

This Annual Report covers the 2019 calendar year. It is designed to be read in conjunction with the **SPHPM Capability Booklet**, which provides a comprehensive overview of the School's ongoing activities.

This document has been designed to be primarily digital, and contains hyperlinks throughout.

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A CHANGE OF HEAD OF SCHOOL

2019 ushered in a new era for the School, as long-time Head of School Professor John McNeil AO handed leadership to Professor Sophia Zoungas, and stepped back to focus on his research with the flagship ASPirin in Reducing Events in the Elderly (ASPREE) trial. The momentous event marked the end of over 32 outstanding years of growth under Professor McNeil, and the start of an exciting new chapter for Professor Zoungas and the School.

Here we look back at some of the major developments under Professor McNeil's stewardship.



1986

APPOINTED CHAIR OF DEPARTMENT OF EPIDEMIOLOGY AND PREVENTIVE MEDICINE (DEPM), WITH JUST 11 STAFF MEMBERS

1991

PUBLICATION OF FIRST PAPER PROPOSING ASPREE STUDY



1995

AUSTRALIAN NATIONAL BLOOD PRESSURE STUDY 2 (ANBP2) PILOT COMMENCES

2003

ANBP2 STUDY COMPLETES, DEMONSTRATING FEASIBILITY FOR LARGE-SCALE COMMUNITY TRIALS RECRUITING THROUGH GENERAL PRACTICE



2005

FUNDING SECURED FOR NHMRC CENTRE OF CLINICAL RESEARCH EXCELLENCE IN PATIENT SAFETY, CEMENTING THE DEPM'S LEADERSHIP IN CLINICAL QUALITY REGISTRY DEVELOPMENT

PROF MCNEIL RECEIVES VICTORIAN DEPARTMENT OF HUMAN SERVICES PUBLIC HEALTH AWARD

2008

FOUNDATION OF THE SCHOOL OF PUBLIC HEALTH AND PREVENTIVE MEDICINE, WITH PROF MCNEIL AS HEAD

ASPREE FUNDED



2009

ASPREE COMMENCES

PROF MCNEIL BECOMES A MEMBER OF THE ORDER OF AUSTRALIA (AM)

2010

SCHOOL EXPANSION UNDERPINS MOVE TO ALFRED CENTRE FROM BURNET TOWER



2014

PROF MCNEIL APPOINTED SIR JOHN MONASH DISTINGUISHED PROFESSOR

2017

SCHOOL EXPANDS AND MOVES TO CURRENT HOME AT 553 ST KILDA ROAD



2018

ASPREE PRIMARY RESULTS PUBLISHED IN NEJM TO INTERNATIONAL ACCLAIM

2019

PROF MCNEIL STEPS DOWN AS HEAD OF SCHOOL



FOUNDATION OF MONASH SUB-FACULTY OF TRANSLATIONAL MEDICINE AND PUBLIC HEALTH AT THE ALFRED PRECINCT

ASPREE RESULTS INCORPORATED INTO MULTIPLE AMERICAN ASPIRIN GUIDELINES

PROF MCNEIL BECOMES AN OFFICER OF THE ORDER OF AUSTRALIA (A0)

HEAD OF SCHOOL'S REPORT

It was my honour to assume leadership of this great School in 2019. This School – and prior to its inception, the Department of Epidemiology and Preventive Medicine – has achieved global recognition under the stewardship of Prof John McNeil AO, and Foundation Professor Basil Hetzel AC before him. My first year in this role showed that with the support of a diligent, talented and committed team, we'll continue to build on their great contributions and lead the way in responding to some of the world's most pressing health challenges.

I'd like to acknowledge John's incredible legacy in assembling a team rich in the skills and knowledge needed for the job, and for nurturing such a collegial environment for us all to thrive in. I'm pleased to see him continue his role in the flagship ASPREE study, which has been extended following the massive impact of the publication of primary results in 2018.

I would also like to thank Professor Michael Abramson who supported John and the School through his committed and steady guidance as Deputy Head of School. I am also pleased to see Michael continue with his research roles, including his leadership of the important Hazelwood Health Study.

Given the significant growth of the School's activities over the years, the Deputy Head portfolio was split to enable a more manageable workload and provide greater support. Professor Danny Liew assumed the role of Deputy Head (Education and Enterprise) and Professor Sally Green took up the position of Deputy Head (Research). If I had to sum up 2019 in just one word, 'discovery' would be my choice. This role has stretched my own knowledge and skills, and I've thought deeply about the kind of leader I'd like to be. I want to be proactive, consultative, analytical and honest. I'd like to strengthen the School through quality hiring, stronger promotion with a focus on gender equity, strong and transparent governance and business management, and international engagement.

I've also focussed on how I can help the School grow, and in what directions. Together with the School Senior Leadership Committee I began an ambitious project to develop a strategic five-year plan, and in the process discover and define shared values and a vision for the future that resonated across our diverse staff.

Our new vision is 'Sustainable, equitable health and wellbeing for people and communities in Australia and across the globe.' We achieve this by working with integrity and a focus on excellence. We are innovative, responsive and committed.

Our new missions are summed up in the four 'E's:

EXPLORE:

Lead knowledge generation that improves health and its determinants.

EDUCATE:

Deliver high-quality education and training to build capacity.

ENGAGE:

Collaborate with and involve the community and partners to ensure our work is relevant and has an impact.

EMPLOY:

Invest in the best people and foster their development.

Whilst I've attended to this future-facing work, I've been proud to see the top-quality research and education that we're known for continue unabated. Our educators have continued to improve our learning options by embracing new teaching methods and styles, critiquing existing content and developing new courses to fill gaps. They've also invested a huge amount of preparation for a major change in the Monash MD program that will take place in 2020 – the introduction of a Scholarly Intensive Placement program that will see 60 medical students undertake research placements with us.

Our researchers continued to publish in high-impact peerreviewed journals and share their findings widely through conferences and media. Our senior staff provided their expertise to national and international medical societies and advised all levels of government and industry on relevant public health matters. It was another successful year in terms of funding, with just over \$34 million in research income secured.

Change is rarely easy, but it opens up new directions and opportunities, and I'm exceedingly proud of the way our people have embraced it. I'm looking forward to seeing what we can achieve together in 2020 and beyond.

Professor Sophia Zoungas



Professor Sophia Zoungas

TACKLING THE MOST URGENT PUBLIC HEALTH PROBLEMS



Public health approaches health and healthcare in the context of communities and populations. We specialise in research projects that seek patterns in large, robust datasets that yield evidence to underpin solutions to some of the most urgent health questions on the planet.

We're home to some of the most knowledgeable and skilled public health researchers and educators on the planet, with expertise across biostatistics, research design and governance, evidence synthesis, health promotion and implementation science. Our team apply these frameworks and skills to a staggering array of specialty areas including infectious diseases, transfusion science, planetary health, global health, women's health, injury and trauma, chronic disease and ageing, forensic science and more.

We apply an outcomes-focussed approach to our projects and programs, and continually challenge ourselves to ensure our work flows back to the community. Our diverse research portfolio is anchored in real-world problems.

We are home to numerous NHMRC-funded Centres of Research Excellence and are Australia's largest manager of clinical quality registries, entities that can drive evidencebased quality and safety across a variety of aspects of medical care. We conduct large-scale, multinational clinical trials with ground-breaking impact felt around the world. Our research is informed by our established Research Methodology division, a unique blend of experts drawn from research design, biostatistics, ethics and governance. Cochrane Australia is housed within the School, providing rigorous analysis of medical literature and evidence synthesis.

Finally, we build upon our legacy of having provided Victoria's first Master of Public Health through our extensive public health education. We deliver two undergraduate courses, eight postgraduate courses and graduate study opportunities across the range of public health. Our graduates leave with the knowledge, skills and confidence needed to carve a successful career in clinical practice, research and policy.

This report focuses on achievements and highlights from the 2019 calendar year. It complements the **School's Capability Booklet,** a comprehensive overview of our ongoing activities and strengths.

2019 HIGHLIGHTS OVERVIEW



\$34 MILLION RESEARCH INCOME



HIGHLY-CITED AUTHORS (WEB OF SCIENCE 2019)



1,200+
PUBLICATIONS



1,200+ STAFF



TRIAL OF THE YEAR AWARD ASPREE



STUDENTNUMBERS

175

GRADUATE STUDENT COHORT (DEC 2019)



NEW GRADUATE STUDENTS ENROLMENTS



GRADUATE CONFERRALS



UNDERGRADUATES TAUGHT VIA OUR UNITS



UNDERGRADUATES ENROLLED IN OUR BACHELOR



POSTGRADUATE STUDENTS ENROLLED



INTERNATIONAL STUDENTS IN OUR POSTGRADATE COURSES



ENROLMENTS ACROSS OUR 20 PROFESSIONAL EDUCATION PROGRAM COURSES

6 SPHPM - ANNUAL REPORT 2019 SPHPM - ANNUAL REPORT 2019



EDUCATION

EDUCATION LEAD: PROFESSOR DRAGAN ILIC

We continued to provide public health and epidemiological education through formal award degrees and short courses convened through the School, and through collaborative teaching within the Faculty, including teaching and coordinating several units into the University's popular medical (MD) and biomedical sciences programs.



Professor Dragan Ilic

UNDERGRADUATE PROGRAM

UNDERGRADUATE EDUCATION LEAD: ASSOCIATE PROFESSOR BASIA DIUG

monash.edu/medicine/sphpm/study/undergraduate

Two hundred and eighteen students were enrolled across the suite of undergraduate degree courses offered by our School during the year. Twenty-five were enrolled in our Bachelor of Public Health degree, designed for students with a dedicated interest in a public health career, while 150 were enrolled in our Bachelor of Health Sciences degree, which provides a more generalised curriculum suited to those seeking flexibility across the health field. The remainder were later-year students enrolled in a suite of legacy courses currently in teach-out phase.

