (PEX). Method: A retrospective cohort study consisting of participants from the Australian and New Zealand Registry of Advanced Glaucoma with pseudoexfoliation (n=386 participants with PEX glaucoma, n=142 PEX alone). PRS was expressed as a centile. Multivariable logistic regression and Kaplan Meier models of PRS centile predicting glaucoma status were performed with age and sex as covariates. Results were replicated within the separate Blue Mountains Eyes Study (BMES, n=16 PEX glaucoma, n=62 PEX alone). Results: Within the discovery cohort, PEX cases in the top quintile were at 4 times ($p<0.001$) greater odds of developing glaucoma than those in the bottom quintile, were diagnosed on average 4 years younger ($p=0.018$) and were more likely to require

surgery (p<0.001). Similar results were replicated in the BMES cohort (mean PRS of PEX glaucoma cases higher than PEX without glaucoma, p<0.001). In both discovery and replication cohorts, the "threshold" PRS required to develop glaucoma was lower for those with PEX glaucoma compared to those with primary glaucoma. Conclusion: The glaucoma PRS effectively stratifies patients at risk of developing secondary glaucoma from pseudoexfoliation. The threshold for "high polygenic risk" is different amongst primary and secondary glaucoma, demonstrating their additive risk profiles. Clinicians can use the PRS tool prospectively to identify which patients with PEX require closer monitoring prior to any vision loss. The PRS tool can be used to inform glaucoma surveillance programs amongst at-risk individuals.

Immunological and respiratory effects in a healthy rodent model after inhaling environmentally relevant radon.

Mr Dylan De Bellis

Radioactive radon gas is naturally occurring and contributes a significant portion of the public background radiation dose. It is generally accepted that indoor radon is the second leading cause of lung cancer after smoking; however recent evidence suggests that exposure to low doses may have positive effects. In this study, we investigated the effects of environmentally relevant radon doses on pulmonary immune response and function in a healthy in vivo rat model using our purpose-built radon chamber. Rats were housed with or without radon gas in the chamber for an 18hr, 90hr, 2x 90hr, or 4x 90hr duration. Following exposure, a tracheostomy under anaesthetic was performed and respiratory function was determined by a small animal ventilator. Rats were humanely killed, tissues removed, and immunological/biological outcomes were assessed. All outcomes suggest that exposure to environmentally relevant radon levels do not significantly affect respiratory function and morphology or elicit immunological responses. However, a change in pulmonary immunology and function in rats housed in the chamber over extended time is indicated, with the exact mechanism requiring further investigation. In conclusion, this study established a model of environmentally relevant radon exposure in a healthy animal model. This will allow further investigation into the role of low dose radon in cancer development as well as its potential therapeutic applications in alleviating symptoms of inflammatory conditions.

CDK9 inhibition as a therapeutic strategy in advanced prostate cancer.

Ms Razia Rahman

Prostate cancer is the most frequently diagnosed non-skin malignancy and a leading cause of cancer-related death in men worldwide. The androgen receptor (AR) is the key driver of prostate cancer growth; thus, the primary treatment for metastatic prostate cancer involves AR-targeted therapies which blocks the activity of AR. While most men initially respond to these therapies, they are not curative, and tumours inevitably progress to a lethal disease state termed castration-resistant prostate cancer (CRPC). The development of new and effective therapies for CRPC is essential to improve patient outcomes. One plausible therapeutic target for CRPC is Cyclin-dependent kinase 9 (CDK9), which phosphorylates RNA polymerase II and thereby regulates transcriptional elongation.

An insight into the GPCRome's subcellular localisation via high throughput cloning.

Mr Rahkesh T Sabapathy

The localisation of a protein within a cell can inform on its functional role. G protein-coupled receptors (GPCRs) demonstrate differences in their trafficking and signalling profiles, in an interplay with their subcellular localisation. This property is studied either using antibodies or fused fluorescent markers. Integrating a fluorescent protein into the receptor of interest is achieved via cloning and ultimately provides real time visualisation of the protein in a cell. However, traditional cloning methodologies are limited in their scalability to a few genes at any given time. Consequently, this contributes to the subcellular localisation of many GPCRs remaining underexplored. Here, we show a high throughput cloning strategy that facilitated tagging 100s of GPCRs in parallel, and when transiently transfected, allowed their visualisation in situ. Through Golden Gate cloning, combined with new cell growth and selection strategies as well as next generation sequencing, we generated a near exhaustive library of seamless, mCherry tagged GPCRs. Advancements in high content imaging used concurrently with rapid library generation enables an insight understanding of the GPCRome's spatial organisation. The developed methodology could also be applicable to other protein families, and even non-coding gene elements.

