

BASIL HETZEL INSTITUTE RESEARCH REPORT 2019

Translational health research at The Queen Elizabeth Hospital



The Institute



the hospital
research foundation

TOGETHER. FIGHT.

9 THEMES

**HIGH QUALITY
RESEARCH
IN A PUBLIC
HOSPITAL
INEVITABLY
LEADS TO
BETTER CARE
OF PATIENTS.**

Guy Maddern

**05
DIRECTOR'S
REPORT**

**06
BHI
NATIONAL AND
INTERNATIONAL
COLLABORATORS**

CONTACT

**BASIL HETZEL INSTITUTE
FOR TRANSLATIONAL
HEALTH RESEARCH**

The Queen Elizabeth Hospital
Research Secretariat DX465101

28 Woodville Road
Woodville South,
South Australia 5011

T +61 8 8222 7836
F +61 8 8222 7872

► gwenda.graves@sa.gov.au

► basilhetzelinstitute.com.au

C AGEING

- 10 Adelaide Geriatrics Training and Research with Aged Care (G-TRAC) Centre
- 13 Rehabilitation Medicine

CANCER

- 16 Breast Biology and Cancer Unit
- 18 Breast Cancer Research Unit
- 19 Colorectal Cancer Research Group
- 20 Solid Tumour Group
- 24 South Australian Prostate Cancer Clinical Outcomes Collaborative (SA-PCCOC)

CARDIOVASCULAR DISEASE

- 26 Cardiovascular Pathophysiology and Therapeutics Group
- 27 Clinical Pharmacology Research Group
- 28 Translational Vascular Function Research Collaborative (TVFRC)
- 31 Vascular Surgery Research Group
- 32 Zinc and Cardiovascular Disease Research Group

CHRONIC DISEASE

- 34 Clinical Pharmacology Research Group
- 35 Endocrinology Unit
- 36 Stroke Research Programme
- 38 The Health Observatory

+ CLINICAL SCIENCES, HEALTH SERVICES AND POPULATION HEALTH

- 40 Anaesthesia Research Group
- 41 Intensive Care Medicine Research Group
- 43 Oesophageal Physiology Group
- 44 Psychiatry Research Group
- 45 Respiratory Medicine Unit and Clinical Practice Unit
- 46 Rheumatology Research Group
- 50 Surgical Science Research Group

DRUG AND VACCINE DEVELOPMENT

- 52 Therapeutics Research Centre
- 54 Virology Group

INFLAMMATORY DISEASE

- 58 ENT Surgery
- 61 Growth and Repair of the Small Intestine
- 62 Inflammatory Bowel Disease Research Group



65

RESEARCH
STAFF

71

RESEARCH
STUDENTS

81

GRANTS

95

PUBLICATIONS

110

HIGH PROFILE
INTERNATIONAL
TALKS

114

TQEH RESEARCH
EXPO

116

AWARDS

121

COMMUNITY
ENGAGEMENT

132

SUPPORT
STRUCTURES

134

CALHN HREC AND
RESEARCH OFFICE
REPORT

135

THE HOSPITAL RESEARCH FOUNDATION

136 CEO REPORT

137 SCIENTIFIC DIRECTOR

138 THRF FELLOWSHIPS AND GRANTS

142 BHI RESEARCH EQUIPMENT

143 ADDITIONAL SPONSORSHIP

144 COMMUNITY ENGAGEMENT

SPECIAL FEATURES

BHI RESEARCHER STORIES

- 12** Dr Danielle Taylor
- 56** Dr Branka Grubor-Bauk
- 60** Dr Nicky Thomas

PERSONAL STORIES

- 14** Erica and Jeff's Story
- 49** Dot's Story

56

**Breakthrough
in Zika virus
vaccine**

Dr Branka Grubor-Bauk





\$20M+ REVENUE

Grants, clinical academic salaries, scholarships and infrastructure support



100+

Clinical and research staff



80+

Research higher degree students



25+

Research groups



330+

Publications

DIRECTOR'S REPORT 2019

—

**THE NEXT
TWELVE MONTHS
PROMISES FURTHER
SIGNIFICANT
CHALLENGES
AND CHANGES,
WITH A STRONG
FUNCTIONING BASE.**



Research within the Central Adelaide Local Health Network (CALHN) has been the subject of increasing focus with Professor John Beltrame (Director of Research, CALHN) working to co-ordinate the efforts of translational research across The Queen Elizabeth Hospital and Royal Adelaide Hospital. Monthly meetings are now occurring with the leadership of The University of Adelaide, University of South Australia, SAHMRI, SA Pathology, Adelaide Biomed City and Health Translation SA. This has been further reinforced by the appointment of Professor Andrew Zannettino, strengthening links between CALHN and The University of Adelaide.

Unfortunately, while all these moves are positive, the focus of CALHN on reducing expenditure means time and resources available for research are under increasing pressure. High quality research in a public hospital inevitably leads to better care of patients. Better care is cheaper care as it avoids unnecessary complications and waste. This is a concept that must be constantly emphasised to the clinically untrained.

Fortunately the BHI continues to progress consistently, attracting in excess of \$20M annually of funding from NHMRC, health service research peer-reviewed grants, contract research and Government grants, and supplemented by SA Health and the universities. A \$2M Medical Research Future Fund grant is also due to commence in 2020.

Publications generated are at a record level in 2019 with a number in outstanding journals. Higher degree student numbers increased to over 80 in 2019 and 12 completions were achieved.

In 2019 the TQEH Research Expo continued to expand in a two day format that saw a record number of abstracts submitted and an outstanding plenary session by Professor John Rasko AO, Centenary Institute Sydney, building on his Boyer Lecture Series co-ordinated by the ABC.

The Hospital Research Foundation has again been instrumental in supplementing the BHI with funds to support equipment, postgraduate scholarships, post-doctoral support and some of the unforeseen costs of maintaining The Institute. Without this additional help, progress would slow at the BHI in an increasingly competitive environment for research dollars.

Perhaps the most significant initiative of The Hospital Research Foundation for 2019 was the support provided for a new part-time post of Scientific Director at the BHI and taken up by Associate Professor Joy Rathjen in July which has provided a strong stimulus for the team of researchers within the BHI.

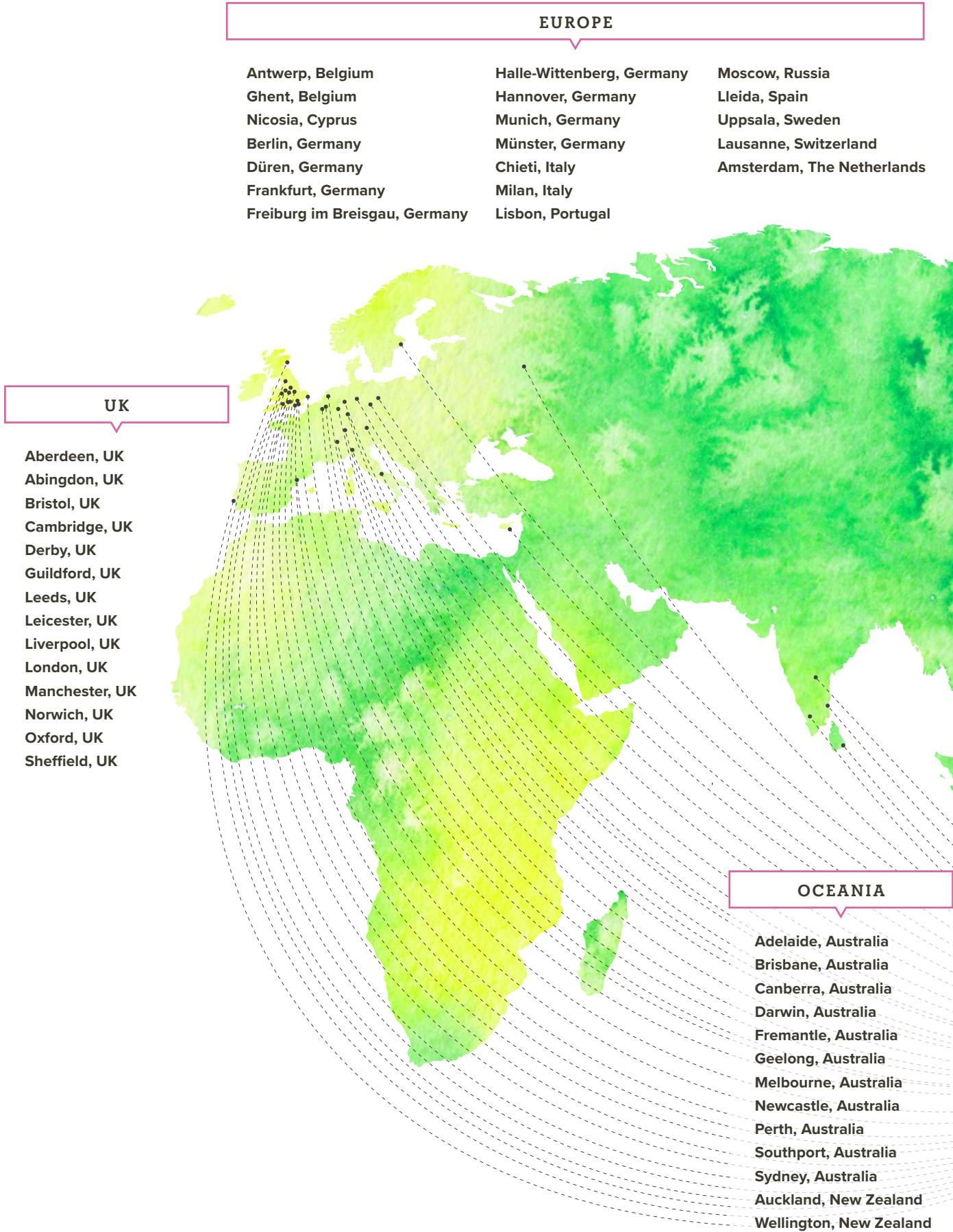
The next twelve months promises further significant challenges and changes, with a strong functioning base.

GUY MADDERN

Director of Research

Basil Hetzel Institute for Translational Health Research
THE QUEEN ELIZABETH HOSPITAL

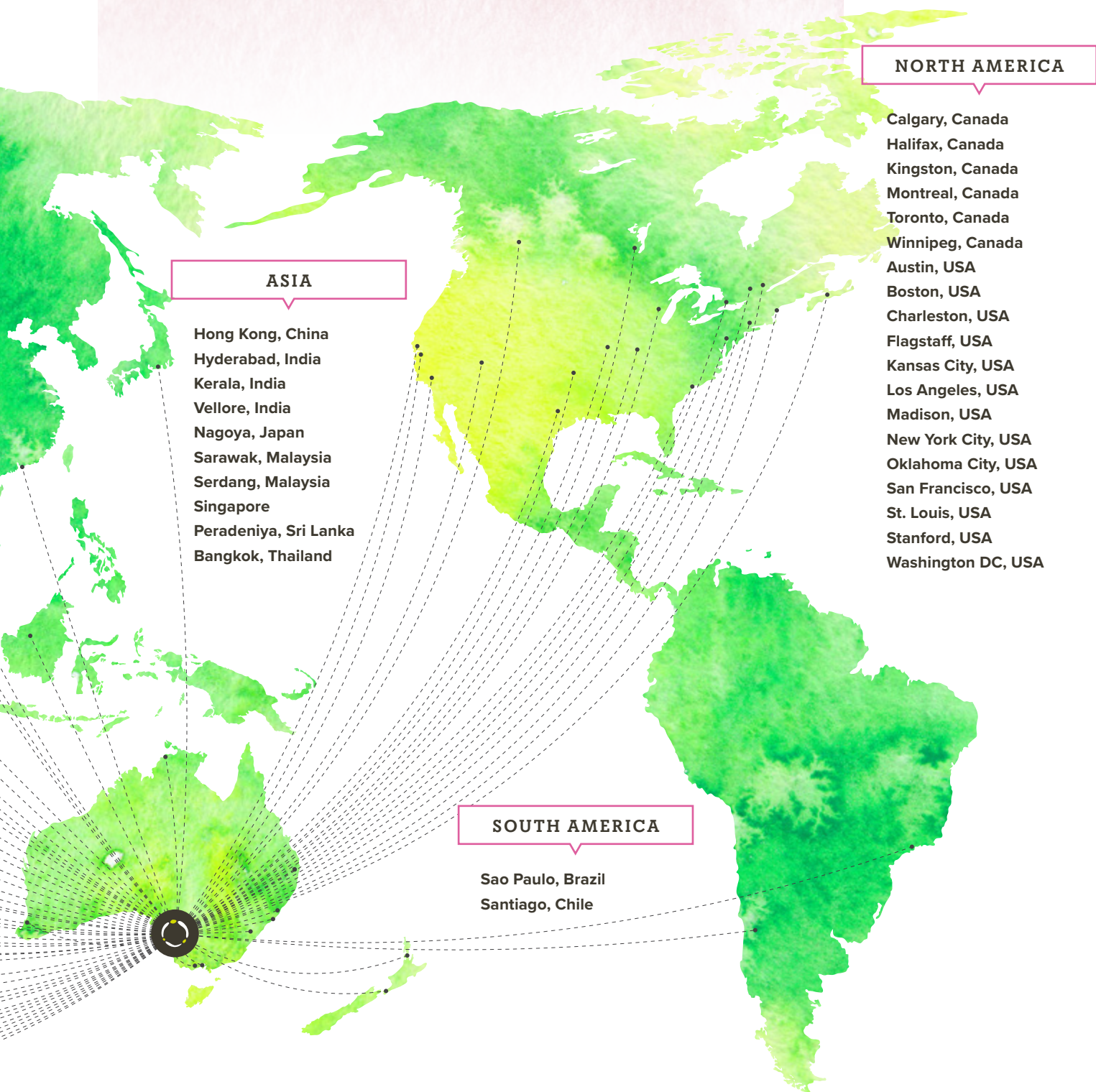
BHI NATIONAL AND INTERNATIONAL COLLABORATORS 2019

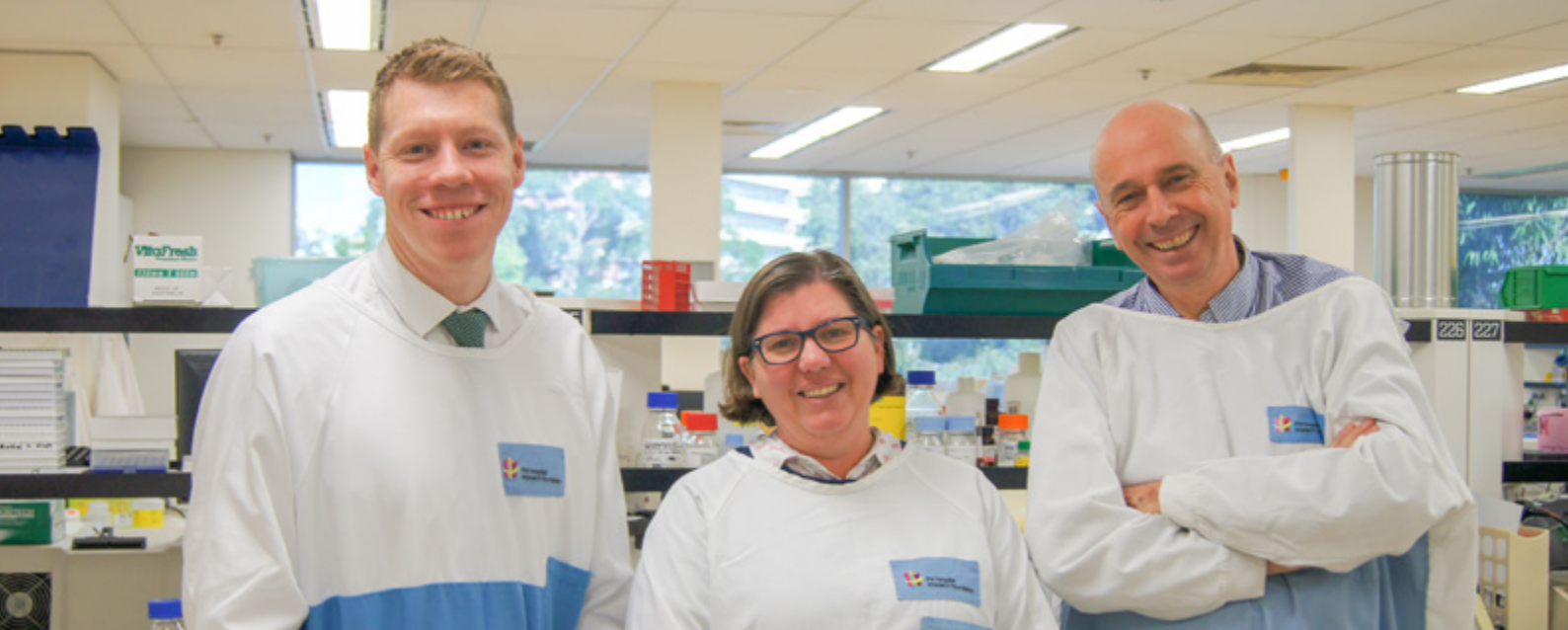


24
COUNTRIES

75 +
CITIES

300 +
EXTERNAL
COLLABORATORS





Top: Mr Joe Szakacs, Member for Cheltenham, with **Kathryn Hudson**, BHI Facility Manager and **Professor Guy Maddern**, Director of BHI, TQEH.
Middle: **Professor Guy Maddern**, Director of BHI, TQEH with Professor Caroline McMillen, Chief Scientist of South Australia, and **Professor John Beltrame**, CALHN Director of Research.
Bottom: (L-R) Professor Justin Beilby, Hon. Stephen Wade MLC, Emeritus Professor Derek Frewin OA, **Professor Renuka Visvanathan**, Mr Matthew McInnes and **Associate Professor Solomon Yu**.