School staff coordinated 34 units throughout the year, with 1,752 enrolments. Our units cover the full range of public health specialties, including epidemiology and biostatistics, global health, social and cultural determinants of health, research methods, medical law, health promotion and more. These units were offered via the above-mentioned degree courses coordinated through our School, or were taught into relevant courses coordinated by other Schools and Faculties.

New in 2019 was the popular Principles of Forensic Medicine and Science Unit, coordinated by our Department of Forensic Medicine and taught to 45 students across our courses.

Two of our key lecturers, Penny Robinson and Dr Tess Tsindos, were awarded School of Biomedical Sciences teaching awards for their efforts during the year, having taught over 900 students across the two units we teach into the Bachelor of Biomedical Science. Undergraduate programs leader Associate Professor Basia Diug received the Dean's Award for Excellence in Education (Technical Innovation) for her commitment to investigating and embracing new technologies and research methods to constantly improve the student experience.



Associate Professor Basia Diug

UNITS TAUGHT INTO OTHER MONASH COURSES

BIOMEDICAL SCIENCE

The popular Bachelor of Biomedical Sciences (BMS) degree is a major source of honours students choosing to conduct their projects within our School. We teach two units into the degree. Our highly popular Public Health and Preventive Medicine unit continues to thrive, with 909 students learning core biostatistics, epidemiology and research theory this year. Our Biomedical Basis and Epidemiology of Human Disease unit taught the principles of evidence-based medicine and systematic review methods alongside the biological basis of disease to 459 BMS students.

MONASH MD

The Monash MD program is the University's medical degree, and the transition from the MBBS (Hons) to the MD program started in 2017. The first graduates of the new MD program will finish their degrees in 2020, and be working as interns in 2021. The MD is offered as a five-year program for school leavers or a four-year postgraduate degree.

Our School continued to make a substantial contribution to teaching in the MD program in 2019. Professor Robin Bell has served as Curriculum and Assessment Lead for Theme II: Society, Population, Health and Illness for five years, and stepped back from this and most of her other educational roles within the School at the end of 2019, to focus on her research in the future. We thank her for the warmth and energy she brought to this role, and welcome Dr Helen Ackland to the role from 2020. Dr Ackland brings a wealth of research and education experience to the position.

Our School teaches nearly all of the Theme II content into the Monash MD program, across all year levels. These include units on health and society, population health, health promotion, evidence- based medicine and clinical practice, occupational and environmental health, health systems management, international health, midlife women's health and a health economics unit taught in collaboration with the Faculty of Business and Economics.

A major change arising from the transition to the MD is the introduction of a research immersion experience in the final year, called the Scholarly Intensive Program (SIP), launching in 2020. Students can choose to do a clinical research project in the clinical school where they are based or a project in another school including our own. School staff, in particular Associate Professor Basia Diug, completed a vast amount of preparatory work in 2019 to enable the first cohort of approximately 60 SIP students here next year.

Finally, Dr Darshini Ayton laid the groundwork for a new offering rolling out in 2020, a combined MD and Master of Public Health degree, which will save students six months of study. The course will provide new doctors with the confidence and skills to interpret the latest medical literature, or participate in research.

FORENSIC EVIDENCE AND MEDICAL LAW

The Department of Forensic Medicine continued teaching Medical Law into the Undergraduate Law program in 2019, during which time they updated teaching styles and enriched their tutoring program with new experts across a range of medical law sub-specialties. The team also continued to guest lecture into the Law Unit Forensic Evidence: Law, Science, Medicine and Technology.

POSTGRADUATE PROGRAM

POSTGRADUATE EDUCATION LEAD: PROFESSOR JANE BANASZAK-HOLL

monash.edu/medicine/sphpm/study/postgraduate

The School continued to deliver postgraduate education across Graduate Certificate, Graduate Diploma and Masters level qualifications. Over 780 students were enrolled across the following study domains, via our multi-modal and online platforms:

- Public Health
- Health Management
- Clinical Research
- Biostatistics
- Occupational and Environmental Health
- Forensic Medicine
- Clinical Medicine
- Aviation Medicine

It was a record-breaking year for international student enrolment, with 86 enrolled in our Masters by coursework programs, our highest ever.

2019 also saw the groundwork laid for an exciting new development in 2020, when students in our flagship Master of Public Health (MPH) course will be able to choose a sub-specialisation. As of 2020, students can graduate with their choice of either a standard MPH, or with specialisation in Global Health, Health Economics, Epidemiology, Health Policy, Health Promotion or Research. This change will enable students to focus on skills most pertinent to their career goals, and stand out from competitors in tight job markets.

Five new MPH units were launched in 2019, including a public health practicum opportunity, plus units in demographic methods, global healthcare delivery, implementation and innovation in healthcare and management theory and practice.

Our Biostatistics course continued to cater for those wishing to forge a career in this in-demand field. Taught in conjunction with the Biostatistics Collaboration of Australia, the course provides access to some of the leading biostatistics lecturers and mentors around Australia.

Our Health Management courses added new units this year, providing greater focus on case studies and implementation in the real-world setting. Our multi-modal course, the Master of Health Management, offered new units Financial Management in Healthcare and Economic Management in Healthcare. Our online Master of Health Administration launched the new Healthcare Improvement and Learning Systems, led by academics at our Monash Centre for Health Research and Implementation.

The specialist Master of Forensic Medicine course reached an all-time high of over 90 student enrolments in 2019. The course continued to offer streams in clinical forensic medicine, forensic medical science and forensic odontology, and successfully completed a University-led full course review during the year.



Professor Jane Banaszak-Holl



GRADUATE RESEARCH PROGRAM

GRADUATE RESEARCH LEAD: PROFESSOR SALLY GREEN

monash.edu/medicine/sphpm/study/graduate-research

Our significant Graduate Research program continued throughout 2019, led by School Deputy Head (Research) Professor Sally Green. The program enrolled 50 new candidates, with a total cohort of 175 PhD and MPhil students by year's end, conducting broad-ranging projects across a range of subject domains, and utilising a wide spread of research methods. Thirty-eight completions took place during the year, and we achieved a timely submission rate of 79 per cent, comfortably above the Faculty average of 73 per cent. A full list of our 2019 theses is available here.

Five of our students scooped up highly competitive Monash Graduate Excellence Top-Up Awards in 2019. These \$10,000 awards are provided to top-ranked domestic students, and the haul accounted for nearly a quarter of all excellence awards won by graduate students across the entire Faculty of Medicine, Nursing and Health Sciences. It's a wonderful indicator of the quality of our graduate student cohort. A further five students won publication awards, which extended their candidature stipend to allow them to complete further publications while their main thesis is under examination.

The School received 12 International Research Training Program Stipends (RTPS) with Tuition Sponsorships, reflecting the quality of our international scholars. We also won 18 Domestic RTPS and five excellence top-ups, and secured 20 per cent of the tuition fee scholarships awarded through the Faculty. These outcomes are testament to the strength of our robust and supportive program.



Professor Sally Green

DR SARAH MCGUINNESS, GRADUATED 2019

Dr Sarah McGuinness joined our PhD program in 2016, as a newly-minted Infectious Diseases Specialist with a research interest in improving ways to prevent and treat infectious diseases in vulnerable populations, including people living in and travelling to low-resource settings.

Sarah's initial intent was to understand the health impact and cost effectiveness of a simple water filtration intervention in rural townships in India. While things did not exactly go to plan, the challenges she faced ultimately taught her the most valuable lessons from her candidature. She says.

"When setting up our trial, we faced delays due to flooding and power outages, and technical challenges in building our riverbank filtration systems. Having overcome these hurdles, our trial was compromised by the government-led introduction of a competing clean water intervention. Despite the availability of improved water supplies, river water remained the main source of household drinking water in villages, and we were unable to show a measurable reduction in diarrhoea over the trial period.

"While this result was disappointing, I was driven to understand why these interventions didn't work. I pivoted to explore some of the cultural, social and practical factors that influenced decision-making about water sources and responses to the intervention. I had to quickly learn and incorporate qualitative research methods, so it's fortunate that the School has such a broad wealth of expertise and I was able to draw on mixed methods experts for help and advice. The experience taught me that technology alone is not enough to solve complex health problems; understanding behaviour change is also vital."

Sarah also found the large size of the School's graduate student cohort to be reassuring, and developed close connections with other students that provided encouragement and support. She flourished through the School's range of supportive meetings and activities, designed to stretch PhD candidates, and represented the School in the well-known 3MT competition, winning the 'Peoples Choice' award in the Faculty final.

Upon graduating in late 2019, she's continued to teach into our Master of Public Health course, and practice at the Alfred Hospital's Travel Medicine Clinic, which she established when she moved to Melbourne for her PhD studies.



Dr Sarah McGuinness

DR GEORGE HERIOT, GRADUATED 2019

Dr George Heriot is an infectious diseases physician who drew on his clinical interests to develop his PhD project, which involved creating a model to determine best use of echocardiograms (heart ultrasound) in patients with sepsis arising from Staphylococcus aureus infections.

S. aureus infections, commonly called 'golden staph', are a major problem in hospitals world-wide. There is a high degree of resistance to antibiotics and the bacteria are highly infectious, so once an infection becomes established it can be difficult to contain at both the individual level and ward level. Patients in whom the infection has entered the blood stream (sepsis) face multi-organ damage.