Desmoglein-2 is associated with poor outcomes in multiple myeloma.

Dr Charlotte Downes

Multiple myeloma (MM) is an incurable bone marrow malignancy caused by the uncontrolled proliferation of plasma cells. MM is the second most common haematological malignancy worldwide and despite recent advances in therapy, 50% of patients die within 5 years of diagnosis. We recently discovered that a subset of MM patients express the adhesion protein Desmoglein-2 (DSG2) on the surface of their neoplastic plasma cells. Analysis of a publicly available microarray dataset indicated that DSG2 is elevated in ~20% of MM patients at diagnosis, and that DSG2-high patients are three times more likely to die within 6 years of diagnosis. Importantly, the strong association between DSG2 expression and poor prognosis was independent of genomic subtype and routinely measured MM biomarkers, positioning DSG2 as a promising prognostic biomarker. We have established a biobank at Flinders Medical Centre that is comprised of samples collected from 149 newly diagnosed or relapsed MM patients. Of the newly diagnosed MM patients recruited to our study, 15% express high levels of DSG2 on their neoplastic plasma cells and we have shown that DSG2 expression is associated with an almost 4-fold risk of progression within 10 years of diagnosis. Our data suggests that MM patient outcomes could be improved by rapidly identifying poor prognosis DSG2-high patients by flow cytometry who may benefit from early treatment intervention. We are now investigating the functional roles of DSG2 in MM and the efficacy of DSG2 inhibition to determine whether DGS2-targeting immunotherapies may improve outcomes for this high-risk subset of MM patients.

Poster Presentations

DAY 1 & DAY 2 | LUNCH SESSION
2pm-2:30pm – Mixed Themes

Exploring Commonalities Between Adult and Childhood Onset Dementia: Insights from Zebrafish Models

Dr Karissa Barthelson

Dementia is not only a disease for the elderly. There are more than 70 individual genetic diseases which cause dementia in childhood. Sanfilippo syndrome, a recessively inherited lysosomal storage disorder is one of these diseases, affecting ~1 in 70,000 children in Australia. Sanfilippo is colloquially referred to as "childhood Alzheimer's" due to the similarity in symptoms that children with this disease experience. Increasing evidence suggests that there are shared mechanisms between the childhood dementias and Alzheimer's disease. However, Sanfilippo and AD have never been directly compared in an experimental system. Here, I present the first comparisons of Sanfilippo and AD using zebrafish as a model organism. Bulk RNA-seq analysis of young and aged zebrafish revealed age-related similarities in changes to gene expression implicating the extracellular matrix, oxidative phosphorylation and the lysosome. Identifying commonalities opens new avenues for drug discovery and treatment strategies that could be effective across different types of dementia. By targeting these convergent pathways, we aim to develop interventions that have broad applicability in the treatment of neurodegenerative diseases.

Michael Luppino

Engineering custom calcium-imaging feature extraction methods targeted at machine learning for a chronic pain point-of-care diagnostic device prototype.

Background/Aims: To date, there are no simple and cheap blood-based test that allow for the fast and reliable identification of complex chronic pain subtypes. There is significant opportunity for the development of new diagnostic tools with the current escalation in artificial intelligence (AI) aided technologies such as machine learning. This study describes a new method for deriving features from calcium imaging datasets used for a proof-of-concept serological screening device. Methods: High-resolution confocal microscopy data-sets from calcium activation assays utilising a novel "neuron-on-chip" device, obtained from screening of serum from chronic pain models including osteoarthritis, cancer induced peripheral neuropathy, inflammatory pain, and partial nerve ligation, were used to engineered custom python-based code to extract reproducible and discriminating features of neuronal activity profiles capable of accurately identify specific chronic pain subtypes. Results: Features including maximum fluorescence intensity, first and second derivative maxima, number of peaks, decay time, area under curve, associated time points and cell activation identification are shown to be reproducible features of a calcium vs time curve. Individual extracted features provided a granular and detailed analysis showing statistically significance differences for multiple features.

Conclusion: The preliminary results demonstrate proof of concept for using a neuron-on-chip biosensor to differentiate between multiple pathologically distinct and clinically relevant models of chronic pain with an unbiased and reproducible analysis. This is a critical step that establishes the analytical foundation for a prototype point-of-care serum test for chronic pain using machine learning.