RESEARCH GROUPS

Adelaide Geriatrics Training
and Research with Aged Care
(G-TRAC) Centre

Rehabilitation Medicine

AGEING

Photo provided by Adelaide G-TRAC Centre



Our research aims to improve the health outcomes and wellbeing of older people through high-quality geriatric medicine and gerontology training and innovative translational research.

We collaborate globally and focus on the areas of nutritional frailty, sarcopenia, falls prevention, dementia, aged care, health geography and gerontechnology. The team is committed to building the next generation of clinical specialists and research leaders in the field of geriatric medicine and gerontology.

OUR RESEARCH HAS HAD POLICY IMPACT.

RESEARCH HIGHLIGHT OF 2019

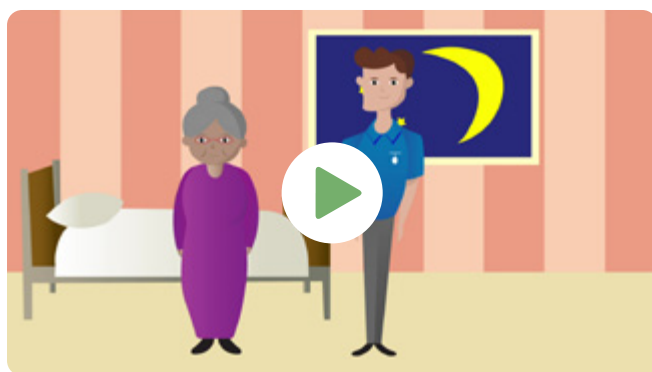
Reducing the waiting list for higher level care at home

At the end of December 2017, there were more than 100,000 people waiting for Home Care Packages with more than three quarters requiring higher level (Level 3 or 4) Home Care Packages. Our 2019 publication (listed below) showed that unmet need in community dwelling older people waiting for home care packages, arising when wait time extended beyond six months, was associated with increased risk of mortality and entry into permanent residential aged care when compared to wait times less than one month. Our research recommended that wait times for home care packages be reduced.

This publication has been accessed 2950 times, has an altmetric score of 42 and has been cited 3 times. But more importantly perhaps, our research has had policy impact. It was cited in the “Royal Commission into Aged Care Quality and Safety interim report: Neglect”, published 31st October 2019, where one of three recommendations for immediate action was “to provide more Home Care Packages to reduce the waiting list for higher level care at home”. This has since been met by a Commonwealth Government response announcing the release of 10,000 higher level Home Care Packages.

Visvanathan R, Amare A, Hearn R, Wesselingh S, Inacio M. Prolonged wait time prior to entry to community aged care services increases the risk of mortality and transition to permanent residential aged care services. Findings from the Registry of Older South Australians (ROSA). J Nutr Health Ageing 2019; 23(3): 271-280.

► <https://link.springer.com/article/10.1007%2Fs12603-018-1145-y>



2019 research

- Professor Visvanathan, with support from early career fellow Dr Joanne Dollard, completed a hospital falls prevention trial across two states, Western Australia and South Australia, investigating a technology co-designed with staff and consumers. The Ambient Intelligent Geriatric Management system trial, the largest hospital falls prevention technology trial globally, enrolled more than 3,000 participants. Early feedback from staff suggests that the intervention may be useful at night. The project was one of three finalists in the 2019 SA Health Awards in the Minister's Research and Innovation category. Final results of the trial will be available in 2020.

► www.youtube.com/watch?v=5oPyZIEDbLw

- Responding to a recommendation from a Commonwealth commissioned report on frailty in community dwelling older people and published in November 2017, mid-career fellow Dr Danielle Taylor developed and made freely available the first national interactive map displaying the distribution of frailty by postcode. The map, a global first, included projections for 2027. This tool can assist in service and policy planning.

► <https://bit.ly/383zJHW>

- Ms Rachel Ambagtsheer (PhD Candidate, Torrens University, co-supervised by A/Prof Solomon Yu) identified two frailty instruments with acceptable diagnostic test accuracy and proposed these tools for wider implementation within Australian general practice, a first for the Australian context. Such research provides necessary evidence for clinicians to guide their practice.
- Building on the knowledge gained thus far through our frailty research, we have sought advice from our Frailty Centre of Research Excellence Advisory Committee, as well as feedback from consumers through our research showcase event, to develop a frailty intervention for general practice. We are currently sourcing funding to further investigate this intervention in general practice.

► Publications for Adelaide Geriatrics Training and Research with Aged Care (G-TRAC) Centre

GROUP MEMBERS

Research Leaders

Renuka Visvanathan
Professor and Head of Department

Solomon Yu
*Clinical Associate Professor and
Deputy Head of Department*

Anne Wilson
David Wilson
Professor

Kareeann Khaw
Bavand Bikdeli
Graeme Tucker
Neha Mahajan
Senior Lecturer

Faizal Ibrahim
Pazhvoor Shibu
Clinical Senior Lecturer

Khai Tam
Clinical Lecturer

Kandiah Umapathysivam
Lecturer

THRF Mid Career Research Fellow

Danielle Taylor

Postdoctoral Research Fellows

Joanne Dollard
Agathe Jadcak

Postgraduate Students

Sally Suriani Ahip
Anupam Datta Gupta
Unyime Jasper
Kareeann Khaw
Beatriz Martins
James Smyth
Mark Thompson
*Adelaide Medical School,
The University of Adelaide*

Rachael Ambagtsheer
Torrens University

Louise Heuzenroeder
*College of Nursing and Health
Sciences, Flinders University*

Undergraduate Medical Students - Research Placement

Adele Zhou
*College of Medicine and Public Health,
Flinders University*

Nicholas Ng
*College of Medicine and Public Health,
Flinders University*

Other staff

Leonie Baker
*Research Manager, CRE Frailty
and Healthy Ageing*

Kathy Bray
Clinical Nurse, G-TRAC Centre

Visiting Research/Clinical Observers

Gabriel Ding Teck Yong
*National Healthcare Group Polyclinics,
Singapore*

Ronaldo Delmonte Piovezan
Federal University of Sao Paulo, Brazil

BHI COLLABORATORS

Robert Adams
The Health Observatory

Isuru Ranasinghe
*Health Performance and Policy
Research Unit*

EXTERNAL COLLABORATORS

Helen Barrie
Damith Ranasinghe
Veronica Soebarto
The University of Adelaide, Australia

Justin Beilby
Torrens University, Adelaide, Australia

Simon Bell
Monash University, Melbourne, Australia

Ian Cameron
University of Sydney, Sydney, Australia

Matteo Cesari
University of Milan, Milan, Italy

Ian Chapman
Michael Horowitz
*RAH & CRE Translating Nutritional
Science To Good Health, The University
of Adelaide, Adelaide, Australia*

Mellick Chehade
*RAH (Orthopaedics) & The University of
Adelaide, Australia*

Lalit Yadav
Tina Cooper
Sue McKechnie
Leonie Robson
Resthaven Inc., Adelaide, Australia
Keith Hill
Monash University, Melbourne, Australia

Maria Inacio
Steve Wesselingh
*SAHMRI & SA Academic Science and
Health Translation Centre, Adelaide,
Australia*

Karen Jones
Kylie Lange
*CRE Translating Nutritional Science
To Good Health, The University of
Adelaide, Australia*

Mandy Archibald
Hossein Afzali
Jon Karnon
Alison Kitson
Michael Lawless
Alejandro Pinero De Plaza
Flinders University, Adelaide, Australia

Masafumi Kuzuya
Nagoya University, Nagoya, Japan

Natalie Luscombe-Marsh
CSIRO, Adelaide, Australia

John Morley
St Louis University, Missouri, USA

Julie Ratcliffe
*University of South Australia,
Adelaide, Australia*

Ken Rockwood
Olga Theou
Dalhousie University, Halifax, Canada

Sazlina Shariff
*University Putra Malaysia, Serdang,
Malaysia*

Jean Woo
*The Chinese University of Hong Kong,
Hong Kong, China*

Sally Ahip
*Kota Samarahan Health Clinic,
Ministry of Health, Sarawak, Malaysia*

Steve Manjalay
*Jubilee Mission Medical College,
Kerala, India*

Prasad Matthews
Christian Medical College, Vellore, India

Improving healthy ageing

DR DANIELLE TAYLOR
Adelaide G-TRAC Centre

THE FIRST PART OF UNDERSTANDING FRAILTY AND DOING SOMETHING ABOUT IT IS IDENTIFYING WHERE IT IS.



As a health geographer, Dr Taylor doesn't spend her days looking through a microscope; instead, she maps populations to help understand the services and patient needs required now and in the future.

Holding a Mid Career Fellowship from The Hospital Research Foundation, Dr Taylor has created an **► interactive web map** of Australia's frailty rates to provide local-level information that can guide policy makers, decision makers and health service providers to help match people with the services they need.

"The first part of understanding frailty and doing something about it is identifying where it is," Dr Taylor said.

"We need to know who is frail, we need to know where they live, and we need to know how that picture of frailty might change in the future, where services are going to be required and where treatment facilities are best targeted."

Frailty is defined as an increased vulnerability to adverse health outcomes such as falls, loss of independence, hospitalisation and death. It is associated with ageing but is not an inevitable consequence of ageing and can be treated or prevented. Dr Taylor's research estimates that frailty prevalence for Australians aged

over 65 will increase 46% by 2027.

She found that frailty is most prevalent in our capital cities, however the next 10 years will see an expansion of our frail population into the outer suburbs and regional and remote areas where populations are ageing much more rapidly and there are challenges of health service provision.

"We live in a very vast country with a very distributed population and sometimes some areas can be overlooked in terms of their health needs.

"By mapping the whole country in a consistent way, we can ensure that all people have access to health care and the needs of all Australians are considered."

Identifying areas that are projected to have an increased number of frail people can assist authorities to plan for more medical services and aged care beds or provide early intervention to prevent frailty and reduce the need for additional aged care beds.

"Through mapping a problem like frailty, you have the best chance of matching very scarce health resources with the people that need them.

"If the people that need them are getting those resources, that means we're getting the best health outcomes."

Dr Taylor's current research and maps have been presented to the South

Australian Health Minister and submitted to the Australian Department of Health. The results of the study have also been published in the prestigious journal

► Experimental Gerontology.

Dr Taylor's main message is that frailty is not an inevitable consequence of ageing – not all people become frail!

"There is a perception that frailty is just an inevitable part of ageing, but it isn't – we can prevent it and we can treat it. We need to make sure everyone has the opportunity to age well."

Moving forward, Dr Taylor aims to refine the measures of frailty and increase understanding around the issue.

"We know that socio-economic factors and other social and access factors can influence the way you age and your vulnerabilities, so we're trying to access other data that will allow us to investigate those things to be able to make the frailty estimates more robust and help us better understand how social and environmental contexts can influence health and frailty."

Dr Danielle Taylor
Adelaide G-TRAC Centre

THRF Mid Career Research Fellow
The University of Adelaide



GROUP MEMBERS

Research Leader

Anupam Datta Gupta

Senior Researcher

Nigel Quadros

Research Associate

Kandiah Umapathysivam

Registrars

Jessica Smith

Tahera Khanom

BHI COLLABORATORS

Renuka Visvanathan

Solomon Yu

Adelaide G-TRAC Centre

EXTERNAL COLLABORATOR

David Wilson

The University of Adelaide,
Adelaide, Australia

RESEARCH HIGHLIGHT OF 2019

Extending the PBS to help patients with lower limb spasticity

Many patients with neurological disorders such as stroke, brain injury, multiple sclerosis and cerebral palsy have lower limb spasticity. As a result they have difficulty in walking which impacts their independence.

We have shown that botulinum toxin improves balance and walking in patients with lower limb spasticity. It also helps heal atypical pressure ulceration of palmar ulcers caused by untreated focal spasticity of the hand.

Our biggest achievement in 2019 was the Pharmaceutical Benefit Scheme (PBS) extension of approval of Botulinum toxin for patients with lower limb spasticity. These patients are now eligible for treatment with botulinum toxin as a direct result of our research and advocacy.

► <https://insightplus.mja.com.au/2019/36/botulinum-pbs-listing-extended-for-lower-limb-spasticity/>

2019 research

- We are continuing to recruit patients in the post-stroke lower limb spasticity randomised controlled trial (RCT).
- We have demonstrated the importance of screening adult polio survivors for sarcopenia using the available tools and the urgent need to put strategies in place to prevent or delay the effects of sarcopenia.

► Publications for Rehabilitation Medicine

Anupam Datta Gupta undertakes Rehabilitation Medicine research in the areas of neurological and stroke rehabilitation, spasticity management as well as gait and diagnostic errors.

Nigel Quadros investigates sarcopenia in ageing South Australian survivors of polio. Sarcopenia is a progressive and generalised skeletal muscle disorder involving the accelerated loss of muscle mass and function that is associated with increased adverse outcomes including falls, functional decline, frailty, and mortality.

OUR BIGGEST ACHIEVEMENT IN 2019 WAS THE PHARMACEUTICAL BENEFIT SCHEME (PBS) EXTENSION OF APPROVAL OF BOTULINUM TOXIN FOR PATIENTS WITH LOWER LIMB SPASTICITY.

Helping older people stay home longer

ERICA AND JEFF'S STORY

WE TRY TO ONLY VISIT PLACES WE'RE FAMILIAR WITH, IT ALL GETS A BIT MUCH FOR ERICA IF WE GO SOMEWHERE FOREIGN.

Jeff Pfitzner



Happily married for 44 years, retirees Erica and Jeff Pfitzner should be living life to the fullest, enjoying their idyllic river-view Lockleys home and travelling the country to visit their adult children.

Sadly though, Erica suffers from Alzheimer's dementia and requires constant care.

With Jeff as her full-time carer, staying in the family home as long as possible is important to the loving couple.

"We try to only visit places we're familiar with, it all gets a bit much for Erica if we go somewhere foreign," Jeff said.

"We take our Golden Retriever Marley on walks along the Torrens and are still able to go to get-togethers with friends or neighbours.

"I would only put Erica into care when I can't manage anymore."

The couple has access to a Level 4 Home Care Package which gives Jeff much-needed help so they can stay at home longer.

It allows Erica to visit an ECH village two days a week to access services such as exercise programs, podiatry, craft, singing and excursions. The package also provides

at-home help including occupational therapy, cleaning services, the installation of bathroom rails, sensor lights and other services.

"The Home Care Package has been good, I'm grateful to Renuka (Professor Visvanathan, geriatrician) and Sally (GP) who put in references to help our assessment."

Research improving the lived experience

Professor Renuka Visvanathan from the BHI's Adelaide Geriatrics Training and Research with Aged Care (G-TRAC) Centre is a chief investigator with the Registry of Older Senior Australians and the project lead of the National Health and Medical Research Council's Centre of Research Excellence in Frailty and Healthy Ageing.

Her clinical interactions with patients, many living with dementia or frailty, highlighted to her the importance of older people being able to access Home Care Packages on a timely basis to remain at home longer. At 31 December 2018, there were 104,602 consumers queuing nationally for home care packages with 80.5% waiting for a Level 3 or 4 home care package.

Prof Visvanathan investigated the health outcomes of 180,000 older people

accessing home care packages between 2003-2013 and found an association between waiting longer and the likelihood of dying or entering into permanent residential aged care.

"Not getting your Home Care Package means you have unmet needs, and not having your needs met couldn't possibly be good for you," Prof Visvanathan said.

"The main finding was that people who waited six months or more, when compared to those who waited less than 30 days, were more likely to die or enter a nursing home, but that effect was only seen after two years of receiving the package, so it was a delayed effect."

Prof Visvanathan's findings were published online in December 2018 and cited in the 2019 interim report of the Royal Commission into Aged Care Quality and Safety, which triggered the Federal Government's announcement in 2019 to roll out 10,000 new high-level (Level 3 and 4) Home Care Packages.

"The practical and policy implications of these findings is that we need to shorten the wait time, particularly for those requiring higher Level 3 and 4 packages."