George says "I'd see one or two of these patients a week in my clinical work, and it troubled me that what constitutes best treatment for them is a lot vaguer than you'd hope. There's a lot of unassimilated, poorly observed epidemiological information floating around, and variation in practice around the world. The clinical recommendations lack a solid evidence base, and I wanted to help change that"

Under the guidance of supervisors Professor Danny Liew, Professor Allen Cheng and Associate Professor Stephen Tong of the Doherty Institute, he set about bringing together data around diagnostic tests, including echocardiograms, in the absence of robust randomised clinical trials, and to scope out the feasibility of conducting a high-quality trial. He filled gaps in published evidence with locally collected data and conducted an evaluation around the risks and benefits of under- and over-diagnosis, to help understand the pros and cons of each test.

Following this groundwork, George created a decision analysis model that clinicians around the world treating these patients could use, and he could compare with standard practice. This is a tool that facilitates systematic and quantitative decision-making about diagnostic tests in the face of uncertainty, such as whether a patient actually has the disease of interest, the risks of false test results, and how a particular result would change treatment decisions.

George says "I really enjoyed the independence that the School and my supervisors provided me – they let me develop up my own questions and possible solutions, and trusted me to run with them. I work well like that. I wasn't integrated into the School in a daily sense, but it gave me a wonderful collection of resources and skills I could call on when I needed."

Having submitted at the end of the year, George works clinically at the Royal Melbourne Hospital and in private practice. But his interest in research hasn't diminished. He's working as a Research Fellow with supervisor Professor Danny Liew part-time, and is involved in the design of randomised trial of treatments for S. aureus bloodstream infections at the Doherty Institute.

"Doing this research has left me with more burning questions. I'd like to work out how feasible a risk-stratified guideline would really be. I'm also pursuing some related research with the Monash Bioethics Centre, applying decision analytics to other clinical applications, such as vaccination strategies."



Dr George Heriot

PROFESSIONAL EDUCATION PROGRAM

PROFESSIONAL EDUCATION LEAD: DR DANIJELA GASEVIC

monash.edu/medicine/sphpm/study/professionaleducation

The School continued to offer a substantial portfolio of short-form courses, designed for participants wishing to refresh or reinforce existing skills or knowledge, or gain a taste of new areas. Subjects covered include biostatistics and epidemiology, quantitative and qualitative research methodology, health promotion, research governance and specialist areas such as travel medicine, occupational and environmental health, and forensic medicine.

Twenty short courses were delivered with 499 enrolments.

Historically managed in-house, we handed responsibility for administration and marketing to the Monash Institute for Health and Clinical Education in October.

Dr Danijela Gasevic led a review and streamlining process to ensure delivery of high-quality content that meets genuine needs and interests among the health community. She also instituted a rigorous process to identify new content areas for expansion, assess proposals and develop new course content.

Three new courses were offered during the year: Demystifying the Numbers, focussing on financial concepts in healthcare; Designing and Using Surveys and Questionnaires for Clinical Practice, providing a sound basis in the use of these important qualitative research tools; and Return to Work - Evidence and Innovation, sharing the latest in return to work policy and practice.

A number of new courses are planned for 2020: Clinical Trial Fundamentals, Ethics and Good Research Practice (online), Healthcare Evaluation and Principles of Personal Injury Scheme Design.

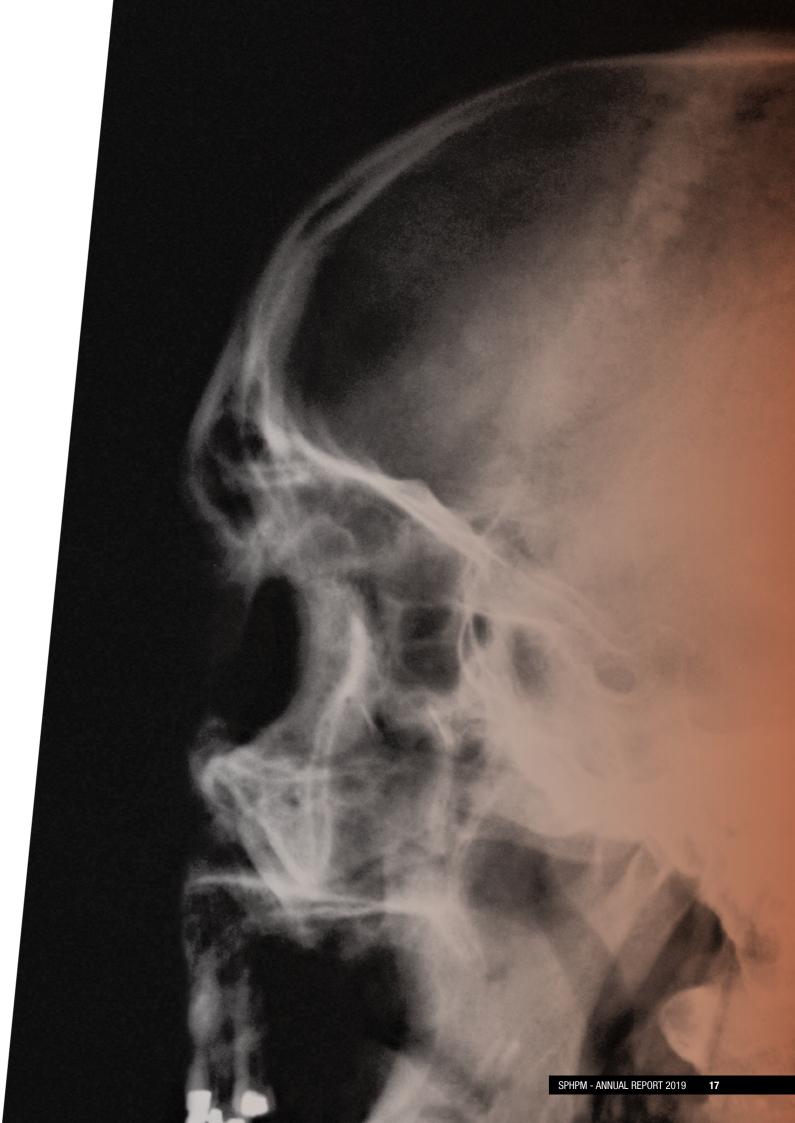


Dr Daniiela Gasevic

OTHER EDUCATION ACTIVITIES

Staff from the Monash Centre for Health Research and Implementation ran several massive open online courses in healthcare improvement and women's health, reaching over 1,000 international participants. They also provided implementation science and healthcare improvement education offerings including a two-day masterclass, an online Future Learn program, an online six-week program and a six-month module integrated into the Master of Health Services Management. Professor Helen Skouteris led an ongoing program of research and co-design to microcredential these courses, which will continue to be offered as stand-alone qualifications, but will have the ability to be integrated into a range of Monash Masters courses.

The Department of Forensic Medicine also offered its own suite of specialist Forensic Medicine courses during 2019, which fall outside the main School's professional education program due to that department's historical working relationships with the renowned Victorian Institute of Forensic Medicine. Courses included Introduction to Human Osteology, held for the first time in 2019 and run at full capacity; Analysis & Interpretation of Skeletal Trauma; and Forensic Geriatric Medicine. More courses are in the pipeline





IMPACT AND TRANSLATION

Our researchers share their discoveries, knowledge and ideas with policy-makers, healthcare service providers and professionals, and the wider community, to ensure findings are translated into practice. They also generate visibility on little-known health issues and empower people to improve their own health.

POLICY, ADVOCACY AND EDUCATION

Associate Professor Charles Livingstone, Head of the Gambling and Social Determinants of Health Unit, continued to draw attention to the harmful effects of gambling on health and society, providing media commentary on the **influence** of the gambling industry on the 2018 Tasmanian State

election and political decision making. He and his colleagues published in The Conversation on the efficacy of banning offshore gambling websites and community contributions by gambling operators, and published several gambling-related policies.

Professor Joseph Ibrahim, Head of the Health Law and Ageing Research Unit, provided evidence to the Royal Commission into Aged Care, highlighting the numerous ways in which the system is failing to provide adequate care to our elderly citizens. This work, and his tireless campaigning in national media around elimination of physical and chemical restraints in aged care, earned him a nod as one of **Good Weekend's Top 10 most influential people of 2019.** He also led a successful seminar on the prevention of sexual assault in aged care.



Professor Joseph Ibrahim



Cochrane Australia published the third series of **The Recommended Dose** podcast, featuring wide-ranging interviews with international health experts and leading national researchers and journalists. The series tackles big questions in health and empowers listeners to approach healthcare with a more questioning and evidence-based mindset.

Dr Paul Lacaze and Jane Tiller from the School's Public Health Genomics Unit continued to use media to draw attention to issues around ownership and use of genetic and genomic information by online ancestry tracing companies, and issues around life insurance cover and genetic test

Professor Helen Skouteris from the Monash Centre for Health Research and Implementation led and launched **HEALing Matters** in 2019, a Victorian Government funded initiative to reduce obesity among young people who have been removed from abusive parents and are living in care. The team's previous research has shown these vulnerable youth are more than twice as likely to experience overweight or obesity issues than other young people. The platform provides professional development resources to carers.

ENGAGEMENT WITH GOVERNMENT, INDUSTRY AND MEDICAL BODIES

Infectious Diseases Epidemiology Unit leaders Professor Allen Cheng and Professor Karin Leder both served in expert advisory capacities on the **Australian Academy of Science's #StopMeasles** campaign. This program developed a suite of educational materials aimed at tackling a rise in cases, many of which are imported by travellers visiting countries where the condition is endemic.