Andreea Popa

Full characterisation of excitotoxic lesions in a sheep model of Huntington's disease

Huntington's Disease (HD) is a debilitating illness characterised by involuntary movement patterns, cognitive & psychological disturbances. The disease is autosomal dominant and varies in expressivity and penetrance in relation to the amount of excess CAG trinucleotide repeats in the gene encoding the Huntingtin protein. Due to the inevitable progression of HD, the disease affects the individual, but has also shown to have a significant negative impact on the family as well. Currently, there is no cure for HD. However, with the emergence of the large animal models, they can be used as a template to develop therapeutics based on the understood pathophysiology. The aim of this study is to quantitatively characterise excitotoxic lesions of sheep caudate by conducting a detailed histological examination. O'Connell and researchers had previously established the model, introducing quinolinic acid into the caudate putamen of sheep and subsequently evaluating the lesions via MRI. This study will continue the work of O'Connell by sectioning from the archived samples of brain tissues of both lesioned and non-lesioned sheep. We have conducted immunohistochemistry staining with GFAP to detect astroglial responses and Ubiquitin which detects protein degradation. Other disease lesions will be evaluated in the future. These experiments will assist in understanding the extent of neuronal cell response to induced lesions in sheep caudate, allowing for phenotypic comparison with similar lesions found in the brain of both mice and humans with HD. The results may enable the model to be utilized in evaluating potential therapeutic approaches for HD in the future.

Nadine Smith

Metformin induces an AMPK-independent NEAT1 isoform switch in colorectal cancer cells

Approximately 150 million people worldwide take metformin for the management of Type II Diabetes Mellitus. Metformin can reduce colorectal cancer (CRC) incidence, although the mechanisms of action are not fully understood. The lncRNA NEAT1 is dysregulated in many cancers, especially CRC. The single exon gene produces two isoforms, NEAT1_1 and NEAT1_2, through alternative 3′-end processing, with the latter providing the essential scaffold for nuclear paraspeckle formation. It was previously thought that NEAT1_1 only exists to keep the NEAT1 locus active for rapid paraspeckle formation. However, a recent glycolysis-enhancing (Warburg) function for NEAT1_1, contributing to cancer cell proliferation, has been demonstrated. Prior studies suggest NEAT1 can act in either a tumour-suppressive or oncogenic manner, depending on the isoform expressed. Due to their overlapping 5'-ends, independent quantification of NEAT1 isoforms has proven challenging. We have developed a novel technique for the quantification of the individual NEAT1 isoforms. We use this to demonstrate that therapeutic doses of metformin drive a NEAT1 isoform switch to induce nuclear paraspeckle formation in colorectal HCT116 and LIM1215 cancer cells when grown at physiological glucose levels. It is widely accepted that metformin activates AMPK, in part through the inhibition of mitochondrial complex 1. In this study, the metformin induced NEAT1 isoform switch still occurs in AMPK α1 and α2 null HCT116 cell lines. Regardless, the metformin-induced isoform switch and subsequent paraspeckles may promote cell survival under stress.

Emma Thomas

An investigation of a novel mechanism of OSA: Upper airway reflex responses in non-obese people with MS

Introduction: Upper airway reflex responses to negative pressure are important to prevent upper airway narrowing and closure. Recent evidence indicates ~30% of people with multiple sclerosis (MS) have an impaired upper airway dilator reflex response. Thus, the aims of this study were to compare genioglossus muscle reflex responses and upper airway collapsibility in non-obese people with MS, with and without OSA. Methods: Non-obese adults with MS and OSA vs MS without OSA were instrumented with pressure sensors at the choanae and epiglottis. Bipolar fine wires were inserted into the genioglossus. A nasal mask and pneumotachograph were attached to a breathing circuit to deliver brief (~250ms) suction pressure (~-12cmH2O) during early inspiration every 2-10 breaths while awake. Genioglossus reflex onset latency, peak latency and peak amplitude were quantified. The upper airway collapsibility index was the percent difference between choanal and epiglottic airway pressures during negative pressure. Results: 15 people with MS (6 males), aged 48±13years, BMI=25±3kg/m-2 and AHI=13±17events/h (mean±SD) were studied. 47% had OSA (AHI>10events/h). Genioglossus reflex excitation onset latency (22±2 vs. 24±19ms), peak excitation latency (37±11 vs. 38±23ms) and peak amplitude (258±125 vs. 205±95%) were not different between OSA vs. non-OSA. The upper airway was more collapsible in people with OSA (49±32 vs. 17±16%, p=0.04). Conclusions: There is a high prevalence of OSA among non-obese people with MS. There was no systematic difference in upper airway dilator muscle function. However, the upper airway is ~65% more collapsible in people with MS and OSA despite absence of obesity.