RESEARCH GROUPS**Breast Biology and Cancer Unit****Breast Cancer Research Unit****Colorectal Cancer Research Group****Solid Tumour Group****South Australian Prostate Cancer
Clinical Outcomes Collaborative
(SA-PCCOC)****CANCER**

GROUP MEMBERS

Research Leader

Wendy Ingman

Postdoctoral Researcher

Pallave Dasari

Research Assistant

Leigh Hodson

Research Nurse

Michelle Warnes

Postgraduate Students

Maddison Archer

Sarah Bernhardt

Amita Ghadge

Joseph Wrin

BHI COLLABORATORS

Andreas Evdokiou

Breast Cancer Research Unit

Tim Price

Amanda Townsend

Solid Tumour Group

EXTERNAL COLLABORATORS

Simon Barry

Mark Hutchinson

Lucy Woolford

The University of Adelaide,
Adelaide, Australia

Erik Thompson

Queensland University of
Technology,
Brisbane, Australia

Kara Britt

Peter MacCallum Cancer Centre,
Melbourne, Australia



RESEARCH HIGHLIGHT OF 2019

New knowledge that will impact the treatment of younger breast cancer patients

Testing the activity of certain genes in breast tumour tissue (gene profiling) is an emerging technology that can help tailor treatments in breast cancer patients. We discovered that the menstrual cycle affects the gene profiles in premenopausal patients. This means that the gene profile of an individual cancer might, in part, depend on the stage of the menstrual cycle the patient was in when the tissue sample was analysed. This work is critical for the development of gene profiling tests specifically tailored to premenopausal women to improve treatment decision-making for young women with breast cancer in the future.

In 2019 this work was presented at the San Antonio Breast Cancer Symposium which is the leading international meeting for clinical breast cancer research.

► www.abstractsonline.com/pp8/#!/7946/presentation/463

This new knowledge will impact the treatment of premenopausal breast cancer patients. Further research is required to develop gene profiling tests tailor-made for premenopausal women that will inform treatment decision-making and guide their chemotherapy treatment.

Our research aims to understand why menstrual cycling, pregnancy and breast density influence the likelihood of a woman developing breast cancer. Deciphering the biological processes that influence breast cancer risk will lead to new and more personalised approaches to the prevention and early detection of breast cancer through targeted health advice, improved screening tools and new drug development.

2019 research

- Breast tissue varies with respect to density, with some women having higher density breast tissue compared to others. We have found a biological link between how breasts grow during adolescence and breast density as an adult. Breast density is a risk factor for breast cancer and this discovery could lead to new ways to prevent women developing high density breast tissue and increased cancer risk.
- Antibodies are proving to be effective new drugs for the treatment of cancer. We have generated a new antibody that targets dying breast cancer cells to increase the body's natural immunity. This antibody could be used to help the body's immune system eliminate cancer in combination with other therapies such as chemotherapy. This might help treat triple negative breast cancer (breast cancer that lacks receptors for oestrogen, progesterone and epidermal growth factor) in the future.

► Publications for Breast Biology and Cancer Unit

—
THIS NEW
KNOWLEDGE
WILL IMPACT THE
TREATMENT OF
PREMENOPAUSAL
BREAST CANCER
PATIENTS.



Associate Professor Wendy Ingman
Research Leader, Breast Biology
and Cancer Unit

GROUP MEMBERS

Research Leader

Andreas Evdokiou

Postdoctoral Researchers

Irene Zinonos

John Licari

Haruka Takezawa

Senior Research Officer

Romana Panagopoulos

Postgraduate Students

Christopher DiFelice

Namfon Pantarat

BHI COLLABORATORS

Benedetta Sallustio

Clinical Pharmacology Research Group

Wendy Ingman

Breast Biology and Cancer Unit

Jenny Hardingham

Solid Tumour Group

EXTERNAL COLLABORATORS

David Findlay

Dusan Losic

Gerald Atkins

Andrew Zannettino

The University of Adelaide, Adelaide, Australia

Andrew Zannettino

Lisa Butler

The University of Adelaide and SAHMRI, Australia, Australia

Vladimir Ponomarev

Memorial Sloan Kettering Cancer Center, New York City, USA

Anton Blencowe

University of South Australia, Adelaide, Australia

Andreani Odysseos

University of Cyprus, Nicosia, Cyprus



RESEARCH HIGHLIGHT OF 2019

Emerging new and selective approach to cancer treatment

When treating cancer, it has proven difficult to target cell-killing agents specifically to the cancer cells and prevent the damage and death of normal cells of the body. Photoimmunotherapy (PIT) has been established as a potential and highly selective cancer treatment. We have used this treatment to demonstrate, for the first time, the use of this treatment against HER2 expressing breast cancer cells (listed below).

The therapy uses the targeting ability of highly specific HER-2 affibodies attached to a photosensitizer, IRD700. The conjugate benefits from the targetable property of the antibody, but relies on the cytotoxicity generated via reactive oxygen species when the photosensitizer is irradiated. We have emerging evidence showing that PIT induces rapid and profound damage to the outer and inner membrane structures of HER-2 expressing breast cancer cells where the mAb-IRD700 is bound, leading to necrotic cell death. Importantly, this effect was specific to the cancer cells and did not damage to normal cells or cells with low levels of HER2 expression.

We believe that our results identify a new and important therapeutic approach targeting HER2 positive breast cancer and its metastatic spread.

Yamaguchi H, Pantarat N, Suzuki T, Evdokiou A. Near-Infrared Photoimmunotherapy Using a Small Protein Mimetic for HER2-Overexpressing Breast Cancer. *Int. J. Mol. Sci.* 2019, 20, 5835.

Our research aims to provide robust preclinical data that facilitate the translation of novel therapeutics to clinical trials for breast cancer and its spread. However, we know that many medicines used to treat cancer can have severe side-effects, one of which is irreversible heart damage, and we aim to develop new medications to prevent heart damage during cancer chemotherapy. Our work has the potential to not only decrease the burden of heart disease in cancer patients, but to also increase patients' ability to receive a full course of cancer chemotherapy, thereby also increasing cancer cure rates

2019 research

- Gamma delta T cells ($\gamma\delta$ T) are a small population of cells normally found in our blood whose main function is to identify and eliminate cancer cells. We have shown that the clinical utility of systemic adoptive therapy with $\gamma\delta$ T cells may be limited by problems of selectively targeting large numbers of T cells to the tumour. We are now testing the anticancer potential of these cytotoxic $\gamma\delta$ T cells for localised cancer therapy where large numbers of ex vivo expanded $\gamma\delta$ T cells will be injected directly at the tumour site.
- Cancer patients often receive chemotherapy to cure their cancer. However, chemotherapy has many unwanted side effects particularly causing heart damage. We are developing new medicines to prevent heart damage during cancer chemotherapy, particularly in breast cancers and cancers that affect children and young adults. We identified a protein in the heart known as TRAIL that appears to be responsible for causing heart failure in cancer patients. In future experiments we aim to find ways to stop TRAIL's unwanted actions.

► Publications for Breast Cancer Research Unit



GROUP MEMBERS

Consultants

Peter Hewett
Markus Troschler

BHI COLLABORATORS

Tim Price
Jennifer Hardingham
Solid Tumour Group

EXTERNAL COLLABORATOR

Dan Worthley
SAHMR,
Adelaide, Australia

RESEARCH HIGHLIGHT OF 2019

New treatment options for patients with peritoneal malignancy

After almost two years of organisation, the clinical safety and efficacy trial using PIPAC started recruiting patients in 2019. The first case was completed in December 2019. Another 9 patients will be treated in the context of this trial.

This study will open up a new treatment option for patients with peritoneal malignancy.

► Publications for Colorectal Cancer Research Group

-

**THIS STUDY WILL
OPEN UP A NEW
TREATMENT
OPTIONS FOR
PATIENTS WITH
PERITONEAL
MALIGNANCY.**

Our primary research interest is the treatment of peritoneal surface malignancy. Cancer that involves the lining of the abdomen (the peritoneum) is common and can spread from a number of different organs. It can be difficult to treat because chemotherapy given into the veins may not effectively penetrate into the cancer to treat it.

Pressurised intraperitoneal chemotherapy (PIPAC) delivers the chemotherapy directly to the surface of the cancer under pressure. This is done using keyhole surgery to lessen any discomfort. It is hoped that this new treatment will be another effective treatment to improve quality of life and increase life expectancy for these incurable cancers.

GROUP MEMBERS

Research Leader & Head of Department

Timothy Price

Consultant

Amanda Townsend

Chief Medical Scientist

Joanne Young

Principal Medical Scientist

Jennifer Hardingham

Postdoctoral Researchers

Eric Smith

Paul Drew

Helen Palethorpe

Clinical Research Fellow

Mark McGregor

Li Chia Chong

Research Assistant

Wendy Uylaki

Research Nurse

Mehgan Horsnell

Postgraduate Students

Maryam Nakhjavani

Yoko Tomita

Roger Mikaeel

Junwei Wang

Honours Students

James Clarke

Steven Ha

Clinical Trials Team

Pam Cooper

Stella Papacharissiou

Nada Cvijanovic

Kiddki Tran

Aleksandra Kuruni

Elizabeth Eagan

Sasha Sequeira



The Solid Tumour Group, incorporating the SAHMRI Colorectal Cancer Node, is headed by Professor Tim Price. The group has developed a comprehensive program in colorectal, neuroendocrine and breast cancers that works to address these diseases through improved prevention strategies and better diagnostics, and by developing and testing novel treatments.

We have groups working on better understanding the origins of colorectal cancers, new treatments for colorectal and breast cancers, new biomarkers of drug resistance, identification of new therapeutic targets, and developing mouse models of breast and colorectal cancers for efficacy testing of new drugs.

In addition, we link directly with the clinical service at TQEH where we have access to clinical trial populations for additional work on genetic markers of response to therapies under investigation and importantly the opportunity to translate our pre-clinical work directly into the clinic via TQEH clinical trials unit.

SOLID TUMOUR GROUP YOUNG ONSET COLORECTAL CANCER GROUP

Early onset colorectal cancer incidence is rising in Australia, and elsewhere in the developed world, at a time when incidence of CRC in older adults is declining. In 2017, colorectal cancer was expected to be responsible for the most cancer deaths in 20-29 year old Australians. The South Australian Young Onset Colorectal Polyp and Cancer Study (SAYO) is a multidisciplinary state-wide consortium which seeks to identify the risk factors and warning signs for CRC in young adults, and thereby extend population screening to those young adults most at risk.

RESEARCH HIGHLIGHT OF 2019

Recommending genetic screening for all young onset colorectal cancer patients

Our work has revealed a relatively high rate of mutation in genes that are associated with cancer risk in young onset colorectal cancer patients. Thirteen percent of young onset colorectal cancer patients carry an inherited mutation which has increased their risk for this and other cancers, despite most of these patients having no close relatives with colorectal cancer.

Five percent of young onset colorectal cancer patients are carrying an inherited mutation in BRCA2, a gene which has been associated with breast cancer.

Paradoxically, the majority of young onset colorectal cancer patients are not offered genetic screening because they lack an indicative family history, have no polyposis, or do not present with DNA repair deficient cancers. Given the importance of knowing about these mutations for themselves and their families, we will be advocating that genetic screening be included in the routine workup of all young onset colorectal cancer patients who present clinically.

2019 research

- In 2019 we presented our findings regarding the high rate of type 2 diabetes observed in young adults who develop colorectal cancer, compared with young adults with clear colons (without polyps or sign of significant disease), at Digestive Diseases Week in San Diego.
- Once considered to be rare, we have shown that appendix cancer incidence is now rising in the Australian population with no clearly defined cause.
- We have established a SAYO patient support group to provide information to and feedback from young adults with colorectal cancer.

SOLID TUMOUR GROUP MOLECULAR ONCOLOGY GROUP

Drug Discovery:

Our group is focused on investigating the anti-cancer effects of compounds that we and our collaborator Professor Andrea Yool have shown to target the water channel protein aquaporin 1. Knockout mouse studies have provided strong evidence that this protein facilitates the development of metastases and increases the rate of forming new tumour blood vessels (angiogenesis).

We have shown that a synthetic drug derived from bumetanide (AqB xx), as well as several purified compounds from herbal plants long used in Ayurvedic and Chinese medicine, have efficacy *in vitro* in inhibiting tumour cell migration and invasion, in addition to markedly inhibiting angiogenesis, an important feature of tumour progression and metastasis.

We have also shown efficacy for some of the drugs tested so far in mouse models of colorectal cancer and breast cancer in inhibiting tumour growth, delaying the onset of metastasis, and interfering with angiogenesis. These studies are on-going.

RESEARCH HIGHLIGHT OF 2019

We found that the synthetic derivative of bumetanide (AqBxx) that inhibits aquaporin 1, reduces the growth of tumours in a mouse model of colon cancer. Treated tumours had a reduced number of micro-vessels suggesting that this drug had anti-angiogenic properties when used in an animal model; these properties had been previously shown in cell culture models.

We have found that treatment of endothelial cells in culture with Ginsenoside Rg3 (a natural product isolated from *Panax ginseng*) reduces expression of aquaporin 1 and other proteins (VEGFR2 and FAK), that form a complex involved in tumour angiogenesis.

When two purified compounds derived from the medicinal herb *Bacopa monnieri* are used together they are synergistic (ie, the combined effect is greater than the sum of the two individual effects) in their ability to inhibit colon cancer cell and endothelial cell viability. Combined treatment inhibits cell proliferation, migration and tube formation at doses much lower than those needed as monotherapy. Whilst the crude extract is approved for human use, there have been no studies to date on the isolated components, a gap we are filling.

Why we keep looking for anti-cancer agents

Development of new therapeutic agents which are efficient but lack the toxicity of existing agents would fundamentally change current treatment policies and practice.

Such agents would support (1) a more consistent and safer approach to adjuvant therapy in early stage cancer patients, ensuring all patients receive adjuvant treatments; (2) improve the potential impact of long term toxicity (such as fatigue, neuropathy, secondary cancer risk) for those with more advanced disease and (3) provide new treatment options for advanced cancer patients when the disease develops resistance to currently used drugs.

These agents would vastly improve the level of care and treatment outcomes. The results of the mouse tumour studies will inform translation to clinical trials in patients.

Genome markers of response to chemo-radiotherapy in rectal cancer:

A technique known as single-cell RNA-sequencing is emerging as a powerful technology for the investigation of genome markers. We have established and validated single-cell RNA-sequencing in the laboratory, and we are about to embark on a program to identify genome markers in rectal cancer.

Why we need better diagnostic markers

Patients with locally advanced rectal cancer are typically treated with preoperative chemoradiotherapy followed by surgery. Despite recent advances in surgical procedures, patients undergoing removal of the rectum experience significant negative impacts on quality of life, including a permanent stoma.

Preoperative chemoradiotherapy achieves complete response rates of 15-35%, and these patients may be spared surgery, but there is currently no way to predict which patients will respond. Alternatively, patients may be chemoradiotherapy resistant, but the mechanisms that promote this are poorly understood.

This research will use genome markers to investigate the role of cancer environment, and particularly the complement of cancer-associated-fibroblasts, in the regulation of chemoradiotherapy responses, with the intent of informing clinical decision-making and ensuring more patients may avoid the negative impacts of surgery.

BHI COLLABORATORS

Tom Robertson
Therapeutics Research Centre
Andreas Evdokiou
Breast Cancer Research Unit
Kevin Fenix
Chandra Kirana
Surgical Science Research Group
David Jesudason
Endocrinology Unit, TQEH
Peter Hewett
Colorectal Cancer Research Group
Ilmars Lidums
Gastroenterology and Hepatology Unit, TQEH

EXTERNAL COLLABORATORS

Dan Worthley
SAHMR, Adelaide, Australia
Andrew Ruszkiewicz
SA Pathology, Adelaide, Australia
Gary Wittert
Andrea Yool
Stephen Pederson
The University of Adelaide, Adelaide, Australia
Chris O'Callaghan
Canadian Cancer Trials Group, Kingston, Ontario, Canada
Geoff Liu
Ontario Cancer Institute, Toronto, Ontario, Canada
Niall Tebbutt
Austin Health, Melbourne, Australia
Marc Peeters
Antwerp University, Antwerp, Belgium

SOLID TUMOUR GROUP CLINICAL TRIALS GROUP

The Medical Oncology and Haematology Clinical Trials unit undertakes cancer trials ranging from first in human/phase 1 studies through to larger randomised trials investigating therapy options for all cancer types.

The group links with cooperative groups within Australia and internationally, as well as major Pharmaceutical companies, aiming to access new drugs for our patients while providing evidence that will potentially lead to practice changes. In addition, the clinical trials allow us to explore personalised cancer therapy, and ways to reduce the burden of ineffective therapy for some patients by predicting when therapy may be ineffective, using translational research biomarkers.

Our group has explored a number of cellular pathways, in particular the EGFR/RAS/RAF pathway, as targets for therapy options; we have a particular focus on “RAS wild type” colorectal cancer. We have been involved in potentially practice changing work for patients with RAS mutations in colorectal cancer and also lung cancer.

This work will lead to larger randomised trials that will provide new options for this group of patients. We also have links with the Surgical Trials team and are undertaking a first in human study of intra hepatic rose bengal in advanced neuroendocrine tumours.

WE WERE PART OF THE TEAM THAT PERFORMED THE FIRST IN HUMAN TRIAL OF AMG 510.