Musculoskeletal Unit Head Professor Flavia Cicuttini provided her expert knowledge to the Government's Repatriation Medical Authority, the Australian Institute of Health and Welfare's National Arthritis and Musculoskeletal Monitoring Advisory Group, and was elected to the Board of the Osteoarthritis Research Society International.

Professor Alex Collie from the Insurance Work Health Group completed an independent review for the Department of Veterans Affairs in response to a Senate Report into suicide among veterans, and his team provided research advisory services to Safe Work Australia, work that underpinned the first National Return to Work Strategy, launched in late 2019.

Professor Sally Green, Director of Cochrane Australia since 2002, was elected as one of four new members of the Cochrane Governing Board in a process involving over 4,000 votes. In this role she helps oversee the development and implementation of Cochrane's strategic direction.

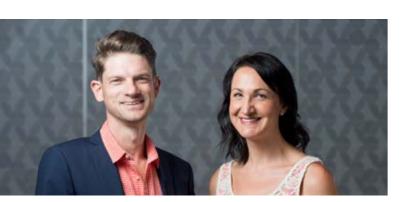
Professor Susan Davis continued her tenure as President of the International Menopause Society, which will end in 2020.

Professor Jane Fisher was appointed Deputy Chair of the Global Health Alliance Australia, an organisation dedicated to forging collaboration across relevant groups in the global health space, and enhancing the capability and capacity of global health and development work in Australia.

Associate Professor Charles Livingstone was an invited participant at the World Health Organization's first expert meeting on gambling in 2019, and now serves on their expert panel.

Representatives from the Monash Centre for Health and Research Implementation helped lead the perinatal obesity nutrition initiative with the Federation of International Obstetrics and Gynaecology.

Head of Sustainable Mobility and Safety Research, Dr Ben Beck, spent time developing the National Injury Prevention Strategy with the Federal Department of Health and The George Institute.



Dr Paul Lacaze and Jane Tiller



Dr Ben Beck Professor Sally Green



Professor Susan Davis



CLINICAL GUIDELINES AND CONSENSUS STATEMENT DEVELOPMENT

Professor Helena Teede contributed to the US-based Endocrine Society's taskforce to update endocrine quidelines.

The American College of Cardiology and American Heart Association incorporated findings from the ASPirin in Reducing Events in the Elderly (ASPREE) trial into **revised primary prevention aspirin guidelines,** just six months after ASPREE published primary results in the NEJM in September 2018.

Professor Susan Davis's findings on testosterone supplementation for postmenopausal women formed the basis for the first 'Global Consensus Position Statement on the Use of Testosterone Therapy for Women'.

The **Australian Living Evidence Consortium**, chaired by Associate Professor Julian Elliott, was awarded funding from the Victorian Department of Health and Human Services to develop a business case for large-scale investment to advance the Living Evidence model pioneered by Cochrane Australia and partners over the last five years. The Consortium's comprehensive program is built around living guideline demonstration projects in stroke, diabetes, kidney disease, heart disease and musculoskeletal conditions, and includes the establishment of a National Centre for Living Evidence.

INTERNATIONAL CONFERENCE ORGANISATION

Seven staff and students from Cabrini Epidemiology attended the International Preventing Overdiagnosis Conference in Sydney where they delivered nine presentations, including a plenary presentation by Professor Rachelle Buchbinder AO on 'Wiser healthcare for musculoskeletal conditions'. Prof Buchbinder also served on the conference scientific committee and Dr Denise O'Connor contributed to the local organising committee.

Hosted by the Australian and New Zealand Intensive Care Research Centre, the Fourth Collaborative Clinical Trials in Intensive Care Medicine Conference took place at the Monash Prato Centre in Italy in May. The conference provided a unique opportunity for the 90+ delegates from 15 countries to engage with internationally renowned leaders in intensive care medicine clinical trials, and included high-calibre speakers including Howard Bauchner, editor-in-chief of the Journal of the American Medical Association.

PUBLICATION HIGHLIGHTS

Our researchers produced diverse and topical research that featured in high-impact peer-reviewed journals, generated numerous citations and scored highly on Altmetric rankings throughout 2019. In total, our researchers were involved in producing more than **1,200 publications**, **which you can browse here.**

Here is just a small selection of publication highlights throughout 2019:

Professor Rachelle Buchbinder AO and Professor Rinaldo Bellomo AO were among **Web of Science's Highly Cited Authors for 2019**. This distinguished list celebrates the production of multiple highly cited papers that rank in the top one per cent for field and year in Web of Science. It was Professor Bellomo's sixth consecutive year on the list, and Professor Buchbinder's second.

Professor Flavia Cicuttini and Katherine Sievert led a systematic review and meta-analysis that showed the role of breakfast in weight management is often overstated. The article was published in the BMJ, attracted international media coverage and ranked 50th of 2.7 million papers in Altmetric's most discussed scientific reports for 2019.

Professor Susan Davis and colleagues demonstrated that testosterone supplementation may significantly improve sexual wellbeing in postmenopausal women. The study, published in **The Lancet Diabetes & Endocrinology,** is the most comprehensive meta-analysis of testosterone treatment for women ever undertaken. Her team followed their initial publication up with two further major publications, providing the first ever reference ranges for sex hormone levels in premenopausal women, and in women aged 70 years and older.

The Australian and New Zealand Intensive Care Research Centre published the results of the **ICU-ROX** study in NEJM, which showed that conservative oxygen therapy did not significantly affect the number of ventilator-free days on adults receiving critical care. Their **SPICE-III** trial, also in NEJM, demonstrated that dexmedetomidine for sedation in critically ill patients may be a **particularly good candidate for older people**, who displayed lower levels of delirium and required fewer days of ventilatory support.

Professor Paul Myles led a landmark three-part series in **The Lancet** on the role of postoperative pain management in the emerging opioid crisis. It garnered significant international media attention, and was launched by dignitaries including The Lancet Senior Executive Editor Naomi Lee.

The Balanced Anaesthesia randomised controlled trial was published in **The Lancet**, with results that challenged associations between increasing anaesthetic depth and decreased postoperative survival reported in earlier observational studies.

The Upper Gastrointestinal Cancer Registry team published results from two pilot programs in the **BMJ.** The pilots demonstrated feasibility to measure quality of care among people with pancreatic or oesophagaeal cancer, two aggressive cancers that often significantly reduce quality of life.

Professor Rinaldo Bellomo AO



Professor Rachelle Buchbinder AO

Professor Allen Cheng contributed to a study published in **Nature Immunology** that identified a promising novel mechanism involving CD8+ T cells, that may point the way to a universal influenza vaccine that negates the need for annual reformulation.

Department of Forensic Medicine researchers used Victorian coronial data from the state's last heatwave in 2014 for a study published in the **BMJ** that revealed laboratory services need additional support to fully investigate and record heatwave related deaths.

Researchers from the Pre-hospital, Emergency and Trauma Research group analysed nine years of data from the Victorian Orthopaedic Trauma Outcomes Registry, and released results in the **MJA** that showed patients treated for isolated lower limb fractures who were discharged to home had generally better outcomes than those discharged to inpatient rehabilitation care.

Dr Paul Lacaze led researchers in an economic evaluation of population-screening in young adults for a battery of hereditary genetic mutations known to cause cancer in adults or life-shortening diseases in children. The paper, published in **Nature Genetics in Medicine**, showed significant cost-effectiveness of a screening program, with savings recouped from financial and productivity losses associated with treating the conditions.

The Global and Women's Health group published research in **BMC Pediatrics** that identified a need for information to help health workers advise new parents on infant sleep and settling in low- and middle-income countries. Poor infant sleep can reduce maternal confidence and increase parental stress.

Researchers led by Dr Arul Earnest used autoregressive integrated moving average modelling to predict the annual incidence and mortality rate of prostate cancer in Australia over the next three years, and their paper was published in the **BMJ.** As the second most common cause of cancer related death in Australian men, improved forecasting could allow better health service planning, especially in resource-poor regional areas.

Researchers with qualitative methods expertise joined Prostate Cancer Outcomes Registry researchers on a paper published in **PLOS One** that explored a known disparity in outcomes between urban and regional Victorian men diagnosed with prostate cancer. The in-depth interviews with rural men revealed a lack of accessibility to primary care, lack of consistency in diagnostic pathways and a reluctance to seek medical assistance.

Centre of Cardiovascular Research and Education in Therapeutics researchers ran an economic evaluation of clinical quality registries published in the **BMJ**, which revealed that while there is wide variation in return, registries show good return on investment by improving clinical care, with one government report evaluating five Australian registries estimating an overall return of 1.6 to 5.5 times the cost of investment.

Associate Professor Zoe McQuilten was first author on a **JAMA editorial** discussing the age of red blood cells for transfusion in critically ill children, and another published in **Transfusion** that explored the financial costs of transfusion among transfusion-dependent thalassaemia patients.

Dr Richard Ofori-Asenso published a meta-analysis in **JAMA** that explored the incidence of frailty among older community-dwelling adults, and called for frailty to be viewed as a distinct medical condition, rather than as an inevitable consequence of ageing.

Associate Professor Yuming Guo from the Climate, Air Quality Research Unit and colleagues mapped minimum mortality temperatures (MMT) in the present (2010s) and the future (2050s) for the first time. The resultant paper was published in **Nature Communications.** MMTs are an important indicator to assess the temperature—mortality relationship, and reflects human adaptability to local climate. He also published in **Environmental Health Perspectives** having quantified the geographic, demographic and temporal variations in the heat–hospitalisation association in Brazil from 2000–2015.