Eshetu Andarge Zeleke

Acceptability and uptake of HIVST among young people in the sub-Saharan Africa: a mixed methods systematic review

Background: Even though young people are disproportionately affected by the Human Immuno-deficiency Virus (HIV) pandemic in the sub-Saharan Africa, few test for HIV despite global targets of testing 95% of people with HIV infection. HIV self-testing (HIVST) is a new and proactive way of testing oneself for HIV infection which is deemed to overcome the existing system and individual level barriers of testing. Even though evidence on HIVST is emerging among young people in the sub-Saharan Africa, it is not well synthesized to inform policy and practice. This study is aimed to synthesize such evidence on the acceptability, use and perspectives of YP on HIVST in the region.

Methods: A mixed methods systematic review of literatures was conducted after preparing a search strategy, searching in different databases of published articles (MEDLINE, CINAHL, SCOPUS, PROQUEST, PSYCHINFO, Web of Science) and gray literature sources (Google, Google Scholar, and others), critical appraisal, data extraction. Using STATA software version 18, meta-analysis was conducted to pool estimates of acceptability and use of HIVST. Nvivo software is used to code and categorize qualitative data. Inductive and deductive thematic analysis was done to synthesize the findings.

Results: The pooled acceptability and use of HIVST among young people was 74.11 (56.15, 92.08%) and 55.39 (28.51, 82.27%) respectively. Young people's perceived barriers were low awareness, fear of positive test result while testing alone, lack of counselling and support, physical discomfort from finger pricking (blood based HIVST), precision of the test result, high cost of self-testing kits, and social coercion in group settings. Facilitators to HIVST included that it has social returns through personal empowerment, and autonomy; ensures privacy and confidentiality; promotes HIV prevention and care behaviour; convenience to time, place and technical skill and availability in different modalities and settings. Mixed feelings were reflected on the perceived barriers and facilitators to HIVST. Conclusions and implications: HIVST is highly accepted but not well utilized among YP in the SSA. YP have had diversified needs for self-testing with mixed preferences for location and modalities of service provision. Individualized support and counselling, peer-led and mHealth aided interventions are called for.

Short talk abstracts

DAY 2 | SESSION 4

The molecular basis of drug-drug interactions mediated by cytochrome P450 2C9

Dr Pramod Nair

Positive heterotropic cooperativity, or 'activation', results in an instantaneous increase in enzyme activity in the absence of an increase in protein expression. Thus, cytochrome P450 (CYP) enzyme activation presents as a potential drug-drug interaction mechanism. It has been demonstrated previously that dapsone activates the CYP2C9-catalyzed oxidation of a number of NSAIDs in vitro. Here, we conducted molecular dynamics simulations (MDS) together with enzyme kinetic investigations and site-directed mutagenesis to elucidate the molecular basis of the activation of CYP2C9-catalyzed S-flurbiprofen 4'-hydroxylation and S-naproxen O-demethylation by dapsone. Supplementation of incubations of recombinant CYP2C9 with dapsone increased the catalytic efficiency of flurbiprofen and naproxen oxidation by 2.3- and 16.5-fold, respectively. MDS demonstrated that activation arises predominantly from aromatic interactions between the substrate, dapsone, and the phenyl rings of Phe114 and Phe476 within a common binding domain of the CYP2C9 active site, rather than involvement of a distinct effector site. Mutagenesis of Phe114 and Phe476 abrogated flurbiprofen and naproxen oxidation, and MDS and kinetic studies with the CYP2C9 mutants further identified a pivotal role of Phe476 in dapsone activation. MD simulations additionally showed that aromatic stacking interactions between two molecules of naproxen are necessary for binding in a catalytically favorable orientation. In contrast to flurbiprofen and naproxen, dapsone did not activate the 4'-hydroxylation of diclofenac, suggesting that the CYP2C9 active site favors cooperative binding of NSAIDs with a planar or near planar geometry. More generally, the work confirms the utility of MDS for investigating ligand binding in CYP enzymes.

In-Depth Co-Design of Mental Health Monitoring Technologies by people with lived experience.

Dr Bronwin Patrickson

Digital health monitoring solutions can generate and process extensive electronic record data. Such capacities promise to enhance mental health care but also risk contributing to further stigmatization, prejudicial decision-making, and fears of disempowerment. In this presentation I discuss the problems and solutions identified by nine people with lived experience of being mental health care consumers or informal carers. Over the course of ten facilitated focus group format sessions (two hours) between October 2019 and April 2021, the participants shared their lived experience of mental health challenges, care, and recovery within the Australian context. To support the development, design, and implementation of monitoring technologies, problems, and solutions were outlined in the following areas—access, agency, interactions with medical practitioners, medication management, and self-monitoring.