RESEARCH HIGHLIGHT OF 2019

A potentially transformative therapy for cancer patients

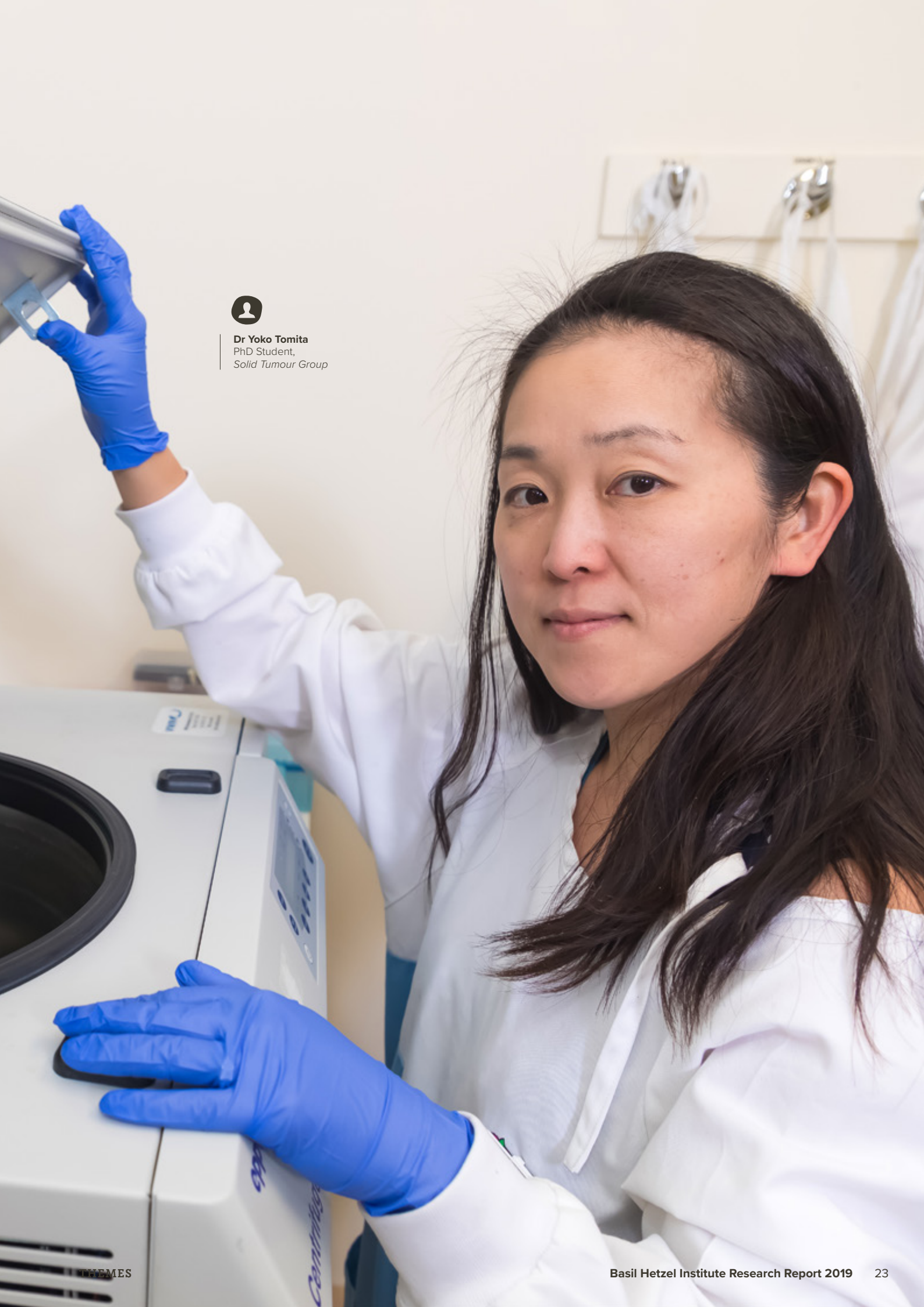
Mutations in the gene KRAS are the most frequent drivers of tumour development across many human cancers. Despite this prevalence, mutant KRAS protein has remained an intractable therapeutic target.

In a 2019 Nature publication, Canon *et al.* describe the development of a small molecule AMG 510 that binds one form of mutant KRAS with high specificity and sensitivity, inhibiting the protein. Animal models were used to analyse how the inhibitor works to shrink tumours. In clinical trials, this drug showed anti-tumour activity and represents a potentially transformative therapy for patients for whom effective treatments are lacking. This is among the first evidence of a clinical response to a specific mutant KRAS inhibitor.

We were part of the team that performed the First in Human trial of AMG 510 and a number of patients were recruited from TQEH. We showed evidence of clinical activity in lung and bowel cancer in patients who had exhausted standard options. This work will lead to larger trials in lung and bowel cancer for patients with this specific KRAS mutation.

The clinical KRAS(G12C) inhibitor AMG 510 drives anti-tumour immunity. Canon J, Rex K, Saiki AY, Mohr C, Cooke K, Bagal D, Gaida K, Holt T, Knutson CG, Koppada N, Lanman BA, Werner J, Rapaport AS, San Miguel T, Ortiz R, Osgood T, Sun JR, Zhu X, McCarter JD, Volak LP, Houk BE, Fakih MG, O’Neil BH, Price TJ, Falchook GS, Desai J, Kuo J, Govindan R, Hong DS, Ouyang W, Henary H, Arvedson T, Cee VJ, Lipford JR. *Nature*, 2019, volume 575, pages 217-223.

► Publications for Solid Tumour Group



Dr Yoko Tomita
PhD Student,
Solid Tumour Group

SA-PCCOC (SOUTH AUSTRALIAN PROSTATE CANCER CLINICAL OUTCOMES COLLABORATIVE)

THE UNIVERSITY OF ADELAIDE / DISCIPLINE OF SURGERY

GROUP MEMBERS

Research Leader

Kim Moretti

Senior Researcher and Educator

Michael O'Callaghan

Clinical Data Coordinator

Tina Kopsaftis

Data Manager

Robyn McGeachie

Research Assistants

Helen Claridge

Elspeth Raymond

Adel Aref

Research Officer

Jessica Reid

Jessie Bennett

EXTERNAL COLLABORATORS

Sue Evans

*Monash University,
Melbourne, Australia*

David Roder

*University of South Australia,
Adelaide, Australia*

Kerry Beckmann

*Kings College,
London, UK*

Andrew Vincent

*The University of Adelaide,
Adelaide, Australia*

Ganessan Kichenadasse

*Flinders University,
Adelaide, Australia*

The South Australian Prostate Cancer Clinical Outcomes Collaborative (SA-PCCOC) was established in 1998 as an ongoing venture of Flinders University, Royal Adelaide Hospital (RAH), The Queen Elizabeth Hospital (TQEH), The University of Adelaide and the University of South Australia. The flagship of this collaborative is a database which tracks men with prostate cancer in major metropolitan South Australian public hospitals: the Royal Adelaide Hospital, The Queen Elizabeth Hospital, Flinders Medical Centre, Noarlunga Hospital, Lyell McEwin Hospital was well as collaborating private institutions and clinicians.

As part of a bi-national collaboration the SA-PCCOC is in partnership with, and contributes to, the Prostate Cancer Outcomes Registry – Australia and New Zealand (PCOR-ANZ) which is funded by the Movember Foundation.

► www.prostatehealth.org.au

RESEARCH HIGHLIGHT OF 2019

Improving the care of men with prostate cancer in SA

In 2019, the SA-PCCOC database, known as the SA Prostate Cancer Registry, reached a milestone, with more than 15,000 participants now included in the database. The database now covers over 90% of new prostate cancer diagnoses in South Australia.

The SA Prostate Cancer Registry contributed to the 2nd report of prostate cancer care across Australia and New Zealand. It also published papers showing the prognostic significance of pathology grading for prostate cancer (* listed below) and on the effect of treatment and patient satisfaction with the care they receive (** listed below). Across South Australia patients are typically very satisfied with their care, a tribute to the clinicians in SA.

The SA Prostate Cancer Registry allows contributing clinicians to request quality indicator reports relating to their surgical practice, a key help to improving the care of men with prostate cancer in SA.

The registry also continues to support students, particularly postgraduate research students and doctors in training. For example, in 2019 a Masters of Surgical Sciences student completed their degree using data from the registry.

* Beckmann K, O'Callaghan M, Vincent A, Cohen P, Borg M, Roder D, Evans S, Millar J, Moretti K. Extent and Predictors of Grade Upgrading and Downgrading in an Australian Cohort According to the New Prostate Cancer Grade Groupings. *Asian J Urol*. Oct 2019;6(4):321-329.

► www.ncbi.nlm.nih.gov/pubmed/31768317

** Forgione M, Sara S, Vincent AD, Borg M, Moretti K, O'Callaghan ME. Satisfaction with care in men with prostate cancer. *Eur J Cancer Care (Engl)*. 2019 Jul;28(4), e13028.

► www.ncbi.nlm.nih.gov/pubmed/30815942

► Publications for SA-PCCOC

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ACROSS SOUTH AUSTRALIA PATIENTS ARE TYPICALLY VERY SATISFIED WITH THEIR CARE, A TRIBUTE TO THE CLINICIANS IN SA.



CARDIOVASCULAR DISEASE

RESEARCH GROUPS

**Cardiovascular Pathophysiology
and Therapeutics Group**

**Clinical Pharmacology Research
Group**

**Translational Vascular Function
Research Collaborative (TVFRC)**

Vascular Surgery Research Group

**Zinc and Cardiovascular Disease
Research Group**

GROUP MEMBERS

Research Leader

John Horowitz

Senior Medical Scientists

Benedetta Sallustio

Yuliy Chirkov

Thanh H Nguyen

Saifei Liu

NHMRC Peter Doherty

Early Career and NHF

Postdoctoral Fellow

Cher-Rin Chong

Laboratory Manager

Irene Stafford

Research Assistant

Tamila Heresztyn

Postgraduate Students

Sven Surikow

Gao Ong

Administrative Support

Petrea Pachen

BHI COLLABORATORS

Andreas Evdokiou

Breast Cancer Research Unit

Timothy Price

Solid Tumour Group/ Haematology
& Medical Oncology Unit

EXTERNAL COLLABORATORS

Angela Kucia

University of South Australia,
Adelaide, Australia

Michael Frenneaux

University of East Anglia,
Norwich Medical School,
Norwich, UK

Raffaele DeCaterina

d'Annunzio University,
Chieti, Italy

Rebecca Ritchie

Baker Heart & Diabetes Institute,
Melbourne, Australia

Natasha Rogers

Westmead Hospital,
Sydney, Australia

Simon Stewart

Australian Catholic University,
Melbourne, Australia

Aaron Sverdlav

Doan T Ngo
The University of Newcastle,
Newcastle, Australia

Dana Dawson

University of Aberdeen,
Aberdeen, UK

Houman Ashrafian

Oxford University,
Oxford, UK

Dimitrios Tsikas

University of Hannover,
Hannover, Germany



The main focus of the Cardiovascular Pathophysiology and Therapeutics Group is to improve our understanding of the underlying biochemical mechanisms of cardiovascular disease and implement effective treatment. We also place substantial emphasis on community outreach services to increase public awareness of our research.

RESEARCH HIGHLIGHT OF 2019

Understanding the clinical aspects of broken heart syndrome (Takotsubo Syndrome)

Takotsubo syndrome (TS) is a condition characterised by chest pain, often triggered by severe emotional stress. It occurs predominantly in aging women. Diagnosis is difficult and there is currently no established treatment.

Since establishing the South Australian Takotsubo Research Programme in 2009, we have over 350 patients registered with more than 10 years of follow-up data. We work closely with the Zurich-based international TS registry, the InterTAK ► www.takotsubo-registry.com As the single largest contributor with the longest follow-up data towards the InterTAK registry, our research has made significant contribution towards better understanding of TS. In 2019, our collaboration has yielded 5 highly-cited publications that reported:

- a newly recognised association between TS and cancer, the mechanism for which remains uncertain (* listed below). Further analysis of data from our group revealed that in patients with TS, those with antecedent cancer had more than two-fold increase risk of cardiovascular mortality (** listed below).

- the development of a prognostic/predictive scoring system for TS,
- the impact of early cardiac arrest in TS,
- variations in the rate of recovery of cardiac function in patients with TS and
- the lack of prognostic outcome with aspirin in patients with TS.

We published the study protocol for NACRAM trial. This is the world's first pharmacological interventional study towards improving outcomes for patients with TS.

Our PhD student, Dr Sven Surikow was selected as a finalist for the prestigious Ralph Reader prize (basic science), at the Cardiac Society of Australia & New Zealand conference 2019. Dr Surikow presented data on innovative ways to reduce acute mortality in a pre-clinical model of TS.

In collaboration with Dr Angela Kucia who leads an international patient support group, we continue to provide community outreach services to patients living with TS.

* Cammann VL, Sarcon A ...Horowitz JD et al. Clinical Features and Outcomes of Patients With Malignancy and Takotsubo Syndrome: Observations From the International Takotsubo Registry. *J Am Heart Assoc.* 2019 Aug 6;8(15):e010881. doi: 10.1161/JAHA.118.010881.

** Nguyen TH, Stansborough J, Ong GJ, Surikow S, Price TJ, Horowitz JD. Antecedent cancer in Takotsubo syndrome predicts both cardiovascular and long-term mortality. *Cardio-Oncology.* 2019; 5:20.

► <https://doi.org/10.1186/s40959-019-0053-6>

2019 research

Coronary artery spasm

- Coronary artery spasm (CAS) is a debilitating condition, difficult to diagnose and characterised by episodes of prolonged chest pain without effective treatment. We have now demonstrated the pivotal role of hydrogen sulphide availability in CAS. In this regard, we have filed a provisional patent application with The University of Adelaide on the pathogenesis and treatment of CAS. Part of the work was accepted as mini-oral presentation at the annual scientific meeting of European Society of Cardiology (Paris, Fr) and

presented by Dr S Liu. Moving forward, we will work towards establishing the therapeutic role of hydrogen sulphide to reduce not only the risk of CAS attacks, but also other cardiovascular emergencies.

Chemotherapy-induced heart failure

- Led by A/Prof Sallustio, we are investigating the anti-anginal drug, perhexiline, as a cardio-protective agent during cancer chemotherapy. Perhexiline has been a long-term research interest of our group, as a pharmacological modulator of cardiac metabolism. Initial experiments in a mouse model of cancer have supported the concept that perhexiline may protect the heart against heart failure.
- Presented at annual scientific meeting of the American College of Cardiology (New Orleans, USA), Dr Liu demonstrated that N-acetylcysteine reduced the production of free radicals in a concentration-dependent manner.

Antiplatelet therapy

- We showed that individual responses to ticagrelor, an anti-aggregatory drug, can be predicted before treatment and patients with threatened heart attacks or poorly controlled diabetes will require higher doses of ticagrelor.

Diabetic heart disease

- We welcome the return of former Ph.D. student, Dr Cher-Rin Chong. Dr Chong undertook a postdoctoral training at University of Oxford as Nuffield Medical Fellow after completing her Ph.D. training at BHI. She is currently supported by the NHMRC and the National Heart Foundation and will lead investigations into novel treatment to prevent diabetic heart disease.

► Publications for Cardiovascular Pathophysiology and Therapeutics Group

CLINICAL PHARMACOLOGY RESEARCH GROUP

TQEH DEPARTMENT / CLINICAL PHARMACOLOGY UNIT

The Clinical Pharmacology Unit has had a long-term interest in developing better therapies for the treatment of heart disease.

We have focussed on precision medicine tools, particularly therapeutic drug monitoring, to individualise therapy for patients with heart disease. This has expanded to developing new therapies to treat heart disease, particularly heart disease caused by cancer chemotherapy.

RESEARCH HIGHLIGHT OF 2019

New approaches to preventing chemotherapy-induced heart damage

Many cancer patients receive chemotherapy to cure their cancer. Chemotherapy has many unwanted side effects including the potential of causing irreversible heart damage. Our research is providing new insights into how cancer chemotherapies cause heart disease.

In 2019 we completed a study showing that we can prevent chemotherapy-induced heart damage without diminishing the anti-cancer effect of the drugs in animal models. Dr John Licari has identified a potential new mechanism for chemotherapy-induced heart damage.

This discovery is being investigated to develop new preventative therapies and new tests to

better detect early changes in the hearts of cancer patients receiving chemotherapy, catching changes before they become clinically significant.

The findings from this NHMRC funded research were presented in part at the 2019 Scientific Meeting of the Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists. We are currently pursuing patent protection based on the new pathways we have identified in the development of heart damage by cancer chemotherapy. This will involve patent protection of new preventative therapies and new diagnostic tests.

To fast-track the development of novel strategies for the early detection and prevention of heart damage by cancer chemotherapy we have forged new collaborations with scientists at the University of South Australia and the Heart Research Institute in Sydney. Dr Mark Condina, from the Future Industries Institute at the University of South Australia, specialises in metabolomic and proteomic approaches using state-of-the-art mass spectrometry equipment. We aim to use these techniques to analyse plasma and tissue samples and identify novel biomarkers of early cardiotoxicity during chemotherapy.

► Publications for Clinical Pharmacology Research Group

► See also Clinical Pharmacology Research Group - Chronic Disease

GROUP MEMBERS

Principal Medical Scientist
Benedetta Sallustio

Postdoctoral Researcher
John Licari

Senior Medical Scientist
Shane Spencer

BHI COLLABORATORS

John Horowitz
Cardiovascular Pathophysiology and Therapeutics Group

Andreas Evdokiou
Breast Cancer Research Unit

EXTERNAL COLLABORATORS

Mark Condina
University of South Australia, Adelaide, Australia

Mary Kavurma
Heart Research Institute, Sydney, Australia

OUR RESEARCH IS PROVIDING NEW INSIGHTS INTO HOW CANCER CHEMOTHERAPIES CAUSE HEART DISEASE.