FUNDING SUMMARY

The School secured over \$34 million in research income during 2019 from a variety of government, industry and philanthropic sources, much of it derived from competitive grant schemes. These generous awards will fund high-impact, competitive research projects across the full spectrum of public health. Our researchers also led or contributed to numerous successful collaborative grants, to which they will lend their significant expertise.

The year was bookended by major grant success, with Professor Sophia Zoungas receiving \$8.6 million from the NHMRC and Heart Foundation in January to continue the **STAtins in Reducing Events in the Elderly (STAREE)** project, and Dr Ingrid Hopper gaining \$1.5 million to lead the STAREE-HEART sub-study, which will examine the role of statins among Australians at high risk of atrial fibrillation and heart failure. In December, Professor Erica Wood won major Medical Research Future Fund (MRFF) funding through the Synergy Grant scheme.

Head of the Transfusion Research Unit, Professor Erica Wood, was awarded a \$5 million Synergy Grant from the MRFF, for a battery of projects aimed at improving stewardship of national blood supplies and achieving better outcomes for patients experiencing major haemorrhages. She was concurrently awarded the inaugural Fiona Stanley Award, acknowledging her Synergy grant application as the top-ranked submission in the scheme for 2019.

Researchers at the Monash Centre for Health Research and Implementation secured \$5 million across two NHMRC Centres of Research Excellence, CRE-WHIRL exploring women's health through reproductive life and CRE-HIPP focussing on reducing maternal obesity across preconception and pregnancy.

The Australian and New Zealand Intensive Care Research Centre leveraged their successful SPICE-III trial to secure \$4.9 million of NHMRC funding for a follow-on sedation study in older critically ill patients. They also won \$3.5 million to fund the EPO-TRAUMA trial, a randomised control trial exploring Erythropoietin alfa to prevent mortality and reduce severe disability in critically ill trauma patients.

The Department of Forensic Medicine was awarded a \$4.5 million dollar grant from the Department of Social Services to provide education to frontline responders attending sexual violence cases, with a particular emphasis on reaching disadvantaged and minority communities. A series of courses will be delivered via College based continuing professional development programs, through Vocational Training Certificate courses.

Professor Susannah Ahern's team were awarded a \$2.3 million contract with the Commonwealth Department of Health to establish the Australasian Pelvic Floor Procedure Registry. This registry was recommended following the recent Senate inquiry into pelvic mesh, and aims to monitor quality of care and outcomes for women having these procedures.

The School's Infectious Diseases Epidemiology Unit, led by Professor Allen Cheng and Professor Karin Leder, secured several NHMRC grants. Professor Leder received two grants to explore gastrointestinal infections, including a \$3 million Ideas Grant to assist her work on the University's collaborative RISE program. Professor Cheng was CI on a grant to study tick bite-related illness in Australia.

The ASPREE trial welcomed a major funding injection from the National Institute on Aging to extend the project for a further five years through the follow-up ASPREE-XT study (see p 32 for details).



L-R: Prof Fiona Stanley AC, Prof Erica Wood, Prof Anne Kelso AO.

Professor Alex Collie's Insurance Work and Health Group received an ARC Discovery Grant to map the burden of work disability in Australia, an issue affecting over 250,000 Australians annually. The team also secured a grant from Safe Work Australia to extend the COMPARE project a further three years, industry funding for studies into health and return-to-work for coal miners and older healthcare workers, and NHMRC Partnership funding for the Driving Health study.

Associate Professor Janet Bray led a successful application for a Partnership Grant, drawing together funding from the Heart Foundation and Victorian Department of Health and Human Services. The project will identify geographic areas with a high prevalence of acute cardiac events to better target at-risk communities with education around early symptom identification and calling an ambulance.

Associate Professor Deborah Glass received funding to explore the effects of per- and poly-fluoroalkyl substance (PFAS) exposure on firefighter health, and with her colleagues at the Monash Centre for Occupational and Environmental Health, obtained an NHMRC Partnership grant to investigate the cancer and mortality experience of 180,000 Queensland coal mine workers which will include individual smoking data.

Dr Joanne Ryan, Head of the Biological Neuropsychiatry and Dementia Unit, received funding this year to continue her work exploring epigenetic changes driving intergenerational transmission of trauma. She's completed previous work on Kosova women surviving sexual and physical abuse during the Yugoslav Wars, and is supported by the Danish Institute Against Torture, the University of Copenhagen and the Kosova Rehabilitation Centre for Torture Victims.

Other funding secured during the year will fund a diverse range of projects including research methodology, at-risk worker cohort studies, drug investigations, trauma research, registry development, healthy ageing, program evaluations and resource development, among others.



IN THE NEWS

Media coverage is an important way to share new knowledge and expertise with the public and healthcare professionals, and advocate for improved health. Here are just some of the media hits our researchers achieved during 2019.

Dr Suzanne Mahady on the driving forces behind a rise in bowel cancer incidence among young Australians. (The Conversation)

Briony Murphy and Professor Joseph Ibrahim found that a quarter to a third of depression cases in nursing homes are unrecognised and untreated, underpinning the 140 suicides in nursing homes between 2000 and 2013. (The Guardian)

Professor Allen Cheng on the history, efficacy and safety of the influenza vaccine (The Conversation, Newscorp), and links between prophylactic antibiotic use among farmed animals and antibiotic resistance. (The New Daily)

Dr Paul Lacaze and Jane Tiller called for free genetic testing for Australians aged 18-25 years old, with associated costs recouped by savings achieved through prevention and early diagnosis. (The Conversation, Channel 7). Jane also conducted numerous media interviews shining a light on life insurance providers denying cover to people with inherited cancer gene mutations. (Channel 7)

Dr Karin Hammarberg on the reliability of egg quality testing in women to guide fertility preservation decisions such as freezing eggs. (The Conversation, Sydney Morning Herald, ABC)

Dr Rosanne Freak-Poli on the perils of isolation and Ioneliness among elderly Australians at Christmas. (Fairfax

The Australian Breast Device Registry mentioned in regards to the associations between rare blood cancers and some breast implants (The Age), and again after several implants were suspended by the Therapeutic Goods Administration. (Herald Sun)

Gambling health researcher Associate Professor Charles Livingstone on the Australian Football League's decision to ban a player after placing bets advertised on their own website. (Nine Network News)

Professor Jane Fisher AO called for a credentialling scheme for unregulated sleep schools taking payment from young parents at a time of great stress (ABC)

Professor Helena Teede called for gender equity in medical leadership. (ABC)

Clinical Neuropsychologist Dr Laura Anderson's research found a large disparity between official and anecdotally reported rates of cognitive impairment among the Victorian prison population, and how this needs to be better understood to improve outcomes. (The Age)

Associate Professor Ilana Ackerman featured in the Australian Financial Review after a paper that estimated the coming burden of total knee and hip replacement surgery in Australia due to osteoarthritis.



GLOBAL HEALTH IMPACT

Empowering resource-poor nations to deliver high-quality healthcare is a key part of public health, and we achieved this through a number of programs and projects in 2019.

Cochrane Australia continued their United States Agency for International Development funded work with the Indonesian Academy of Sciences, with senior researchers travelling to Jakarta to interview health policymakers and deliver workshops on evidence synthesis and knowledge translation.

Infectious Diseases researcher Professor Karin Leder continued her involvement on the flagship RISE program, a collaborative program led by the Monash Sustainable Development Institute since 2017 to improve water and sanitation management in urban informal settlements in Fiji and Indonesia. Karin serves as Assessment Lead on the Program's Executive Team. In 2019 the program involved 7,055 people across 26 communities, and saw the collection of 1,587 bio-samples for analysis, the completion of 3,393 surveys on childhood health, and secured \$9.3 million in funding.

Researchers from the Global and Women's Health Unit secured joint international funding in 2019 for their ongoing portfolio of research and culturally-appropriate resource delivery in Vietnam, focussed on adolescent mental health and parenting skills, and a multi-component educational intervention to improve women's health and infant development in rural Vietnam. They also worked on two projects in India; one aiming at increasing access to contraception in Pune, and another seeking to deliver respectful maternity care to prevent obstetric violence in public hospitals.

Our Epidemiological Modelling Unit, led by Dr James Trauer, put their skills to use tackling tuberculosis in resource-poor countries during 2019. In the Marshall Islands, they modelled enhanced disease control based on active case identification on behalf of the WHO, and performed similar work for Mongolia under a grant from the Global Fund to Fight AIDS, TB and Malaria. The team published on the burden of tuberculosis in **BMC Medicine**, and also published on the applications of their new tuberculosis disease models to Bulgaria and Fiji.

Dr Samantha Rowbotham from the Department of Forensic Medicine spent November 2019 undertaking a voluntary capacity development project in Kathmandu, Nepal, where she taught forensic pathology registrars the basic principles of human osteology and forensic anthropology. She also worked with colleagues at the Kathmandu Medical College to develop a one-day workshop on the analysis and interpretation of skeletal trauma, attended by more than 40 doctors from Nepal and India.







Dr Samantha Rowbowtham teaching in Nepal

Dr James Trauer

CLINICAL TRIALS

The School manages a significant portfolio of clinical trials including large multi-national and multisite trials. A number of major trials released their primary results in 2019, and are featured in the Publication Highlights section on page 24.

Two of our recently completed trials were recognised with awards from the Australian Clinical Trials Alliance for extraordinary contributions to health and the health system. Trial of the Year Award was given to the ASPirin for the Reduction of Events in the Elderly (ASPREE) study, while the REstrictive versus LIbEral Fluid Therapy for Major Abdominal Surgery (RELIEF) trial was a finalist.