Reablement interventions for individuals living with dementia; from an Australian implementation study to international policy

Dr Miia Rahja

Dementia is one of the leading causes of dependency and disability worldwide. The World Health Organisation has called for implementation of evidence-based programs that enhance function and capability of individuals living with dementia. Improved function means that these individuals would require less help to remain living at home, which can produce significant benefits to health and social care sectors. This presentation begins with describing the findings from a project that aimed to change dementia care practice in Australia and inform policy through implementation of a dementia care program within our heath and aged care context (2016-2019). Referred to as 'reablement', the program adopts a philosophy of what individuals with dementia can do given appropriate support, and it upskills family carers to continue provide care at home. The program showed improved carer well-being and activity engagement for the individual with dementia, and gave participants a "second chance" to remain living in the own homes. An economic evaluation showed almost A$6.2 million societal gain from including the program in dementia care provision in Australia. I will then discuss key messages from a 'heath policy issues brief' (2021) that was produced to further inform Australian decisions makers about reablement programs for individuals with dementia. These include stigma associated with dementia and the need to recognise dementia as a disability. Finally, in 2022, an international expert group was formed to produce guidelines about reablement for individuals with dementia. This presentation finishes with a cross-cultural comparison and summary of implementation challenges from an international perspective.

How do Australian parents' beliefs influence their supply of alcohol to adolescents? A national survey guided by the Theory of Planned Behaviour

Dr Ashlea Bartram

Introduction: Parents are the most common source of alcohol for Australian adolescents who drink alcohol, and parental supply is associated with increased risk of subsequent adolescent alcohol use and harms. Drawing on the Theory of Planned Behaviour, we examined how parental supply is associated with attitudes, perceived norms, and perceived behavioural control to inform health promotion initiatives. Method: We conducted an online cross-sectional survey of N=1197 Australian parents of adolescents aged 12-17 years in April-May 2022. We performed multivariate logistic regression to examine associations between self-reported parental supply of alcohol (primary outcome) and measures of: attitudes (beliefs about health harms and benefits of alcohol for adolescents), perceived norms (beliefs that friends/other parents supplied alcohol), and perceived behavioural control (beliefs that their influence as parents will be overridden by cultural expectations). Results: Controlling for demographic covariates, parents were more likely to have supplied a full drink of alcohol to their adolescents if they agreed with statements suggesting that alcohol had benefits for adolescents (AOR=2.42, 95% CI=1.96, 2.99), disagreed with statements suggesting that alcohol can harm adolescents (AOR=0.39, 95% CI=0.29, 0.52), and believed that their friends who were parents (AOR=6.14, 95% CI=3.68, 10.24),

or other parents (AOR=4.54, 95% CI=2.52, 8.18), supplied alcohol. Discussions and Conclusions: Parental supply of alcohol was associated with attitudes and perceived norms. Future research could investigate whether messages targeting these specific constructs (i.e., increasing awareness of negative health effects of adolescent alcohol consumption and correcting misperceptions of benefits and norms) can influence parents' future supply intentions.

Flinders Foundation Funded Projects

Do COVID-19 vaccines induce trained immunity?

Dr Natalie Stevens

In addition to inducing adaptive responses, it is increasingly appreciated that some vaccines can profoundly influence innate immunity. This is mediated in part by the induction of trained immunity (TI) - an epigenetic and metabolic reprogramming of innate immune cells priming them for enhanced responses against a range of infections. Since 2021, over 13 billion doses of COVID-19 vaccines have been administered globally, including during pregnancy. Our program of research aims to investigate whether direct or maternal COVID-19 vaccination in pregnancy induces TI. First, we assessed whether direct vaccination with two doses of either adenoviral or mRNA based COVID-19 vaccines induced TI in a cohort of 46 adults. We profiled PBMC cytokine responses pre-vaccination and 28 days post-vaccination via stimulation with bacterial, viral, and fungal ligands, and assessed pre- and post-vaccination monocyte chromatin accessibility via ATACseq as a measure of epigenetic remodelling. Post-vaccination samples did not exhibit enhanced cytokine responses or alterations to monocyte chromatin accessibility, suggesting that TI was not induced after 2 doses of either vaccine. In contrast to these data, our preclinical studies suggest that mRNA COVID-19 vaccination in pregnancy may induce TI in the offspring. Two-week old mice born to dams vaccinated during pregnancy exhibited enhanced cytokine responses and altered chromatin accessibility profiles in monocytes. Given the widespread use of COVID-19 vaccines in pregnancy and potential implications for pathogen defence in early life, our ongoing work will assess whether TI is induced in infants following maternal COVID-19 vaccination as part of the NHMRC-funded Vaccimum study.