TRANSLATIONAL VASCULAR FUNCTION RESEARCH COLLABORATIVE (TVFRC)

THE UNIVERSITY OF ADELAIDE / DISCIPLINE OF MEDICINE

TRANSLATIONAL VASCULAR MOLECULAR PHYSIOLOGY

GROUP MEMBERS

Research Leader and Consultant

John Beltrame

Senior Medical Scientists

Peter Zalewski

David Wilson

Research Officers

Rachel Jakobczak

Matthew Hay

BHI COLLABORATORS

Peter Zalewski

Adrian Abdo

Anna Wawer

Zinaida Tvorogova

*Zinc and Cardiovascular Disease
Research Group*

EXTERNAL COLLABORATORS

Michael Worthington

*Cardiothoracic Surgery Unit
(CTS), Royal Adelaide Hospital,
Adelaide, Australia*

James Edwards

Fabiano Viana

Robert Stuklis

*CTS, Royal Adelaide Hospital,
Adelaide, Australia*

Peter Psaltis

*Vascular Research Centre,
Heart Health, SAHMRI,
Adelaide, Australia*



Clinical disorders involving the coronary and peripheral circulation can be largely attributed to abnormalities within blood vessels that compromise the blood supply to these organs. Vascular diseases include a range of conditions affecting the heart or blood vessels and remains a major cause of healthcare burden, death and poor health in Australia.

The Translational Vascular Function Research Collaborative (TVFRC) undertakes interdisciplinary basic, clinical and epidemiological studies into vascular diseases and dysfunction to improve our understanding of these disorders, optimise healthcare management and develop new effective therapies.

The research group includes both clinicians and medical scientists located at the Basil Hetzel Institute, The University of Adelaide Medical School, the Central Adelaide Local Health Network (CALHN) and the Northern Adelaide Local Health Network (NALHN). The integrative nature of the group provides a unique opportunity to ensure that innovations are bi-directionally translated; that is, as well as the traditional bench to bedside approach, innovations are derived from

identifying patients with poor outcomes, understanding the contributing clinical attributes of these patients and returning to the laboratory to discover new therapies.

TVFRC is a multidisciplinary collaborative group consisting of three focus areas that have combined meetings to optimise interdisciplinary input and translation:

- Translational Vascular Molecular Physiology
- Translational Vascular Clinical Physiology, and
- South Australian Cardiovascular Outcomes Registry (SACOR)

TRANSLATIONAL VASCULAR MOLECULAR PHYSIOLOGY

The Molecular Physiology group focuses on the pathophysiology and molecular signalling of vascular disorders including coronary artery spasm, coronary microvascular disorders, peripheral vascular disorders and reperfusion injury. Laboratory studies include the assessment of isolated human vessel function using myography, followed by a series of biomolecular assays aimed to provide a mechanistic understanding of the disorders and thus direct the translation to improvements in medical therapy.

RESEARCH HIGHLIGHT OF 2019

Personalising the treatment of vascular dysfunction and cardiovascular disease

A unique endothelial biopsy technique has been established which can be easily implemented during routine cardiac investigations. The biopsy technique has provided samples from over 240 patients and many of these have been cryopreserved in a biobank.

This technique of isolating endothelial cells from the linings of human coronary arteries will enable us to study the molecular and genetic basis of vascular dysfunction and cardiovascular disease. For example, dietary zinc has been implicated in the incidence of cardiovascular disease. In collaboration with Dr Peter Zalewski and the Zinc and Cardiovascular Research Group, the endothelial biopsy biobank has allowed us to investigate associations with endothelial Zinc levels and Zinc transporter expression with endothelial dysfunction, vasoconstriction, and cigarette smoking in both small and large vascular disease in humans.

This research demonstrates that there is a real potential for capture of biological data for personalised medicine. The Zinc studies have provided the rationale for Zinc interventional clinical trials whereby Zinc supplementation will be assessed for its role in improving cardiovascular disease symptoms.

► Publications for TVFRC

► See also Zinc and Cardiovascular Research Group

TRANSLATIONAL VASCULAR CLINICAL PHYSIOLOGY

The Clinical Physiology research team use invasive and non-invasive techniques to identify the presence of vascular dysfunction in patients with vascular symptoms including angina (chest pain due to insufficient blood supply to the heart) and intermittent claudication (pain and/or cramping in the lower leg due to inadequate blood flow to the muscles). Techniques include the assessment of coronary artery spasm, coronary blood flow, cardiac magnetic resonance imaging, subcutaneous blood flow and endothelial function.

RESEARCH HIGHLIGHT OF 2019

MINOCA - Unravelling the enigma

Our research has identified a new type of myocardial infarction (heart attack) called MINOCA - myocardial infarction with non-obstructive coronary arteries. These patients have suffered a heart attack but do not have evidence of any cholesterol blockages in the heart, which is often seen in a 'traditional' heart attack. Although patients with MINOCA are considered to have a better prognosis than patients with MI and obstructive coronary artery disease (MICAD), it is not clear if MINOCA patients have similar outcomes to a normal, healthy population.

The growth of recent literature in MINOCA has allowed us to perform an in-depth analysis of MINOCA prognosis, looking at 1-year all-cause mortality and 1-year re-infarction and compared with MI-CAD patients and a healthy cohort. This comprehensive analysis showed that MINOCA patients have a much higher risk of mortality and re-infarction over time compared to a healthy population, despite the absence of significant coronary artery disease. This risk, however, is lower than for MI-CAD patients.

These findings were presented by Dr Tharshy Pasupathy at the premier scientific meeting for cardiovascular disease, the European Society of Cardiology, in an invited presentation. Dr Pasupathy's findings highlight that efforts are needed to improve our understanding of the optimal management and secondary prevention strategies in this unique population of heart attack patients, and the need for additional investigations to elucidate the underlying cause of the heart attack.

This work has a major impact on MINOCA patients because they can be provided with a diagnosis instead of being labelled a 'false-positive' heart attack and, importantly, efforts can be directed towards treatment options to prevent future adverse events.

European Society of Cardiology Scientific Sessions, 2019 – Invited presentation Dr Tharshy Pasupathy in the session titled: MINOCA - Unravelling the enigma

► <https://esc365.escardio.org/Congress/ESC-CONGRESS-2019/MINOCA-Unravelling-the-enigma/27710-minoca-unravelling-the-enigma>

► Publications for TVFRC

TRANSLATIONAL VASCULAR CLINICAL PHYSIOLOGY

GROUP MEMBERS

Research Leader and Consultant
John Beltrame

Consultants
Christopher Zeitz
Sharmalar Rajendran
Margaret Arstall

Postdoctoral Researchers
Rosanna Tavella
Sivabaskari (Tharshy) Pasupathy

Postgraduate Students
David DiFiore
Abdul Sheikh
Daryl Ooi

EXTERNAL COLLABORATORS

C. Noel Bairey Merz
Cedars Sinai Medical Centre,
Los Angeles, USA

Bertil Linahl
Uppsala University Hospital,
Uppsala, Sweden

THIS WORK HAS A MAJOR IMPACT ON MINOCA PATIENTS BECAUSE THEY CAN BE PROVIDED WITH A DIAGNOSIS INSTEAD OF BEING LABELLED A 'FALSE-POSITIVE' HEART ATTACK...

**SOUTH AUSTRALIAN
CARDIOVASCULAR
OUTCOMES REGISTRY
(SACOR)**

GROUP MEMBERS

Consultants

John Beltrame
Margaret Arstall
Matthew Worthley
Christopher Zeitz

Postdoctoral Researchers

Rosanna Tavella
Sivabaskari (Tharshy) Pasupathy

Research Assistants

Carly Cilento
Alexandra Burdakova
Rachel Jakobczak
Matthew Hay
Ellen Rees
Laura Simeone
Sophia Tan
Jing Wu
Natasa Damjanic
Corrado Tavella
Kavi Sivasankar
Ellen Kessling
Aakriti Lath
Lynda Borg

Biostatistician

Tracy Air

Postgraduate Students

Tracy Air
Clementine Labroschiano

Honours Students

Sarena La
Aakriti Lath

BHI COLLABORATORS

Prue Cowled
Robert Fitridge
Vascular Surgery Research Group

EXTERNAL COLLABORATORS

John Spertus
*Saint Luke's Mid America Heart
Institute, University of Missouri,
Kansas City, USA*

Bertil Linahl
*Uppsala University Hospital,
Uppsala, Sweden*



**SOUTH AUSTRALIAN
CARDIOVASCULAR OUTCOMES
REGISTRY (SACOR)**

The SACOR group is dedicated to advancing outcomes research, quality assessment and healthcare improvement with a key focus on the health status of patients with vascular disorders including their symptoms, physical limitations and quality of life.

Consistent with the changing environment in medicine, this group adopts a 'patient-orientated' approach to the delivery of health care by evaluating patient health status and quality of care delivered. The group has developed large databases and clinical quality registries from patients with coronary artery disease, microvascular disease, coronary spasm and peripheral artery disease. Most of these databases have international links thereby providing collaborative opportunities.

of the radial approach worldwide has varied. In some patients such as the elderly and women, the vascular anatomy is more complex so radial access may be considered too challenging.

Using the Coronary Angiogram Database of South Australia (CADOSA), we compared the in-hospital safety outcomes of male and female patients undergoing angiography in a real-world setting by whether the procedure was performed via the groin or arm. We assessed approximately 14,000 angiogram procedures in South Australian public hospitals since 2012 and stratified the data by age (≤ 55 yrs vs. > 55 yrs) and gender to determine if particular subgroups had a greater benefit with radial access.

We saw a reduction in all major complications (death, heart attack, stroke or major bleeding) for patients having a radial access angiogram compared to the groin approach. This benefit was evident for both young and older patients, and was particularly significant for women and in the older population. Furthermore, the benefit is driven by the significantly lower bleeding complications associated with radial procedures.

In August 2019 Associate Professor Kuljit Singh (BHI alumni, now at Gold Coast University Hospital) presented these findings in collaboration with the CADOSA Investigators at the 67th Annual Scientific Meeting of the Cardiac Society of Australia and New Zealand (CSANZ). ► [www.heartlungcirc.org/article/S1443-9506\(19\)30966-7/fulltext](http://www.heartlungcirc.org/article/S1443-9506(19)30966-7/fulltext)

In South Australia, over 90% of coronary angiograms are now performed with the radial approach, compared to only about 20% in the United States, where uptake of this approach has been much slower.

RESEARCH HIGHLIGHT OF 2019

Safer approaches to angiography

Coronary angiography is the gold standard invasive investigation to diagnose coronary artery disease. This procedure involves inserting a catheter (thin tube) in an artery in the groin or arm and threading it through blood vessels to the heart. In the past, all procedures were undertaken by the groin. International data has shown that performing a coronary angiogram procedure via the arm (radial approach) is safer as patients suffer fewer complications and have a quicker recovery. However, this data is based on randomised clinical trials and so the uptake

**CORONARY
ANGIOGRAPHY
IS THE GOLD
STANDARD
INVASIVE
INVESTIGATION
TO DIAGNOSE
CORONARY
ARTERY DISEASE.**

► **Publications for TVFRC**



GROUP MEMBERS

Research Leader

Rob Fitridge

Principal Medical Scientist

Prue Cowled

Postgraduate Students

Guilherme Pena

Beatrice Kuang

Consultant

Joe Dawson

Clinical Trials Coordinator

Ruth Battersby

BHI COLLABORATOR

John Beltrame

*Translational Vascular Function
Research Collaborative*

EXTERNAL COLLABORATORS

Allison Cowin

*University of South Australia,
Adelaide, Australia*

Christina Bursill

Peter Psaltis
*SAHMRI,
Adelaide, Australia*

Alex Brown

*The University of Adelaide and
SAHMRI, Adelaide, Australia*

Stephen Kidd

*The University of Adelaide,
Adelaide, Australia*

RESEARCH HIGHLIGHT OF 2019

Contributing to new Global Vascular Guidelines for the management of CLTI

Professor Rob Fitridge has been a member of the steering committee, and consultant Dr Joe Dawson is a contributor to the writing group, for new Global Vascular Guidelines for the management of Chronic Limb-Threatening Ischaemia (CLTI). These high profile international positions have led to them contributing to new guidelines to inform best evidence-based practice for the treatment of CLTI. These guidelines, published concurrently in the two highest ranked Vascular Surgery journals, the Journal of Vascular Surgery and the European Journal of Vascular and Endovascular Surgery (listed below), will have a major impact on improving patient care in affected patients.

Conte MS, Bradbury AW, Kolh P, White JV, Dick F, Fitridge R, Mills JL, Ricco JB, *et al.* GVG Writing Group for the Joint Guidelines of the Society for Vascular Surgery (SVS), European Society for Vascular Surgery (ESVS), and World Federation of Vascular Societies (WFVS). Global vascular guidelines on the management of chronic limb-threatening ischemia. *J Vasc Surg.* 2019 Jun;69(6S):3S-125S. e40. doi: 10.1016/j.jvs.2019.02.016. Epub 2019 May 28.

Conte MS, Bradbury AW, Kolh P, White JV, Dick F, Fitridge R, Mills JL, Ricco JB, *et al.* GVG Writing Group for the Joint Guidelines of the Society for Vascular Surgery (SVS), European Society for Vascular Surgery (ESVS), and World Federation of Vascular Societies (WFVS). Global Vascular Guidelines on the Management of Chronic Limb-Threatening Ischemia. *Eur J Vasc Endovasc Surg.* 2019 Jul;58(1S):S1-S109.e33. doi: 10.1016/j.ejvs.2019.05.006. Epub 2019 Jun 8.

The Vascular Surgery Research Group studies outcomes of major vascular diseases and vascular surgical procedures. The group also focuses on the outcomes of diabetic foot ulceration and wound healing in the diabetic foot. Diabetic foot ulceration is responsible for over 4,000 major amputations in Australia each year.

We are studying the role of frailty on outcomes of interventions. We are keen to examine which factors are critical in determining which patients with diabetic foot ulcers will need major amputation, and which factors are associated with wound healing, as well as assessing the role of new technologies in improving outcomes in these patients.

2019 research

- We have recently shown that there is a very high incidence of vitamin C and Zinc deficiency in patients with diabetic foot ulcers, which are likely to adversely impact on wound healing.
- We have validated a new image analysis system for assessing leg ulcers.
- We have developed a model to predict survival and graft complications after endovascular aortic aneurysm repair that can be used to predict outcomes for individual patients.

► Publications for Vascular Surgery Research Group

CONTRIBUTING TO NEW GUIDELINES TO INFORM BEST EVIDENCE-BASED PRACTICE FOR THE TREATMENT OF CLTI.

GROUP MEMBERS

Research Leader

John Beltrame

Postdoctoral Research Fellows

Peter Zalewski

Rosanna Tavella

Postdoctoral Researchers

Hai Tran

Anna Wawer

Adrian Abdo

Research Officers

Rachel Jakobczak

Matthew Hay

Research Assistant

Zinaida Tvorogova

BHI COLLABORATORS

Yuliy Chirkov

Irene Stafford

*Cardiovascular Pathophysiology
and Therapeutics Group*

EXTERNAL COLLABORATORS

Sandra Hodge

*The University of Adelaide,
Adelaide, Australia*

Chiara Murgia

*Monash University,
Melbourne, Australia*

Peter Psaltis

*SAHMRI,
Adelaide, Australia*

Chris Zeitz

*SA Health,
Adelaide, Australia*



The Zinc and Cardiovascular Disease Research Group investigate the role of the major dietary metal, zinc, in the blood vessels and in vascular diseases. Our work will enable us to directly relate endothelial zinc levels and zinc transporter expression with endothelial dysfunction, vasoconstriction, cigarette smoking and small and large artery disease in humans. It will provide the rationale for zinc interventional clinical trials.

**WE ARE WORKING
TOWARDS THE FIRST
CLINICAL TRIAL
OF ZINC THERAPY
IN AUSTRALIAN
CARDIOVASCULAR
DISEASE PATIENTS.**

RESEARCH HIGHLIGHT OF 2019

Zinc is important for vascular health

We are developing and refining a technique to isolate endothelial cells from the linings of human arteries by detaching them from guide wires, catheters and stent balloons used in coronary angiograms and related procedures. These cells are being used for experimental analysis, to study the relationship between zinc levels in arterial endothelium and cardiovascular disease, and to stock a biobank to support future studies. To complement this work we have optimised a flow cytometry-based assay to begin measuring zinc levels in endothelial cells. A manuscript detailing the method will be published in 2020.

Dr Adrian Abdo and Dr Hai Tran have found that zinc modulates the activity and release of a potent vasoconstrictor, endothelin 1, from endothelial cells. This provides a novel mechanism by which zinc controls the dilation of our blood vessels.

Dr Anna Wawer has generated preliminary data on the role of zinc in blocking cGMP-dependent phosphodiesterases and thereby providing a second pathway for control of the dilation of our blood vessels by zinc.