The RELIEF trial, published in **NEJM in 2018**, showed that the provision of moderately liberal intravenous fluid to people undergoing major surgery could reduce risks associated with kidney damage, low blood pressure and wound infection, compared to a commonly utilised protocol of restricted fluid delivery. It marks the first proven regime to prevent kidney damage after surgery, and could change practice around the world and improve outcomes for the 310 million people annually that undergo major surgery.

The ASPREE trial made international headlines in 2018 when the primary results **published in NEJM** revealed that among otherwise healthy, community-dwelling older people, the risks of taking daily low dose aspirin to prevent illness outweighed the benefits. During 2019, ASPREE welcomed a funding injection from the US-based National Institute on Aging to extend the project for a further five years. The observational follow-up ASPREE-XT study tracks long-term health outcomes of participants across cancer, dementia, cardiovascular health, physical disability, depression and other variables.

The main 2018 findings were rapidly incorporated into updates of primary prevention aspirin guidelines from the American College of Cardiology and the American Heart Association, and project representatives presented at a range of prestigious international medical conferences.

Other major clinical trial updates include:

The flagship STAtins in Reducing Events in the Elderly (STAREE) randomised controlled trial continued recruiting community-dwelling, healthy older Australians to examine the safety and efficacy of commonly prescribed cholesterollowering statin medications to prevent cardiovascular events. They expanded recruitment to cover six Australian states, hitting a recruitment milestone of 6,000 participants in November. The project team places special emphasis on recruiting regional and rural Victorians, and conducted a number of study updates and community engagement events specific to this cohort throughout 2019. Nearly 10 per cent of all Australian General Practitioners have been on-boarded to recruit participants.

The new STAREE-HEART sub-study spent 2019 obtaining ethics approval and recruiting the first participants. A thousand STAREE participants will have echocardiograms, which will be used to assess the role of statins in reducing atrial fibrillation and heart failure. These two conditions have a significant disease burden profile; atrial fibrillation doubles the risk of mortality in those over 80 years old, and is believed to cause up to 20 per cent of strokes, while heart failure is prevalent in around half a million Australians, with 50 to 75 per cent of them dying within five years of diagnosis.

The School's Transfusion Research Unit coordinates several clinical trials in the haematology space that progressed during the year. The Trial to Examine Tranexamic Acid Therapy in Thrombocytopaenia (TREATT) is a double-blind, randomised controlled trial being run in conjunction with UK-based NHS Blood and Transplant. Researchers are evaluating this drug for use in patients with haematological conditions, and the study recruited its 500th patient during the year.

The same group's RATIONAL trial closed recruitment in March 2019. Funded by the National Blood Authority, this phase two randomised controlled trial compares the efficacy of prophylactic antibiotics and immunoglobulin in a subset of patients with haematological malignancies, looking at adherence to and acceptability of the treatments as primary outcomes. The team continued to collect data throughout the year from enrolled participants, who are followed for a 12-month period during which they are assessed for secondary outcomes including infections, hospital admissions, costs and quality of life.





CLINICAL REGISTRIES

monash.edu/medicine/sphpm/registries

The School is home to 35 clinical registries that collect standardised data to measure and drive improvements in quality of care, and monitor variance in service. Our registries are supported by our dedicated **Registry Science and Research Unit (RSRU)**, providing expertise in registry development and management across funding; ethics; governance; stakeholder management; and data collection, storage and analysis.

Our registries span medical devices, drugs, procedures and disease states. A full list of registries and details of their activities is available here in the **latest Registry Portfolio**.

REGISTRY SCIENCE AND RESEARCH UNIT

Led by group leader Professor Susannah Ahern, RSRU members published a **key paper** in 2019 presenting a framework for guidelines on integrating Patient Reported Outcome Measures (PROMs) into registries. PROMs provide a mechanism to incorporate important subjective patient experience data into the highly-standardised registry environment, facilitating the reporting of metrics that matter most to patients.

December 2018 saw representatives from the School's clinical registries and the RSRU host Australia's first Clinical Registries Summit, bringing together 130 key stakeholders across policy, clinical practice, research, industry and the public to share experiences and maximise the value of registries. Off the back of its success, the second Summit was held in October 2019 in conjunction with the Victorian Agency for Health Information and the Commonwealth Department of Health, and more than 180 delegates attended.

REGISTRIES AND CLINICAL TRIALS

Registries are a robust platform on which to run clinical trials, and we have several registries performing this function.

The EXCEL Registry, under Professor Carol Hodgson, began recruitment in February 2019, monitoring long-term outcomes of critically ill patients requiring extracorporeal membrane oxygenation (ECMO), with the aim of informing best practice. Three clinical trials are embedded in the registry: BLENDER, a randomised controlled trial exploring oxygen saturation; ECMO Energy, an observational study exploring energy expenditure by patients; and OBLEX, an observational study exploring blood coagulation.

The Australian Aplastic Anaemia Registry forms the basis of the NHMRC-funded Diagnosis of Aplastic Anaemia, Management and Outcomes, utilising a National Dataset (DIAAMOND) study. DIAAMOND investigates the use of novel blood-cell stimulating agent Avatrombopag in patients with severe Aplastic Anaemia. It's the only Australian intervention involving a new drug for this rare and deadly blood disease in over 30 years, and has enrolled 15 patients across 10 sites.



Prof Susannah Ahern

REGISTRY HIGHLIGHTS FOR 2019 INCLUDE:

The Bariatric Surgery Registry surpassed 80,000 participant enrolments, and secured hospital representation from all states and territories across Australia and New Zealand. The team also began a pilot PROM project due for implementation in 2021.

The Burns Registry of Australia and New Zealand released an annual report, highlighting the risks of scald burns in the elderly, who often experience poor recoveries. The team conducted targeted media outreach to educate older people and carers about simple ways to reduce the risk of scald burns in homes.

Victorian Orthopaedic Trauma Outcomes Registry data underpinned four publications in high quality peer-reviewed journals, including a key paper in the **MJA**.

The National Gynae-Oncology Registry completed a twoyear Ovarian, Tubal and Peritoneal pilot project in 2019, following recruitment of 575 participants. The Registry was awarded the Audrey Voss Gynaecological Cancer Research Grant, enabling it to expand into a multi-modular registry, covering Endometrial, Cervical and Vulvovaginal Cancers.

2019 was a huge year for the Myeloma and Related Diseases Registry (MRDR), which surpassed 3,300 recruited participants and accrued bio-samples from 410 patients in the Myeloma 1000 Biobank. Team members contributed to the establishment of a new regional registry, the Asia-Pacific MRDR. The team also secured funding for a treatment study stratified by patient frailty status, which is of huge consideration given the older cohort most commonly affected by these conditions.

The Upper Gastrointestinal Cancer Registry started recruitment for the PROpatient pilot in 2019, trialling registry-based electronic collection of PROMs and patient reported experience measures (PREMs) for people with pancreatic cancer (see page 39 for more details). The registry also received funding to create a pancreatic cancer CT image biobank to compare Australian care with European care, began data collection for the Biliary Cancer Module, and produced two peer-reviewed publications.

Our suite of prostate cancer registries underwent a great change in 2019, with lead researcher Professor Sue Evans departing the School to work with Cancer Council Victoria, handing leadership to Dr Nathan Papa.

The Prostate Cancer Outcomes Registry - Victoria celebrated a decade of improving outcomes for prostate cancer patients in the state, launched an Unmet Needs survey and a post-treatment support program called BroSupPORT. As of 2019 the Prostate Cancer Registry - Australia and New Zealand, now in it's fifth year, incorporates data from the majority of newly diagnosed men across both countries. And finally, the international TrueNTH Global Prostate Cancer Registry continued to operate across 13 countries, and in 2019 delivered the first waves of quality indicator reports which will be used to demonstrate how registry reporting metrics are driving clinical practice improvements.

The Commonwealth government funded Australian National Diabetes Audit rolled out the Australian Quality Clinical Audit across 80 diabetes centres nationally, capturing data that will inform clinical practice to improve outcomes for Australians receiving diabetes care through participating centres. The exercise identified areas for improvement around HbA1c reporting and complications screening, among others. The team also produced a series of publications in high-impact journals and a **report for government**.

The Victorian Lung Cancer Registry issued an annual report to share updates with stakeholders, and expanded to 85 per cent population capture in Victoria. The team entered negotiations with institutions in other states to capture data. Finally, funding was secured to trial a value-based healthcare model for people with lung cancer attending Monash Partners Comprehensive Cancer Consortium sites.

2019 was the Australian Breast Device Registry's biggest and busiest year yet. More than 11,000 Australians undergoing breast device procedures contributed data to the registry, bringing the total to 49,000 patients, and reflecting an opt-out rate under 1.3 per cent. 13,428 participants completed PROMs questionnaires during the year. The registry continued to lead an international collaboration of breast-related registries (ICOBRA) and contributed to expert working groups exploring the links between breast devices and Anaplastic Large Cell Lymphoma. The team generated **annual reports**, multiple peer-reviewed journal articles and provided detailed, personalised reports to hundreds of contributing surgeons and operation sites.

The Australian and New Zealand Massive Transfusion Registry received more than 10,000 submitted cases from participating sites during 2019, capturing critical bleeding events across all clinical bleeding contexts. The registry's successful pilot expansion demonstrated feasibility of collecting all transfusion data, beyond that for massive transfusions, making it a potential platform for a truly national transfusion dataset.

The Australian and New Zealand Society of Cardiac and Thoracic Surgeons registry became bi-national in 2019, with the addition of Auckland City Hospital as a site, and linked with the Australian and New Zealand Intensive Care Society's Adult Patient Database to support a program of related research.