Ferroptosis: Lipids at the crossroad of cell death in Multiple Myeloma

Mr Ali Habib

Introduction: Multiple myeloma (MM) is an aggressive disease of plasma cells. MM remains incurable, and novel therapeutic approaches are crucial in improving patient outcomes. Unlike other B-cell malignancies, such as diffuse large B-cell lymphoma (DLBCL), MM cells are generally resistant to ferroptosis-mediated cell death, but the mechanisms of this resistance are currently unclear. Ferroptosis is a newly coined form of iron-dependant regulated cell death. It relies on polyunsaturated fatty acids in cell phospholipids, crucial for lipid peroxidation, a central step in ferroptosis. In this study, we explored whether the composition of phospholipids, correlates with the sensitivity of MM and DLBCL cells to ferroptosis. Results: Analysis of the lipidome of the MM and DLBCL cells revealed a higher proportion of phospholipids containing PUFA (PL-PUFA) in the DLBCL than in the MM cells. In contrast, MM cell lines contained a higher proportion of monounsaturated fatty acids. Addition of exogenous PL-PUFA to MM cells induced dose-dependent cell death that correlated with the degree of unsaturation of the lipid species. Cell death and lipid oxidation induced by supplementation with the lipids was inhibited by liproxstatin-1, confirming the mechanism of cell death as being via ferroptosis. Conclusion: In this study, we demonstrated a correlation between lipid composition and the sensitivity of MM and DLBCL cells to ferroptosis. Addition of specific lipid species that were underrepresented in MM cells compared to DLBCL cells induced ferroptotic cell death in the MM cells. Harnessing ferroptosis may represent a novel therapeutic strategy for improving outcomes of patients with MM.

Folic acid regulates endocrine function and proliferation of endocrine cells in vitro: implications of gestational diabetes mellitus

Miss Jessica Williamson

Folic acid (FA) food fortification leads to folate excess during pregnancy, which is increasingly associated with gestational diabetes mellitus (GDM) risk. Though the mechanisms remain unknown, we recently showed hormones that regulate insulin resistance and glucose homeostasis (placental growth hormone (GH2); placental lactogen (hPL)) are altered in pregnancies post-FA fortification. We hypothesized that FA acts directly on the placenta to promote placental growth and/or hormone secretion. To address this hypothesis, early and mid-gestation placental villus explants (N=45; 6-16 weeks' gestation) were treated with FA at 0 nM (acute deficiency), 10 nM (physiological deficiency), 40 nM (adequate), 200 nM (elevated) or 2000 nM (excess). Hormone secretion into culture media was measured 72 h post-treatment by ELISA. FA regulated GH2 and hPL in vitro. hPL secretion was biphasically regulated by FA, where both 0 nM and 200 nM increased secretion (40% and 25%, respectively). Real-time proliferation of placental cell lines revealed a similar biphasic relationship, where proliferation decreased with 0 nM and 2000 nM relative to 40 nM in JEG-3 and BeWo cytotrophoblasts, but not extravillus trophoblast HTR-8/SVneo. This research demonstrates FA effects placental endocrine function in vitro in early and mid-gestation human placentae. Interestingly, FA also affected proliferation of cells from hormone secreting trophoblasts only. The effects of excess FA parallel those of acute deficiency, suggesting FA uptake is dysregulated in high-FA conditions, resulting in a deficient-like state. In the context of widespread FA fortification and supplementation in Australia, determining the effects of high FA intake on pregnancy health is essential.

Short talk abstracts

DAY 2 | SESSION 4

Patient-derived 3D mesothelioma cancer organoid as clinically relevant models of pleural disease

Dr Ash Hocking

Pleural mesothelioma is a cancer arising in the cells that line the lungs and chest wall with poor survival and poor response to first-line therapy. Malignant pleural effusion - which is the accumulation of excess fluid in the pleural cavity- occurs in 85-90% of mesothelioma patients. Often, this is the presenting complaint, leading to diagnosis. Malignant pleural effusions typically contain circulating cancer cells, tumour-educated inflammatory cells, and the molecules secreted by these cells. These fluids are routinely drained as a part of standard care to reduce breathlessness in patients and for diagnostic purposes. Using mesothelioma cells isolated from malignant pleural effusion we established nine, long-term, three-dimensional mesothelioma organoid cultures. We compared mesothelioma organoid cultures to the corresponding biopsy tissue specimens using immunohistochemistry labelling for select diagnostic markers and sequencing for 500 cancer related gene. Mesothelioma organoid cultures typically mimicked the histopathological and genomic features of patients' concurrent biopsy specimens and displayed cytotoxic sensitivity to cisplatin in vitro. This is the first study of its kind to establish long-term mesothelioma organoid cultures from malignant pleural effusions and report on their utility to test individuals' drug sensitivities ex vivo.