An exciting preliminary study by research assistant Zina Tvorogova has shown significant hypozinaemia in 17% of patients (n = 200) admitted for diagnostic coronary angiography due to angina. To our knowledge, this is the first such data on zinc in Australian patients. We will now correlate low zinc levels with cardiovascular disease biomarkers.

Studies by our group (supported by the NHMRC), in combination with the work of others, have shown that zinc is a significant facilitator of vascular health. Low zinc levels are common in subjects with increased risk of cardiovascular disease as well as in patients with coronary artery disease. We are working towards the first clinical trial of zinc therapy in Australian cardiovascular disease patients.

► **Publications for Zinc and Cardiovascular Disease Research Group**

RESEARCH GROUPS

Clinical Pharmacology Research Group

Endocrinology Unit

Stroke Research Programme

The Health Observatory

CHRONIC DISEASE

GROUP MEMBERS

Principal Medical Scientist

Benedetta Sallustio

Senior Medical Scientist

Shane Spencer

Postgraduate Students

Mirabel Alonge

Rong Hu

EXTERNAL COLLABORATORS

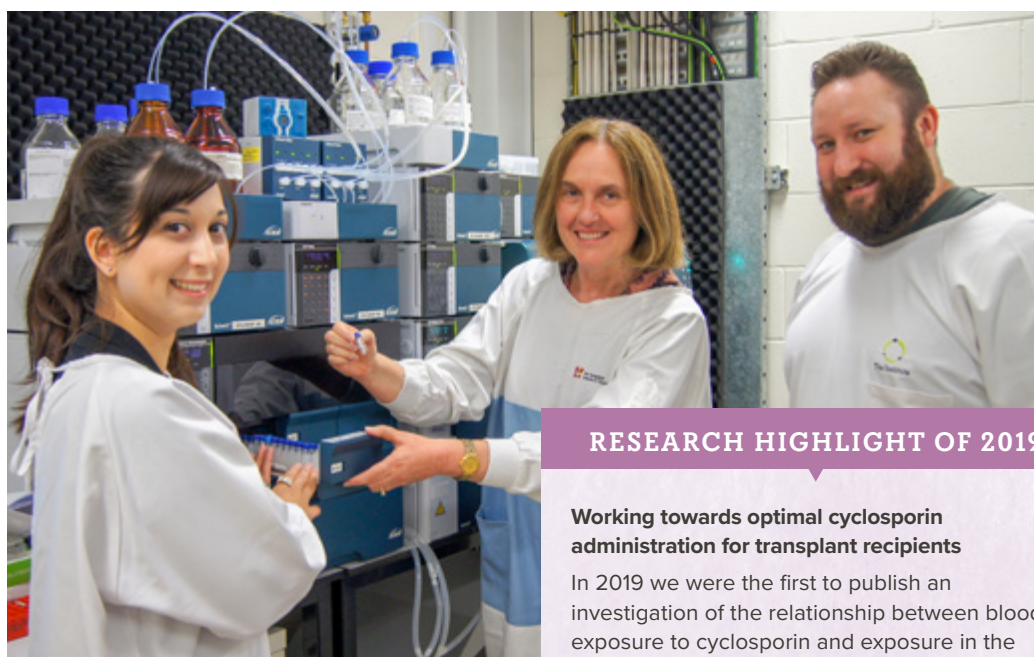
Andrew Somogyi

Janet Collier

Daniel Barratt

*The University of Adelaide,
Adelaide, Australia*

Shilpa Jesudason

*Royal Adelaide Hospital,
Adelaide, Australia*

Our main research interest is to develop precision medicine tools to individualise immunosuppressive therapy used to prevent rejection following kidney transplantation.

This involves better use of therapeutic monitoring of blood immunosuppressant concentrations to guide dosage and understanding the factors that determine immunosuppressant concentrations at their sites of action (the immune cells that cause rejection) and at their sites of unwanted toxicity, which includes the transplanted kidney.

2019 research

- **Genetic mutations:** We have completed an extensive investigation of whether mutations in genes that code for drug metabolising enzymes and transporters affect the incidence of acute rejection or kidney function in the early post-transplant period. Our study showed that genetic mutations that cause large inter-individual variability in immunosuppressant dosage requirements do not have a significant impact on rejection or kidney function in transplant recipients who undergo therapeutic drug monitoring. These observations highlight the benefit of therapeutic drug monitoring for early immunosuppressant individualisation in kidney transplant recipients.
- **Tacrolimus dosage:** We have identified that in transplant recipients who undergo rejection there is a decrease in blood concentrations of the immunosuppressant tacrolimus immediately before the rejection episode and that this may be obscured by changes in red blood

RESEARCH HIGHLIGHT OF 2019**Working towards optimal cyclosporin administration for transplant recipients**

In 2019 we were the first to publish an investigation of the relationship between blood exposure to cyclosporin and exposure in the transplanted kidney, a major site of cyclosporin toxicity (listed below).

It has long been assumed that blood cyclosporin concentrations reflect those at the site of action and the site of toxicity. We took advantage of the analytical advances in mass spectrometry that make it possible to measure cyclosporin concentrations in kidney biopsy tissue taken during routine clinical care of transplant recipients.

Our work suggests that blood cyclosporin concentrations are not predictive of the transplanted kidney's exposure and may therefore be a poor guide to patients' risk of kidney damage. We instead found that dosage was the best predictor of cyclosporin concentrations within the transplanted kidney.

Overall, this research will enhance our understanding of the factors that contribute to the loss of a transplanted kidney, so that we can develop better tests and guidelines to individualise immunosuppressant therapy and prevent rejection and kidney damage.

Sallustio BC, Noll BD, Collier JK, Tuke J, Russ, G and Somogyi AA. Relationship between allograft cyclosporin concentrations and P-glycoprotein expression in the first month following renal transplantation. Br J Clin Pharmacol. 2019 May; 85(5):1015-1020.

cell numbers following transplantation. These results highlight the importance of considering red blood cell numbers together with blood tacrolimus concentrations when adjusting patient tacrolimus dosages.

► **Publications for Clinical Pharmacology Research Group**

► **See also Clinical Pharmacology Research Group - Cardiovascular Disease**

OVERALL, THIS RESEARCH WILL ENHANCE OUR UNDERSTANDING OF THE FACTORS THAT CONTRIBUTE TO THE LOSS OF A TRANSPLANTED KIDNEY...

The Endocrinology Unit's research focuses on diabetes and osteoporosis. Our aim is to gain clinical endocrine knowledge through clinical trials and other research. We also conduct translational research and patient quality improvement studies to improve patient care.

RESEARCH HIGHLIGHT OF 2019

Changing treatment guidelines for diabetic patients in the peri-operative setting

Drs David Jesudason and Emily Meyer, in collaboration with Dr Venkatesan Thiruvankatarajan, have studied the effect of the sodium-glucose co-transporter-2 (SGLT2i) inhibitor class of drug in causing diabetic ketoacidosis, especially in the peri-operative setting. Following the initial publication of the case series in 2018, there has been further work done culminating in a recent publication in the *British Journal of Anaesthesia*, a highly ranked anaesthetic journal* (listed below).

Further collaborative efforts between the Endocrinology and Anaesthetic departments of The Queen Elizabeth Hospital on peri-operative diabetic ketoacidosis with the SGLT2i class have led to a book chapter for the ANZCA Australian Anaesthesia 2019** (listed below).

Our work has highlighted that the SGLT2 inhibitor group of drugs, whilst a very important treatment for diabetes, can cause diabetes ketoacidosis in situations of medical or surgical stress especially in the peri-operative setting. Conclusions from our 2019 publication in the *British Journal of Anaesthesia* have influenced guidelines issued by the Australian Diabetes Society, the Australian Society of Anaesthetists as well as local hospital guidelines. In addition, this publication was the editor's choice, subject of a University of Adelaide Media Release, reported on by both Medscape and Australian Doctor, and used in the recent Australian and New Zealand College of Anaesthetists (ANZCA) 2019 Fellowship Examinations.

* Thiruvankatarajan V, Meyer EJ, Nanjappa N, Van Wijk RM, Jesudason D. Perioperative diabetic ketoacidosis associated with sodium-glucose co-transporter-2 inhibitors: a systematic review. *Br J Anaesth*. 2019 Jul;123(1):27-36. doi: 10.1016/j.bja.2019.03.028. Epub 2019 May 3.

** Euglycaemic diabetic ketoacidosis associated with sodium-glucose cotransporter-2 inhibitors: New Drugs bring new problems. Venkatesan Thiruvankatarajan, Emily Meyer, ...David Jesudason. Book Chapter. *Australasian Anaesthesia*. pp. 251-64.

2019 research

- Dr Bhairavi Parimalanathan, supervised by Dr David Jesudason and Professor Gary Wittert, has continued the study of sleep quality and thyroid function using the dataset from the Men Androgen Inflammation Lifestyle Environment and Stress (MAILES) cohort. The study established that on a population base, there is little association between thyroid status and subclinical chronic sleep disturbance.
- Dr Nadia Singaraveloo (former registrar) is continuing the audit study of patients who underwent bone density scans at the Bone density service, Endocrine Unit and their follow-up treatment. The study shows that the bone density scan report and its accompanying clinical interpretation and suggestion resulted in subsequent positive changes in the treatment and management of patients by their GPs.

► Publications for Endocrinology Unit

OUR AIM IS TO GAIN CLINICAL ENDOCRINE KNOWLEDGE THROUGH CLINICAL TRIALS AND OTHER RESEARCH.

GROUP MEMBERS

Research Leader and Consultant
David Jesudason

Consultants
Narsing Laddipierla
Kirsten Campbell
Lucy Gagliardi
Emily Meyer

Registrars
Soumyadeep Bose
Ryan Jalleh
Samantha Bateman
Lisa Bichard

Senior Medical Scientists
Jim Wang
Chris Seaborn
Erica Robinson

Postgraduate Students
Usman Mushtaq
Sunita De Sousa
Bhairavi Parimalanathan

BHI COLLABORATOR

Venkatesan Thiruvankatarajan
Anaesthesia Research Group

EXTERNAL COLLABORATORS

Gary Wittert
The University of Adelaide,
Adelaide, Australia

Emily Meyer
Royal Adelaide Hospital,
The University of Adelaide,
Adelaide, Australia

Andrew Peel
Geelong Hospital,
Victoria Health Department,
Geelong, Australia



GROUP MEMBERS

Research Leader

Simon Koblar
Director, Stroke Research
Programme

Principal Medical Scientist

Anne Hamilton-Bruce
Management Co-ordinator,
Neurology & Co-Director,
Stroke Research Programme,
Co-Lead, Research and
Education, Neurology, CALHN;
Affiliate Associate Professor,
Discipline of Medicine,
Adelaide Medical School

Clinical Associate Professor

Jim Jannes
Head of Neurology, Central
Adelaide Local Health Network

Postdoctoral Research Fellow

Karlea Kremer

Senior Medical Scientist

Austin Milton

Postgraduate Students

Stephen Bacchi
Anupam Datta Gupta
Maria Gancheva
Chelsea Graham
Victor Krawczyk
Anjali Nagpal

BHI COLLABORATORS

Renuka Visvanathan
Adelaide G-TRAC Centre

John Beltrame
Translational Vascular Function
Research Collaborative

EXTERNAL COLLABORATORS

James Fawcett
Jessica Kwok
University of Cambridge,
Cambridge, UK

Chris Levi
The University of Newcastle,
Newcastle, Australia

Stan Gronthos
Stuart Howell
Suzanne Edwards
The University of Adelaide,
Adelaide, Australia

Stephen Pyecroft
Erik Noschka
Susan Hazel
The University of Adelaide,
Roseworthy, Australia

Chris Proud
The University of Adelaide,
SAHMRI, Adelaide, Australia

Marten Snel
Martin Lewis
SAHMRI, Adelaide, Australia

Shohreh Majd
Flinders Medical Centre,
Adelaide, Australia

Susan Hillier
Janette Young
Rachel Milte
Julie Ratcliffe
Carmel Nottle
University of South Australia,
Adelaide, Australia

Our research investigates genetic, proteomic and lipid factors that affect the risk of stroke, the risk of Transient Ischaemic Attack (or TIA, an early marker of stroke) and the progress of stroke. We link internationally in our stroke-related research on genetic investigations, via collaborations with the International Stroke Genetics Collaborative and the Australian Stroke Genetics Collaborative. As part of this we investigate the cellular and molecular therapeutic application of adult stem cells and the Npas4 gene to repair the brain after stroke. We have an active program investigating the potential of Dental Pulp Stem Cells (DPSC) as future neural regenerative therapies in the medical field.

RESEARCH HIGHLIGHT OF 2019

'Personalised medicine' approach for eligible stroke patients

Our programme was part of a landmark contribution to the stroke field in proposing intravenous thrombolysis up to 9 hours.

Current guidelines for ischemic stroke limit the time to start intravenous thrombolysis ('clot-busting' treatment) to within 4.5 hours of onset because after this point the risk of brain damage is considered too great. The Stroke Unit and the Stroke Research Programme were part of a multi-centre Australian trial to extend thrombolysis therapy past this 4.5 hour limit. Perfusion imaging of the brain was used to identify patients who have a small core of damaged brain with a larger zone of brain tissue that can be saved. The time that thrombolysis can be used to rescue this group of patients from certain disability due to stroke has thus been extended to up to 9 hours after the onset of their stroke.

In what is effectively a 'personalised medicine' approach, eligible patients, as determined by perfusion-imaging, are safe to be treated up to nine hours after their stroke with good brain recovery and few side-effects. This treatment means that more patients can be treated, thus saving more lives and preventing disability in more patients with stroke.

This research also addresses the challenges of 'wake up' strokes, where a patient awakes with symptoms of stroke and the actual time of stroke onset is unknown. The extent of damage defined by perfusion imaging can guide the best treatment for suitable patients.

Ma H, Campbell BCV, Parsons MW, et al. incl. Kleinig TJ, Jannes J and EXTEND Investigators. Thrombolysis Guided by Perfusion Imaging up to 9 Hours after Onset of Stroke. *N Engl J Med*. 2019 May 9;380(19):1795-1803.

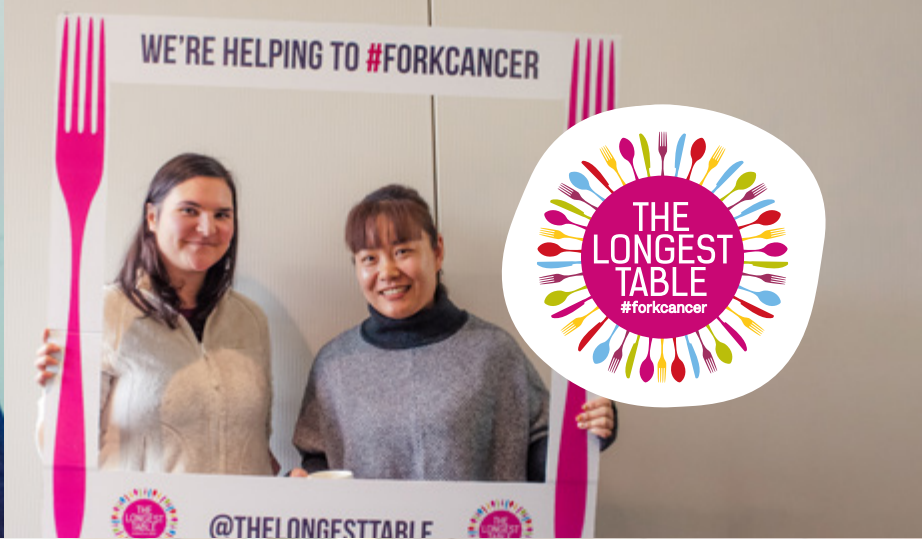
► [Link to journal paper](#)

2019 research

- PhD candidate Dr Anjali Nagpal was awarded her PhD in April 2019. Anjali reviewed the cost-effectiveness and value of stem cell therapy to patients and healthcare systems. She identified potential cost savings over the long-term and ongoing benefits in terms of decreased rate of disease progression and disability, despite the high initial costs of stem cell therapy.
- Dr Nagpal also proposed a Clinical Translation of Cell Therapies in Stroke (CT2S) Checklist for efficient operationalization of clinical studies in Cell Therapy. This checklist is a practical framework incorporating key measures that impact on the quality of execution of early-phase clinical Cell Therapy studies in stroke. She evaluated the impact of study design, regulatory policy, ethical and health economic considerations for efficient implementation of early phase Cell Therapy studies.
- Using a novel health approach, our PhD candidate, Chelsea Graham, and collaborators are investigating Tasmanian devil DPSC for their use as a treatment for the devil facial tumour, a transmissible cancer. Chelsea has found that Tasmanian devil teeth contain DPSC with many properties similar to human DPSC and they appear to be able to generate Schwann cells, a supporting nerve cell, which is the underlying cell type in devil facial tumour. Being able to produce normal Schwann cells would be a first step in a possible treatment for this form of tumour. With this research the Stroke Research Programme also aims to be able to effectively derive Schwann cells from DPSCs for peripheral nerve regenerative studies, with further potential being for the use of DPSCs as a cellular vehicle for suicide gene therapy with The University of Adelaide and SAHMRI's cancer research group.