The Victorian Cardiac Outcomes Registry (VCOR) now captures all percutaneous coronary interventions in the state, and significantly expanded activities associated with the cardiac implantable devices module in 2019. These are an effective method to prevent sudden cardiac death in patients with a personal or family history of cardiac arrest, or ameliorate symptoms of heart failure. The module moved from pilot phase to fully functioning registry in 2019, collecting data from 13 hospitals and capturing information from 640 procedures across 622 enrolled patients. VCOR's 2019 annual report reveals important data around indications for use, patient demographics and clinical outcomes, all of which will drive performance assessment and quality assurance for the devices.



A/Prof Ingrid Hopper manages the Australian Breast Device Registry



QUALITATIVE, MIXED METHODS AND IMPLEMENTATION RESEARCH

The School is home to a range of qualitative and mixed methods researchers, and people with implementation science knowledge, many of whom work within our Global and Women's Health group and the Monash Centre for Research and Health Implementation. Here are some of our milestones and highlights from 2019.

PROpatient is a clinical trial based within the Upper Gastrointestinal Cancer Registry, aiming to improve quality of life for patients with pancreatic cancer. A major trial component involves integrating subjective patient data about their experiences of treatment and ill-health into the highly standardised registry environment, to generate patient-focussed treatment goals and metrics. Recruitment began in 2019, and staff are electronically collecting Patient Reported Outcome Measures (PROMs) and Patient Reported Experience Measures (PREMs) into the registry.

Dr Heather Rowe and colleagues won MRFF funding this year for a project seeking to better integrate maternal and child health services and general practice in regional Victoria, using an evidence-informed model of postnatal mental healthcare called What Were We Thinking? Initially planned for Victoria's La Trobe Valley but designed for scale-up opportunities, the project will bring together experts in implementation science with consumers, government, primary care and community health partners. The researchers will use a Theoretical Domains Framework to guide investigations of stakeholder perspectives, informing the process to identify and measure change in barriers and enablers to success.

Dr Darshini Ayton took the lead with the MyCare Ageing project in 2019. This builds on the findings of the 6-PACK Falls Prevention project which found patients with dementia or delirium to be at high risk of falls, and a systemic perceived lack of resources to provide adequate care for them. A pre-implementation study at the Alfred Hospital in 2017 discovered strong staff and carer acceptability for involving volunteers in a tailored care program for these vulnerable patients. Funded by a 2019 Monash Partners MRFF Rapid Translation grant, Dr Ayton led a co-design project during the year to develop a comprehensive program to train volunteers in this capacity. Working in partnership with Baptcare, clinicians, consumers and implementation researchers, the program began training 50 volunteers, and is seeking funding in 2020 to evaluate impacts via a stepped wedge randomised controlled trial.

Professor Helena Teede led a successful application in 2019 for a jointly funded NHMRC/European Union grant to develop and trial a low-cost, evidence-based smartphone app aimed at reducing the incidence of gestational diabetes. Women with the condition are more likely to develop type 2 diabetes and children exposed to hyperglycaemia in the womb are predisposed to becoming overweight or obese. Professor Teede will apply her implementation science knowledge to the IMPACT DIABETES B2B project, empowering at-risk women to make healthy decisions that will improve pregnancy and postpartum outcomes.







Professor Helena Teede



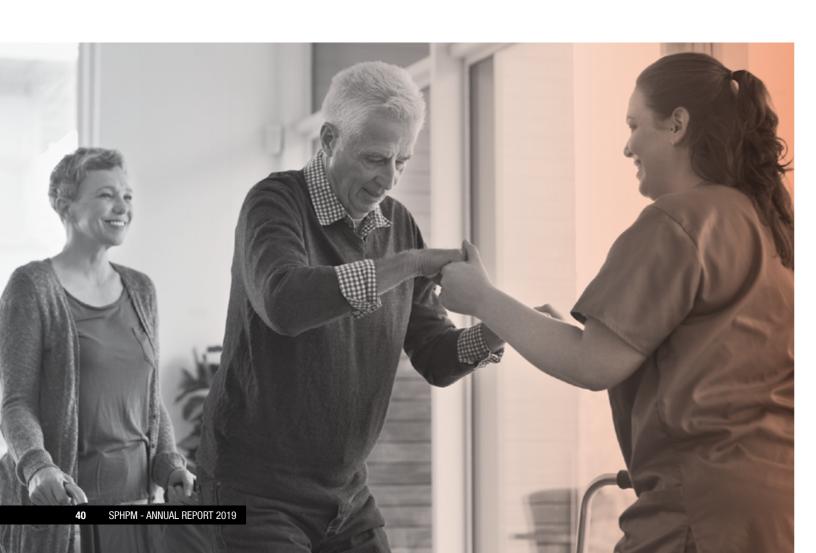
Professor Helen Skouteris

Monash Warwick Professor Helen Skouteris is the Australian lead of the new EXIT study funded in 2019 by a £2million grant in 2019 on a project funded by Ann Hyams and the Grenet from the UK's Economic and Social Research Council, that will search for better ways to support vulnerable young people as they leave the care system and become independent adults. The four-year project will see her contribute health and social care expertise as they attempt to identify successful innovations to date, and understand how those innovations can be introduced, shared and adopted by organisations to best effect.

Dr Maggie Kirkman and Professor Jane Fisher AO undertook research aimed at improving the mental health and wellbeing of older women in Australia, by filling a gap in knowledge about factors that foster good mental health. This contrasts with the approaches of much previous research, which has traditionally focussed on ill-health and disorder. During the year they interviewed 18 women with diverse life experiences Professor Belinda Gabbe from the Pre-hospital, Emergency and backgrounds for the project, which is part of a larger mixed-methods research program. They found that a sense of purpose, social interaction, feeling heard, physical activity and faith or belief were contributors to good mental health across the lifespan. Older women also wanted respect, access to good, holistic healthcare; and independence. The research was funded by the Liptember Foundation.

Dr Kirkman also worked with colleague Dr Claire Stubber Foundation, to create a website for people considering having heart or lung transplants. Evidence shows that people making emotionally-charged decisions about organ transplantation benefit from access to the experiences of peers. Stories from transplant recipients can make potential recipients feel less alone and better informed; they also serve to inform families and clinicians about the experience. Maggie interviewed seven lung and heart transplant recipients at length during the year. The videos are being segmented so that they can be viewed as a whole and searched by topic; the interview transcripts are being analysed for scholarly publication. The videos will be freely available on the Heart and Lung Transplant Trust of Victoria's website. The team hopes to secure further funding to

and Trauma Research group led the Major Trauma Recovery Coordinator (MTReC) project, which concluded in 2019. This mixed-methods project trialled a model of coordinated care delivery to trauma patients upon discharge from hospital, building on earlier findings that they experienced disjointed post-discharge care. The research team's approach included patient satisfaction surveys and in-depth patient interviews, MTReC workload data, and linked data from the Victorian State Trauma Registry, data collected by the MTReCs, and healthcare utilisation data from the Alfred Health Clinical Performance Unit. While patients valued the new care coordinators, multiple issues were identified in existing care delivery, no association was seen between MTReC engagement and patient-reported outcome measures, or the use of healthcare services, in the six months after injury.



BIOSTATISTICS, RESEARCH METHODOLOGY AND EVIDENCE SYNTHESIS

Biostatistics, epidemiology and evidence synthesis are at the heart of our work. Our extraordinary array of talented researchers and support staff have great expertise in research methodology, governance and ethics.

The Biostatistics Collaboration of Australia (BCA) won the Statistical Society of Australia's 2019 President's Award for Leadership in Statistics. Monash University was a foundational member of the BCA and Professor Andrew Forbes, Head of our Biostatistics Unit, sits on the BCA's Executive Committee. Our postgraduate Biostatistics degree is taught through the Collaboration.

Cochrane Australia leads the way on evidence synthesis, advocating for and delivering reliable, accessible and current evidence in health. In 2019 Global Cochrane Editor-in-Chief Dr Karla Soares-Weiser helped Cochrane Australia launch the second edition of the Cochrane Handbook at their symposium. The team led living evidence workshops at the Guidelines International Network conference, delivered training on systematic review methods and GRADE, worked with Cochrane Indonesia to provide educational sessions in Yogyakarta, and continued leadership of the Australian Living Evidence Consortium.

A group led by School researchers Professor Rory Wolfe, Professor Andrew Forbes, Associate Professor Stephane Heritier and Professor Steve Webb received a \$2.5 million NHMRC Centre of Research Excellence grant to establish the Australian Trials Methodology (AusTriM) Research Network during the year. The network unites Australia's leading biostatisticians holding expertise in trials and investigators who conduct landmark trials across a range of health and medical fields. They will develop, evaluate and apply innovative approaches in design and analysis of clinical trials in order to deliver better health outcomes.

The year closed with an Ideas Grant being awarded to Professor Andrew Forbes to explore cluster-randomised trials in public health research, allowing analysis of complex studies including changes to intervention protocols over time, or involving participants switching between groups. Resolving some of the substantial practical issues that complicate their use in real-world trials will facilitate increasingly sophisticated trials that enable evidence-based changes in healthcare practice and policy.



Professor Andrew Forbes



Research Governance Committee 2019. Back L-R: Prof Malcolm Sim, Patrick Splawa-Neyman, Prof Robin Bell, Dr Jayamini Illesinghe, Dr Siew Lim. Front L-R: Prof Susannah Ahern, Marina Skiba, Prof Danny Liew.

RESEARCH ETHICS AND GOVERNANCE

The School's Research Governance Committee provides training and support to ensure human research projects deliver robust results that genuinely improve important health outcomes, and are designed with participant safety and interests in mind.