A shared decision-making approach reduces colonoscopic burden in people aged over 75 years

Dr Molla Wassie, Geraldine Laven-Law, Dr Madeyln Agiak, Kalindra Simpson, Michelle Coats, Associate Professor Charles Cock, Professor Robert Fraser, Associate Professor Erin Symonds

Background: Colorectal cancer risk increases with age and can be effectively prevented through colonoscopic screening and surveillance. Australian colonoscopy surveillance guidelines recommend considering patient choice and co-morbidities in individuals aged ≥75y. This study aimed to characterise shared-decision opt-in responses and colonoscopy outcomes for individuals ≥75 years. Method: Patients aged ≥75y, due for surveillance colonoscopy in 2022, were sent a recall letter requesting they see their general practitioner (GP) to discuss the risks and benefits of colonoscopy, with the GP to inform the hospital of the outcome. Responses were collated and linked to colonoscopy records. Neoplasia was assessed for those proceeding to colonoscopy. Multivariable logistic regression was employed to identify predictors of recall response. A p-value < 0.05 was considered significant. Results: We received a response for 52.7% of 205 patients sent a recall letter. Of these, 58.3% (63/108) opted for colonoscopy, 34.3% declined further surveillance, and 7.4% transferred to other services. Those in the program for a shorter duration (OR 0.94), and those with a longer surveillance interval (OR 0.56) were less likely to respond. Fifty-eight patients (48% male, median age 77y; range 75-84y) underwent colonoscopy, with 14.8% diagnosed with advanced, and 50.0% with non-advanced neoplasia. Conclusion: When offered a choice two-thirds of patients aged ≥75y did not proceed to colonoscopy. However, among those who did, 65% were found to have neoplasia. However, in this patient group only advanced neoplasia is likely to be a significant finding and further data are needed to predict advanced neoplasia in older surveillance patients.

Baby CHiX: Caudal, High flow oxygen and DeXmedetomidine sedation for inguinal hernia surgery in neonates and infants, a feasibility study.

Dr Fiona Taverner

Aims and hypothesis: To investigate if the Baby CHiX anaesthetic technique is feasible for infants undergoing inguinal hernia surgery. Background: Infant inguinal hernia repair is the most common operation in infants worldwide. General anaesthesia (GA) has high perioperative morbidity (35% critical event rate, approx. 8-9% post operative intubation rate). Study design: Prospective multicentre observational cohort study. Study sites: Flinders Medical Centre, Women's and Children's Hospital, Adelaide, Christchurch, New Zealand. Eligibility criteria: Infants < 64 weeks post menstrual age (PMA) undergoing inguinal hernia surgery. Exclusion criteria; contraindication to caudal, high flow nasal oxygen (HFNO) or dexmedetomidine. Methods: Baby CHiX - IV dexmedetomidine loading dose 1-2 mcg/kg over 10 mins and maintenance 0.2-3 mcg/kg/hour, HFNO 2l/min with blender to titrate Fi02 to baseline Sa02, and caudal 1ml/kg of 0.2% ropivacaine. Results: Interim analysis 30 patients. 24/30 (80%) infants had successful surgery. 6 (20%) required conversion to GA. Mean weight on day of surgery 4.1kg (SD 1.2). Mean gestational age at birth 34.9 weeks (5.1), mean PMA on day of surgery 44.8 weeks (5.5). Mean surgical duration 34.5 mins (29.0 - 45.5). Perioperative events requiring intervention were low (6(25%) infants had one or more complication). 5 (20.8%) infants required increased postoperative respiratory support. None required reintubation. Discussion: This technique is a safe, feasible alternative for inguinal hernia surgery in infants up to 59 weeks PMA, in different hospitals with different anaesthetic and surgical teams. The longest surgical duration of 93 mins suggests it is feasible for longer, more complex surgeries.