► Publications for Stroke Research Programme

THIS TREATMENT
MEANS THAT MORE
PATIENTS CAN BE
TREATED, THUS
SAVING MORE LIVES
AND PREVENTING
DISABILITY IN MORE
PATIENTS WITH
STROKE.





GROUP MEMBERS

Consultants

Robert Adams
Director of The Health Observatory, Professor in Respiratory and Sleep Medicine, College of Medicine and Public Health, Flinders University and Adjunct Professor of Medicine, The University of Adelaide)

Catherine Hill
Director of Rheumatology Unit, The Queen Elizabeth Hospital

Gary Wittert
Professor of Medicine, The University of Adelaide and Director, Freemasons Foundation Centre for Men's Health

THRF Mid Career Research Fellow

Helen Stallman

Postdoctoral Researchers

Sarah Appleton
Tiffany Gill

Research Assistant

Stephanie Jamieson

Postgraduate Students

Clare McNally
Yohannes Melaku

BHI COLLABORATORS

Catherine Hill
Rheumatology Research Group

Renuka Visvanathan
Adelaide G-TRAC Centre

Isuru Ranasinghe
Health Performance and Policy Research Unit

John Beltrame
Translational Vascular Function Research Collaborative

EXTERNAL COLLABORATORS

Mark Mackay
University of South Australia, Adelaide, Australia

Doug McEvoy
Peter Catcheside
Andrew Vakulin
Adelaide Institute of Sleep Health (AISH), Flinders University, Adelaide, Australia

Angela D'Rozario
Woolcock Institute, University of Sydney, Sydney, Australia

Terry Young
Brunel University, London, UK

Sally Ferguson
Amy Reynolds
Central Queensland University, Adelaide, Australia

Raphael Heinzer
Lausanne University Hospital (CHUV), Lausanne, Switzerland

Jordi de Batlle
Biomedical Research Institute of Lleida, Lleida, Spain

The Health Observatory uses epidemiological approaches to identify the burden of poor sleep health in Australia. We aim to identify clinical phenotypes of people at risk of poor health outcomes to inform evidenced based policy for the improved delivery of health services and prevention of chronic disease. This includes determining the burden of undiagnosed obstructive sleep apnea (OSA) and insomnia and their relationship with chronic disease in the Men Androgens Inflammation Lifestyle Environment and Stress (MAILES) study and the Sleep Health Foundation 2016 and 2019 surveys.

RESEARCH HIGHLIGHT OF 2019

Prompting a Parliamentary Inquiry into Sleep Health Awareness

The Health Observatory has identified major challenges to optimising sleep health in Australia. Our 2019 report to the Sleep Health Foundation

► www.sleephealthfoundation.org.au/news/special-reports/chronic-insomnia-disorder-in-australia.html regarding insomnia prevalence and correlates is the first national study of its kind and uses contemporary criteria to define chronic insomnia disorder based upon difficulties initiating/maintaining sleep and daytime impact in the context of adequate opportunity to sleep. Around 60% of people report at least one sleep symptom occurring 3 or more times per week, and this is consistent across age groups. However, older people are more likely to have difficulty maintaining sleep, while younger adults have trouble initially getting off to sleep. Depending on criteria used the prevalence of chronic insomnia disorder is 13-15% and occurs more frequently in older adults and goes largely undiagnosed.

We also identified a significant burden of people waking or being woken from sleep to engage with electronic devices. One in twenty people did so most/every night of the week while one in five do so 2-3 or more nights of the week. Significant associations of this behaviour were seen with daytime impairments (e.g. mood and memory/concentration problems) but also with major social outcomes including having drowsy driving related motor vehicle accidents or near misses and occupational outcomes such as making errors at work and absenteeism due to sleepiness or a sleep problem. Results from this study were presented at the Australasian Sleep Association conference in October 2019 and reported in a wide range of media stories

over the following week ► [See Community Engagement section](#). Results are due to be published in 2020.

Our research has identified problems with sleep health that are likely to have significant direct and indirect health and economic impacts on the community. Our work on Sleep Health formed the basis of national reports that led to a national Parliamentary Inquiry into Sleep Health Awareness in 2019. The subsequent report cited our work extensively and produced 11 recommendations for further action, across policy, workplaces, health systems and public advocacy. The first of these recommendations was "that the Australian Government prioritise sleep health as a national priority and recognise its importance to health and wellbeing alongside fitness and nutrition." The government has subsequently accepted all the recommendations for future action

► www.sleephealthfoundation.org.au/files/Parliamentary_Inquiry/BedtimeReading-Parliamentary_Report.pdf

► www.sleephealthfoundation.org.au/news/special-reports/bedtime-report-parliamentary-inquiry-report.html

► Publications for The Health Observatory

**OUR WORK...
LED TO A NATIONAL
PARLIAMENTARY
INQUIRY INTO SLEEP
HEALTH AWARENESS
IN 2019.**

CLINICAL SCIENCES, HEALTH SERVICES AND POPULATION HEALTH

RESEARCH GROUPS

Anaesthesia Research Group

Intensive Care Medicine Research
Group

Oesophageal Physiology Group

Psychiatry Research Group

Respiratory Research Group

Rheumatology Research Group

Surgical Science Research Group



GROUP MEMBERS

Research Leaders

Roelof Van Wijk
Director

Vasanth Rao Kadam
Regional Anaesthesia

Venkatesan Thiruvankatarajan
*Laryngeal Mask Airway,
High Flow Nasal Oxygen,
and SGLT2 inhibitors*

Richard Watts
Beta-Blockers and Anaesthesia

Clinical Researchers

Arpudaswamy Kumar
Graeme Newcombe
Rajesh Sethi
Thavarajah Visvanathan
Medhat Wahba
Nagesh Nanjappa

BHI COLLABORATORS

David Jesudason
Emily Jane Meyer
Endocrinology Unit, TQEH

The primary research interests of our department are:

- **SGLT2 inhibitors (new medications used for treating type 2 diabetes) and consequences for patients undergoing surgery**
- **Efficacy and cost-effectiveness of ultrasound guided blocks for postoperative analgesia**
- **Applications of high flow nasal oxygen in high risk patients undergoing sedation or anaesthesia**
- **Applications and complications of supraglottic airway devices; these are devices that sit above the vocal cords and assist breathing during anaesthesia**
- **New applications of drugs as co-analgesics or co-anaesthetics in anaesthesia**

2019 research

- In a first systematic literature review to explore the effect of a drug (esmolol) on a longer conduction time during part of the heart cycle (QT response) after inserting a breathing tube during anaesthesia, Dr Thiruvankatarajan found that when compared with placebo (inactive drug), esmolol reduced this longer conduction time.
- In a randomised study comparing the pain-reducing effects after abdominal surgery between a special blockade next to the spine with local anaesthetic (transversus quadratus lumborum block-TQL) and local anaesthetic through catheters in the wound (pre-peritoneal catheter block-PPC), A/Prof Rao Kadam found similar pain scores and pain medication needs. Considering the invasiveness, required expertise, and higher costs with the TQL technique, the PPC blocks are a cost-effective and useful alternative for postoperative pain management after abdominal surgery. Our research into ultra-sound guided blocks for postoperative analgesia has shown repeatedly that pre-peritoneal wound bed catheters remain an effective and cost-effective technique.

RESEARCH HIGHLIGHT OF 2019

Managing a potentially life threatening syndrome in at risk patients

Sodium-glucose co-transporter-2 inhibitors (SGLT2i) are a new group of oral medications used for treating type 2 diabetes. The drugs work by helping the kidneys to lower blood glucose levels. Excess glucose in the blood is removed from the body via urine.

One of the complications of diabetes can be an increase in acidity in the blood combined with high glucose levels. SGLT2i, when stopped before surgery, can trigger this acidity without an increase in glucose levels (known as perioperative diabetic ketoacidosis (DKA) with near-normal blood glucose concentrations, or euglycaemic ketoacidosis (EDKA)). EDKA is an adverse effect associated with these SGLT2i.

Guidelines are still evolving concerning the perioperative management of patients using SGLT2i. Venkatesan Thiruvankatarajan, Emily Jane Meyer, Nagesh Nanjappa, Roelof Van Wijk and David Jesudason performed a systematic review of published reports of DKA from SGLT2i in the surgical setting to understand better the clinical presentation and characteristics of SGLT2i-associated DKA. We found that EDKA is likely to be under-recognised because of its atypical presentation and this may delay the diagnosis. Understanding this clinical entity, combined with vigilance towards monitoring plasma/capillary ketones, will help in early identification and assist in the management of this potentially life threatening syndrome.

Our work on SGLT2i inhibitors and surgery has highlighted the importance of screening at risk patients to ensure early detection of EDKA. This paper was published in the *British Journal of Anaesthesia* and was given open access due to its importance.

► <https://doi.org/10.1016/j.bja.2019.03.028>

► Publications for Anaesthesia Research Group



The Department of Intensive Care Medicine participates in, and conducts, research aimed at improving patient outcomes, answering pragmatic, relevant clinical questions that are of importance to the clinicians who provide patient care and also delivering more efficient and effective treatments that will not only benefit critically ill patients but also decrease costs, preserve resources and increase access to scarce critical care beds.

2019 research

The Department of Intensive Care Medicine participated in the following collaborative studies in 2019:

- An NHMRC-funded multicentre, crossover, cluster randomised controlled trial of Selective Decontamination of the Digestive Tract in Intensive Care Unit patients (SuDDICU)
- An NHMRC funded phase III randomised controlled trial of continuous beta-lactam infusion compared with intermittent beta-lactam dosing in critically ill patients (BLING III) (S Peake Chief Investigator)
- Randomized, Embedded, Multifactorial Adaptive Platform trial for Community-Acquired Pneumonia (REMAP-CAP)
- TARGET Protein Feasibility Study: a prospective, blinded, parallel group, randomised controlled trial to assess the feasibility of conducting a phase III trial of protein targets in critically ill adults
- Nutrition prescription in Australian and New Zealand intensive care units: A point-prevalence audit. (TARGET PPD)
- The Australasian Resuscitation In Sepsis Evaluation: FLUId or Vasopressors In Emergency Department Sepsis observational study
- The Intensive Care Unit Randomised Trial Comparing Two Approaches to OXYgen therapy (ICU-ROX)
- The Intensive Care unit Randomised Trial Comparing Two Approaches to Oxygen therapy: Translating Research into Practice Study (ICU-ROX TRIPS)
- Reduction of oxygen after cardiac arrest (EXACT): The EXACT study.

► Publications for Intensive Care Medicine Research Group

RESEARCH HIGHLIGHT OF 2019

Understanding the longer-term impacts of septic shock

As septic shock survival rates improve, there is an increasing recognition that survival is associated with longer-term morbidity and poorer health-related quality of life outcomes. The Australasian Resuscitation in Sepsis Evaluation (ARISE) trial enrolled 1,591 patients who presented to the emergency department with early septic shock between October 2008 and April 2014 and randomised them into early goal-directed therapy (EGDT) or usual care (UC) groups. In this article (listed below) we report on the long-term survival and quality of life of the ARISE participants up to 12 months post randomization.

Health-related quality of life at 12 months was significantly lower relative to the general population for patients presenting with septic shock (the majority of whom were admitted to intensive care). However, EGDT was not associated with either a long-term survival benefit or improved functional outcomes.

ARISE represents one of the largest long-term quality of life datasets for survivors of community-acquired septic shock.

Higgins AM, Peake SL, Bellomo R, Cooper DJ, Delaney A, Harris AH, Howe BD, Nichol AD, Webb SA, Williams PJ on behalf of the Australasian Resuscitation in Sepsis Evaluation (ARISE) Investigators and the ANZICS Clinical Trials Group. Quality of Life and 1-Year Survival in Patients With Early Septic Shock: Long-Term Follow-Up of the Australasian Resuscitation in Sepsis Evaluation Trial. *Crit Care Med*. 2019 Jun;47(6):765-773.

GROUP MEMBERS

Research Leaders

Sandra Peake
TQEH Principal Investigator

Patricia Williams
TQEH Clinical trials Coordinator

EXTERNAL COLLABORATORS

ANZICS-Clinical Trials Group

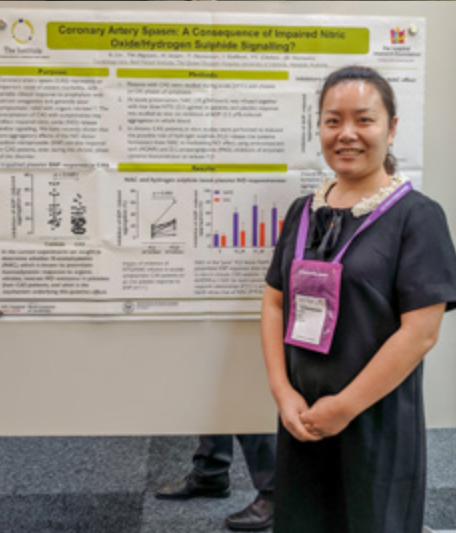
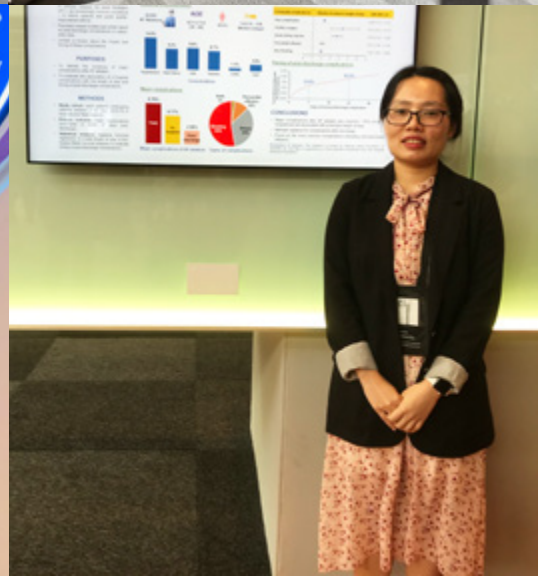
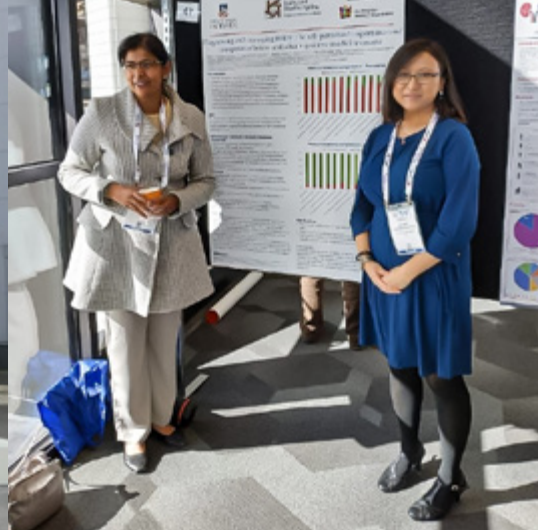
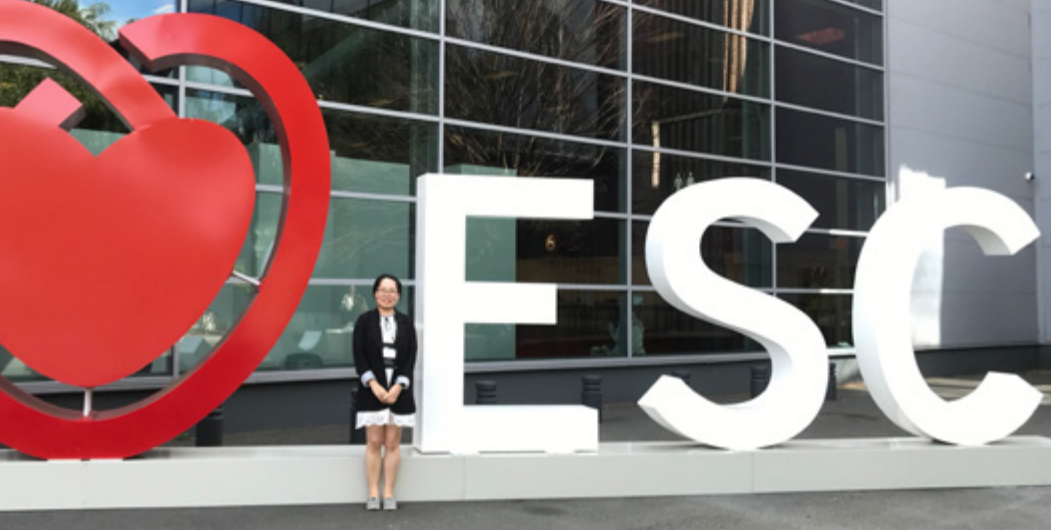
Ian Seppelt (SuDDICU)
The George Institute of Global Health, Sydney, Australia

Jeff Lipman (BLING III)
The George Institute of Global Health, Sydney, Australia

Steve Webb (REMAP-CAP)
The Australian & New Zealand Intensive Care Research Centre, Department of Epidemiology and Preventive Medicine, School of Public Health and Preventive Medicine, Monash University, Australia

Paul Young (ICU-ROX)
The Medical Research Institute of New Zealand, New Zealand

Diane Mackle (ICU-ROX TRIPS)
The Medical Research Institute of New Zealand, New Zealand





RESEARCH HIGHLIGHT OF 2019

More accurately assessing bile reflux after obesity surgery

An increasingly overweight population are undergoing weight loss operations (bariatric surgery) and are at risk of bile reflux. The challenge following weight loss surgery is detecting whether bile reflux occurs, as standard bile reflux imaging protocols are not suitable for the modified anatomy after surgery.