Led by Chair Professor Danny Liew and Research Governance Officer Dr Marina Skiba, during 2019 the Committee digitised a module of the long-running Ethics and Good Research Practice training, increasing access to staff and PhD students. The team created a comprehensive map of research data storage locations throughout the School, facilitating compliance with Australian and global data protection requirements, and delivered ten TransCelerate Accredited ICH Good Clinical Practice (GCP) training sessions.

OBSERVATIONAL AND COHORT STUDIES

The Silica-associated Disease Registry launched in response to an alarming re-emergence of silicosis diagnoses among stonemasons, associated with a rise in consumer demand for artificial stone. Ongoing inhalation of silica dust can cause irreversible scarring of the lungs which can lead to lung transplant or premature death. The new registry began enrolling participants in 2019, and worked with Worksafe Victoria to develop a free health assessment program for the state's stonemasons. Key registry staff also compiled a literature review for WorkCover Queensland looking at support for workers suffering from the disease.

The Victorian Government-funded Hazelwood Health Study marked its fifth year investigating the health impacts of smoke from the 2014 Hazelwood coalmine fire. 2019 saw the team analyse a large amount of data and share findings with affected communities and wider scientific audiences. Major findings included increased risk of gestational diabetes among smoke-exposed pregnant women; increased respiratory symptoms in children aged from birth up to two years when exposed, and also in adults; and moderate distress and poorer NAPLAN results among exposed school students. They continue to monitor and share their findings, which will help the planning of health services to meet community needs.

The ICAN project, led by Associate Professor Zoe McQuilten and funded by the National Blood Authority, opened recruitment in 2019, leveraging data and infrastructure from the Lymphoma Related Diseases Registry to explore the impact of immunoglobulin administration and other infection prevention strategies on 500 patients with chronic lymphocytic leukaemia and non-Hodgkin lymphoma. Researchers aim to identify which patients the various treatments are best suited to.

Dr Helen Kelsall and Professor Malcolm Sim AM from the Monash Centre for Occupational and Environmental Health worked with Professor Jeffery Rosenfeld on the *Transition and Wellbeing Research Programme* that reported its findings to the Department of Veterans' Affairs and Department of Defence in 2018 and 2019. The study investigated the physical health of Australian Defence Force (ADF) members who transitioned from the Regular ADF between 2010 and 2014 (including ex-serving, active and inactive reservists) compared with Regular ADF members serving in 2015, and investigators also worked on the *Impact of Combat Study*.



Professor Malcolm Sim AM

STAFF DISTINCTIONS

Former Head of School Professor John McNeil AO was presented with the David de Kretser Medal and Lifetime Achievement Award by Monash University's Faculty of Medicine, Nursing and Health Sciences, acknowledging his contribution to the Faculty and the field of medical science. He was also recognised in the Australia Day Awards for his services to epidemiology and public health.

Other Australia Day and Queens Birthday Honours were provided to the following individuals:

Adjunct Professor Margaret Hellard AM, also of the Burnet Institute, recognised for significant service to medicine as an infectious diseases and public health physician and research scientist.

Emeritus Professor Olaf Drummer AO, Professor of Forensic Medicine, recognised for his contributions to forensic toxicology, to medical education, and to professional groups.

Professor Jane Fisher AO, Head of the Division of Social Sciences Research, recognised for her contributions to perinatal mental health, to women, and to the community.

Adjunct Clinical Professor Andrew Way AM, Chief Executive of Alfred Health, recognised for significant service to medicine through administrative and advisory roles.

Adjunct Clinical Professor Rodney Cooter AM, recognised for significant service to medicine, to plastic and reconstructive surgery, and to professional medical bodies.

Professor Malcolm Sim AM, Head of Monash Centre of Occupational and Environmental Health, for services to occupational and environmental medicine.

Professor Michael Grayson AM, for services to infectious diseases medicine.

Other various achievements:

Associate Professor Yuming Guo, Head of the Climate, Air Quality Research Unit received an NHMRC Research Excellence Award for his outstanding contributions to climate change and health.

Professor Erica Wood won the inaugural Fiona Stanley Synergy Award, recognising her top-ranked Synergy grant application that she will use to investigate blood transfusion management.

Dr Kylie Dyson and Dr Emma Ridley were finalists in the Victorian Premier's Award for Health and Medical Research. Kylie's work highlighted a need for greater cardiac arrest resuscitation training among Victorian paramedics, while Emma's research has led to a world-first industry collaboration to investigate the role of nutrition on patient recovery following critical illness. Emma was also awarded the Jenny Keating Prize for Nursing and Allied Health.

Professor Flavia Cicuttini was awarded a Fellowship of the Australian Academy of Health & Medical Sciences.

Professor Malcom Sim AM was inducted as a Fellow of the Collegium Ramazzini, a group comprising 180 internationally renowned occupational and environmental health experts.

Professor John Zalcberg OAM was awarded the Red Cross Distinguished Service Award for services to the Australian Red Cross Blood Service, including serving as a Board Member, and on their Advisory Committee where he advocated for appropriate use of blood products in Australia.

Professor John McNeil AO and the ASPREE team won the Alfred Research Alliance Award for highest impact factor publications in clinical research, for their three articles in the NEJM releasing the primary results of the landmark trial.

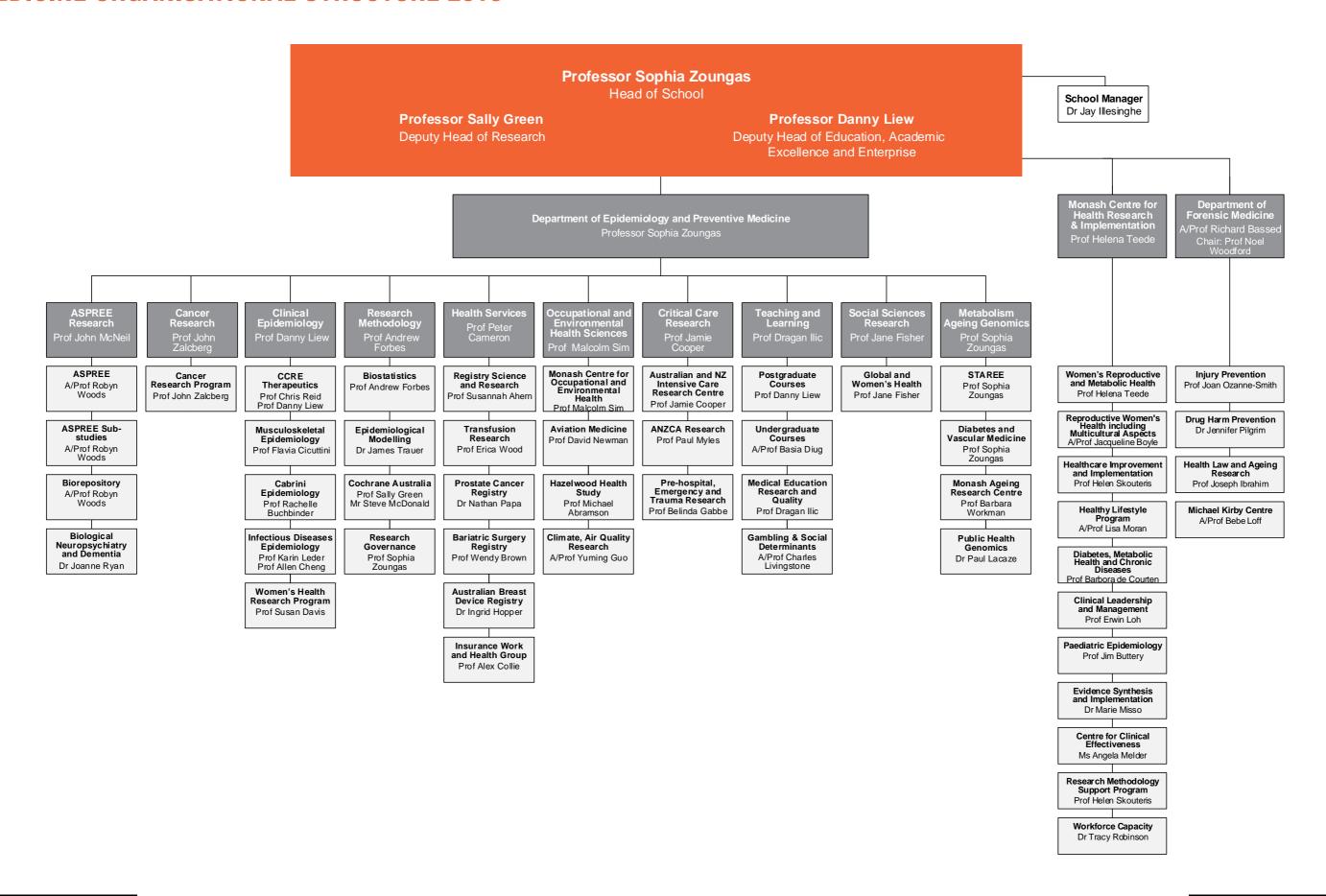
Professor Paul Myles won the 2019 Victorian Public Health Award for improving healthcare through clinical research, changing practice and making a difference to the health of patients both locally and around the world.

Professor Rinaldo Bellomo AO was awarded the 2018 BioMedVic Clinician Researcher Career Recognition Award for his outstanding track record in patient-based research, and a three-decades long influence on peers, colleagues and the next generation of clinician researchers.

Dr Alex Leaney was awarded the 2019 Victorian Australian and New Zealand Society for Geriatric Medicine prize for Advanced Trainees Research.



SCHOOL OF PUBLIC HEALTH AND PREVENTIVE MEDICINE ORGANISATIONAL STRUCTURE 2019



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