Quality of life among people with mental illness attending a psychiatric outpatient clinic in Ethiopia: A structural equation model

Mr Wondale Getinet Alemu

Background: Mental illness is one of the most severe, chronic, and disabling public health problems that affect patients' Quality of life (QoL. Therefore, we aimed to assess the QoL and its determinants in patients with mental illness in outpatient clinics in Northwest Ethiopia in 2023. Methods: A facility-based cross-sectional study was conducted among people with mental illness in an outpatient clinic. the WHOQOL BREF-26 tool used to measure the QoL. The domains and overall, Health-Related Quality of Life were measured. Indirect and direct effects of variables were calculated using structural equation modelling, accounting for socio-demographic, clinical, substance use and social support factors. Results: A total of 636 patients participated in the study. The mean score of the overall HRQoL for people with mental illness was (49.6 with 10 Sd) which is poor QoL. The highest QoL was found in the physical health domain (50.67 with 9.5 Sd), and the lowest mean QoL was found in the psychological health domain (48.41 with 10 Sd). Not getting counselling, physical health domain, psychological health domain, and environmental health domain of HRQoL directly affected the overall QoL. Sociodemographic, social support, drug use and clinical factors had indirect negative effect on QoL. Conclusions: The QoL of people with mental illness was poor. Psychological health domain is the most affected. Sociodemographic, social support, drug use and clinical factors directly and indirectly affected QoL. Emphasis should be given to addressing the scourge of mental health, the development of Policy and practice drivers that address the above-identified factors.

Zegeye Abitew

Prospective association between dietary patterns and colorectal cancer

Laura Gantley

Formation and Function of sui generis exons in circular RNAs

Mulugeta Melku Gobezie

Incidence of Multiple Primary Cancers in Patients with Colorectal Cancer: Evidence from the South Australian Cancer Registry

Marshall Smith

Crap in the Tap? Water systems as a source of hospital acquired infections

Yee Chern Tee

Turning 'Cold' tumours 'Hot': Changing the immune landscape of colon cancers with immune agonist antibodies

Meseret Molla

Metabolic risk factors of colorectal cancer: an umbrella review of systematic reviews and meta-analyses

He Lin

The circular RNA, circNFASC(26,27), is unregulated in Glioblastoma and reduce cellular tumorigenicity

2023 Emerging Leaders Showcase Awards and Prizes

Chairs: Shannon Macfarlane

Awards are being offered for the Best Short Talk Presentations, Best 3 Minute Thesis Presentations and Best Poster Presentations of the Showcase. These will be awarded on the basis of set criteria and judged by academics across all themes of the College. The judging panels will be awarding points for each presentation based on a range of criteria from Comprehension and Content to Engagement and Communication.

Awards/Prizes will be presented to the winners from each category on Day 2 of the Emerging Leaders Showcase.

The following 2023 Emerging Leaders Showcase Awards are offered:

Presentation Awards:

- Best Short Talk from an Early-Career Academic (including Professional Staff and Clinician Researchers)
- Best Short Talk from a Mid-Career Academic (including Professional Staff and Clinician Researchers)
- Best Short Talk from a Postgraduate Student
- Best Poster Presentation
- Best 3-Minute Thesis Presentation
- Runner-Up awards will also be awarded for each category

Prizes

- Monetary prizes from $250
- Quantum Accounting – Preparation of an income tax return to the value of $500
- Cengage Publishing voucher $200

Door prizes will also be presented.

The Conversation Award

The winner of this award will receive a voucher to complete a Pitching and Writing Masterclass to enable the recipient to publish a short article and share their expertise with The Conversation's global audience. https://protect-au.mimecast.com/s/cM4SCXLWYvfO2o08I6Dwqj?domain=theconversation.com

"The most useful professional development workshop I have ever attended. Every single point was new(s) to me and it was invaluable to have feedback from such experienced editors. Not only has this transformed my understanding of how to pitch to The Conversation and other media, the insights benefit my writing for professional newsletters and grant applications. 6 stars out of 5."

Dr Amelia Church, Senior Lecturer, Melbourne Graduate School of Education, The University of Melbourne

CMPH Student and Staff Artwork

Artist Rebbecca Medhurst

I am a mum of four, grandmother of two, an artist, Flinders University student and more recently a Flinders University Student Ambassador.

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Before becoming a Flinders University student, I worked as an artist, art teacher and part owner operator of a small art gallery south of Adelaide. I have painted and drawn ever since I could hold a pencil. Art has enabled me to participate in events such as SALA, The Victor Harbor Art Show, as well as private exhibitions. I truly believe that art can be for everyone to create or admire or both.

As a Medical Science student, I have had the opportunity to bring together art and science. By utilising already developed artistic skills I have incorporated painting and drawing into my learning. As a visual learner I found it a valuable study tool to draw subjects such as blood slides and tissue histology. I have found that combining art and science is interesting and exciting, whilst being fun and maybe just a little quirky.

Emerging Leaders

SHOWCASE

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