In 2019 our team commenced a study using hepatobiliary scintigraphy [a diagnostic nuclear medicine procedure using radiotracers] to investigate bile reflux after three different types of weight loss surgery. Our collaborative efforts have yielded an improved and refined scan technique for objective measurement of bile reflux following bariatric surgery. PhD student Dr Tom Eldredge was awarded the best poster and mini-oral presentation prize at TQEH Research Expo after presenting these results.

This ongoing study is expected to finish in 2020, once we have documented the presence or absence of bile reflux following three types of obesity surgery in all patients enrolled in our study.

Dr Tom Eldredge (right), accepting his TQEH Research Expo award from the Honourable **Stephen Wade**, SA Minister for Health and Wellbeing.

GROUP MEMBERS

Research Leaders

George Kiroff
Jennifer Myers

Postgraduate Students

Tom Eldredge
Siang Wei Gan

Our research explores specific aspects of pathophysiology, diagnosis and therapies for diseases of the oesophagus and upper gastrointestinal tract, including gastro-oesophageal reflux disease, motility disorders and upper gastrointestinal surgery such as fundoplication, cardiomyotomy and bariatric surgery.

2019 research

- **Oesophageal peristaltic reserve:** Multiple rapid swallows (MRS) during high-resolution oesophageal manometry is a new challenge test to evaluate swallowing function that may be useful in determining outcomes for anti-reflux surgery. We continue to gather clinical data to substantiate findings of our 2018 literature review.
- **Bolus transport after anti-reflux surgery:** When medical therapy fails, anti-reflux surgery is an option for patients wanting long-term control of reflux symptoms such as heartburn and regurgitation. After surgery, some patients experience difficulty swallowing. Our current research, using fluoroscopy, shows measurements of bolus transport from the oesophagus to the stomach and this is useful to correlate with degree of swallowing difficulty.

► Publications for Oesophageal Physiology Group



GROUP MEMBERS

Research Leaders

Scott Clark
Head of Discipline, Clinical Academic

Oliver Schubert
Clinical Titleholder

Cherrie Galletly
Head of Medical Specialties

Postgraduate Students

Andrew Olagunju
Kai Tit Tan
Micah Cearns

Honours Student

Edward Luong

Advanced Trainees

Nir Nachmani
Vineet Jejuna
Psychiatry Registrar

BHI COLLABORATOR

John Beltrame
Translational Vascular Function Research Collaborative

EXTERNAL COLLABORATORS

Pat McGorry
Barnaby Nelson
G Paul Amminger
Orygen Youth Health, University of Melbourne, Melbourne, Australia

Thomas G Schulze
ConLiGen Consortium, Ludwig-Maximilians-University of Munich, Munich, Germany

Bernhard T Baune
University of Munster, Munster, Germany

The Discipline of Psychiatry's research follows 6 main themes:

1. Personalised psychiatry and genomics of psychiatric disorders
2. Psychiatric neuroscience and neuroimmunology of psychiatric disorders
3. Neuropsychiatry and psychiatric and medical comorbidities
4. Clinical phenotype research into the cognitive, emotional and behavioural underpinnings of psychiatric disorders
5. The identification of electrophysiological markers of cognition and function in psychiatric disorders
6. The conduct of clinical trials, including pharmacological, psychological and neurostimulation interventions.

2019 research

- We identified that higher blood levels of the inflammatory protein C4 are associated with more severe impairment in cognitive function in patients with schizophrenia. This finding is consistent with other research suggesting C4 levels are associated with excessive synaptic pruning (elimination of synapses). The level of C4 in circulating blood may help identify patients with poor long term cognitive outcomes.
- We performed the first systematic review and meta-analysis of psychosocial function in clinical trials of long-acting injectable (LAI) antipsychotic medications. We found that LAI's improved psychosocial function over placebo but the magnitude of improvement in comparison to oral antipsychotics was small. Severe psychopathology at baseline predicted poor psychosocial function.

RESEARCH HIGHLIGHT OF 2019

Machine learning in diagnosis and clinical decision-making

Computer-based machine learning has been widely proposed to support diagnosis and clinical decision making in psychiatry, but there is limited understanding of the best modelling technique for a given clinical problem.

We, with collaborators in Melbourne and Munster, Germany, published an editorial in the highly respected *Australian & New Zealand Journal of Psychiatry (ANZJP)* which used simulation to highlight variability in the calibration of common machine learning algorithms and the resulting impact this variability has on accuracy. We propose a stepwise process considering first the accuracy of simpler, well calibrated models, before more complex and potentially less well calibrated methods are tested. Meaningful improvements in the accuracy of clinician based decision making can be achieved with less than perfect model accuracy if well calibrated decision support is developed in the context of day to day clinical workflows.

Cearns M, Hahn T, Clark SR, & Baune BT (2019) Machine learning probability calibration for high-risk clinical decision-making. *Australian & New Zealand Journal of Psychiatry*.

► <https://doi.org/10.1177/0004867419885448>

In collaboration with colleagues at the University of Munster, Germany, we have developed new multimodal machine learning techniques to predict diagnosis and outcomes in major depression and the protocol for an international consortium for the analysis of the genomics of electroconvulsive therapy response. These studies add to the understanding of risk factors for severe depression.

► Publications for Psychiatry Research Group

**THESE STUDIES
ADD TO THE
UNDERSTANDING
OF RISK FACTORS
FOR SEVERE
DEPRESSION.**



The Respiratory Research Group runs Clinical Trials and Investigator-led projects. We have research studies underway addressing knowledge and practice gaps for prevalent respiratory conditions including chronic obstructive pulmonary disease (COPD), asthma, bronchiectasis, sleep apnea, pneumonia, respiratory failure and smoking. Other key areas of research are non-invasive ventilation, intervention pulmonology and indigenous health.

RESEARCH HIGHLIGHT OF 2019

Restructuring and redefining quitline protocols

Great strides have been made in the effort to reduce smoking in Australia over the last 4 decades. However, the trend in decreasing smoking rates has plateaued recently, with daily smoking prevalence remaining relatively stable between 2013 (12.8%) and 2016 (12.2%). Telephone quitlines provide an important route of access to support for smokers. As yet no formal, evidence-based, national minimum standards are available to underpin and standardise Quitline™ services in Australia. This means the clinical offerings (types of counselling offered), data collection and reporting, functionalities (i.e. technological capabilities), clinical supervision processes and evaluation differ from jurisdiction to jurisdiction.

Dr Zoe Kopsaftis contributed to a report, brokered by the Sax Institute ► www.saxinstitute.org.au for Cancer Council Victoria, that provides evidence-based recommendations for a set of minimum standards for quitline program components and their delivery [Carson-Chahhoud K, Kopsaftis Z, Sharrad K, Esterman A. Evidence for smoking quitlines] ► www.saxinstitute.org.au/wp-content/uploads/Evidence-Check_Evidence-for-smoking-quitlines.pdf. Cancer Council Victoria are using the findings of this report to restructure and redefine their quitline protocols and services for smokers seeking support to quit.

2019 research

- We qualitatively explored the current asthma care landscape in SA. Health professionals feel demotivated by an inability to optimise care, perceived to be a combination of reduced patient knowledge and capability and insufficient resources. They believed this stemmed largely from asthma being a low ranking health priority with a lack of current socio-political awareness surrounding it.
- Exploration of lived experiences and perspectives of asthma care and management in the community indicated that people with asthma believed that there is a need to redefine inaccurate perceptions of asthma amongst health professionals and the general population. Additionally, they currently lack effective information and resources to feel empowered to lead their own health journey.
- We further characterised excessive dynamic airway collapse in obstructive sleep apnea. An association between the degree of upper airway obstruction in sleep and dynamic central airway collapse was found. However, computed tomography scans were insufficiently reported to detect excessive dynamic airway collapse and prospective studies are needed.

► Publications for Respiratory Research Group

CANCER COUNCIL VICTORIA ARE USING THE FINDINGS OF THIS REPORT TO RESTRUCTURE AND REDEFINE THEIR QUITLINE PROTOCOLS AND SERVICES FOR SMOKERS SEEKING SUPPORT TO QUIT.

GROUP MEMBERS

Research Leaders and Consultants

Antony Veale
Jonathan Polasek

Consultants

Anil Roy
Zafar Usmani
Andrew Fon
Sanaz Lehman

Principal Medical Scientist

Mark Jurisevic

Research Officers

Zoe Kopsaftis
Binh Truong
Clinical Trials Coordinator and Research Officer

Clinical Trials Coordinator

Anne Tabner

Technical Officer

Xiou Hui Liu

Research Nurses

Kathy Lawton
Karen Royals

Postgraduate Students

Zoe Kopsaftis
Kathy Lawton
Karen Royals
Zafar Usmani

EXTERNAL COLLABORATORS

Paddy Phillips
*SA Health,
Adelaide, Australia*

Adrian Esterman
Kristin Carson-Chahhoud
*University of South Australia,
Adelaide, Australia*

Joep Van Agteren
SAHMRI,
Adelaide, Australia

Matthew Peters
*Concord Repatriation
General Hospital,
Sydney, Australia*

Peter Wark
*The University of Newcastle,
Newcastle, Australia*

Anthony Flynn
*Asthma Australia,
Melbourne, Australia*



RESEARCH HIGHLIGHT OF 2019

Improving community-based interventions for gout

Gout is a chronic disease, yet it is treatable with urate lowering therapy. Professor Hill led a study of gout in a representative sample of the South Australian population. This study, conceived and performed in collaboration with global gout expert Professor Nicola Dalbeth, determined the high prevalence of gout in the community as well the under treatment of the condition; only 37% of participants with gout were currently using urate lowering therapy. Further, 25% of participants reported frequent gout flares, which impacted on their quality of life. This data is being used to model improved community-based interventions in this common disease.

Proudman C, [Lester SE](#), Gonzalez-Chica DA, Gill TK, Dalbeth N, [Hill CL](#). Gout, flares, and allopurinol use: a population-based study. *Arthritis Res Ther*. 2019;21:132. doi: 10.1186/s13075-019-1918-7.

In a separate study of gout, led by Associate Professor Rischmueller, the outcomes of a specialist gout clinic at TQEH are being examined. This research has shown that patients who regularly attended the clinic achieved faster rates of serum urate reduction prior to discharge to the care of their GP. This clinic enabled treatment dose adjustment and provided the opportunity to educate the GP and patient on effective gout management.

The Rheumatology Research Group uses clinical data and biological samples from a range of clinical cohorts with autoimmune and chronic inflammatory diseases to investigate epidemiology, causation, clinical outcomes, new treatments and patient reported outcome measures.

Projects are on-going in a range of diseases such as osteoarthritis, rheumatoid arthritis, Sjögren's syndrome, giant cell arteritis, polymyalgia rheumatica, gout and fibromyalgia. In addition, the Rheumatology Unit operates one of the largest Rheumatology clinical trials centres in Australia in order to evaluate the best, latest treatments for rheumatological diseases.



GOUT IS A CHRONIC DISEASE, YET IT IS TREATABLE WITH URATE LOWERING THERAPY.

2019 research

- Associate Professor Rischmueller's international collaboration with the Sjögren Big Data Consortium has continued with the latest study demonstrating that more than a quarter of patients with primary Sjögren's Syndrome may have systemic manifestations not currently included in the disease activity classification index [known as ESSDAI]. A wide variety of cardiovascular, digestive, pulmonary, neurological, ocular, ENT (ear, nose, and throat), cutaneous and urological features were observed that increase the scope of the systemic phenotype of this disease.
- Rheumatology Consultant Dr Sam Whittle was part of a consortium that developed a series of recommendations to provide up-to-date guidance for the treatment of axial spondyloarthritis [inflammatory arthritis of the spine and pelvis] in the Asia-Pacific region. A region-specific guideline is of substantial added value to clinicians given the wide variations in predisposition to infections and other patient factors, local practice patterns, and access to treatment across countries in the Asia-Pacific region.
- An additional impact of our research program is our ongoing collaboration with the OMERACT [► https://omeract.org/](https://omeract.org/) Glucocorticoid Adverse Events Working Group on the development of a patient reported outcome measure (PROM) to measure the impact of glucocorticoid use on patients' symptoms and health-related quality of life. Glucocorticoids are an effective therapy which can be life-saving but they have significant adverse effects. A PROM will assist in shared treatment decision making between the clinician and patient. Phase 1 of the PROM development (qualitative item generation) will commence in 2020 at three sites: Adelaide, Bristol (UK) and New York).

► Publications for Rheumatology Research Group

GROUP MEMBERS

Consultants

Catherine Hill
Head of Department

Maureen Rischmueller
Samuel Whittle
Simon Burnet
Rachel Black
Joanna Tieu

Advanced Trainees

Julia New-Tolley
Alannah Quinlivan
Thomas Khoo

Chief Medical Scientist

Susan Lester

Clinical Trials Manager

Sarah Downie-Doyle

Postdoctoral Researchers

Carlee Ruediger
Courtney Davis

Postgraduate Students

Rachel Black
Jem Ninan
Joanna Tieu
Jessica Pisaniello

Clinical Trial Staff

Aimee Cayzer
Sara White
Kate Dyer
Janelle Harris

BHI COLLABORATORS

Sarah Vreugde
ENT Surgery

John Beltrame
*Translational Vascular Function
Research Collaborative*

EXTERNAL COLLABORATORS

Sarah Mackie
*Leeds University,
Leeds, UK*

Nicola Dalbeth
*Auckland University,
Auckland, New Zealand*

Richard Kitching
Rachelle Buchbinder
Pari Delir Haghighi
Frada Burstein
Julian Elliott
Fabien Vincent
Alberta Hoi
*Monash University, Melbourne,
Australia*

Elizabeth Hoon
*The University of Adelaide,
Adelaide, Australia*

Kathy (Moser) Sivils and SGENE
*Oklahoma Medical Research
Foundation, Oklahoma, USA*

Susan Goodman
*Hospital for Special Surgery,
New York City, USA*

Joanna Robson
*University of Bristol,
Bristol, UK*

Helen Keen
*University of Western Australia,
Perth, Australia*

Tash Stanton
*University of South Australia,
Adelaide, Australia*

Richard Kwiatek
*Lyell McEwen Hospital,
Adelaide, Australia*

Joanne Reed
*Garvan Institute,
Sydney, Australia*

Vanessa Bryant
*Walter and Eliza Hall Institute,
Melbourne, Australia*

William Dixon
*University of Manchester,
Manchester, UK*

Glen Hazlewood
*University of Calgary,
Calgary, Canada*

Dan Worthley
*SAHMRI,
Adelaide, Australia*

OMERACT Polymyalgia Rheumatica
(PMR) Working Group

OMERACT Remission in RA-patient
perspective Working Group

OMERACT Glucocorticoid Adverse
Events Working Group

OMERACT Shoulder Working Group

OMERACT Sjögren's Interest Group

International SLE Genetics Network
(SLEGEN)

European League against
Rheumatism (EULAR) Sjögren's
Syndrome Taskforce

Australian Scleroderma Interest
Group (ASIG)

Australian Arthritis & Autoimmune
Biobank Collaborative (A3BC)



Delu Gunasekera
Summer Student,
ENT Surgery

Researching Sjögren's Syndrome

DOT'S STORY

I'VE SUFFERED FROM MANY HEALTH ISSUES THROUGHOUT MY LIFE AND IT WAS BY CHANCE I WAS EXPLAINING TO MY EYE DOCTOR THAT I HAD DRY EYES AND A DRY MOUTH, WHICH ARE TWO COMMON EFFECTS OF SJÖGREN'S SYNDROME.

Dot Healy



After facing a vast number of health battles throughout her life, Dot Healy was surprised when her eye doctor informed her of the possibility that she was suffering from Sjögren's syndrome.

Pronounced 'showgren's syndrome', it is a chronic autoimmune disease, causing the body's immune system to mistakenly attack itself, leading to healthy tissues being destroyed.

Sjögren's can occur on its own or with another autoimmune condition such as rheumatoid arthritis, lupus, systematic sclerosis, then becoming secondary Sjögren's syndrome.

"I've suffered from many health issues throughout my life and it was by chance I was explaining to my eye doctor that I had dry eyes and a dry mouth, which are two common effects of Sjögren's syndrome," Dot said.

"I was referred to Associate Professor Maureen Rischmueller at TQEH back in March of 2018 by my GP and thanks to her, a biopsy confirmed I had Sjögren's Disease and I finally had some answers."

Unfortunately, there is no cure for Sjögren's Syndrome, but the good news is research is underway thanks to A/Prof

Maureen Rischmueller.

Senior Consultant Rheumatologist at The Queen Elizabeth Hospital, A/Prof Maureen Rischmueller has established an exclusive Sjögren's clinic in the Rheumatology Department at TQEH, where 6-7 patients with Sjögren's Syndrome are seen each week.

A/Prof Rischmueller has been researching Sjögren's Syndrome for 30 years and in 1991, she established the South Australian Sjögren's Syndrome Research Clinic and Database with Professor Tom Gordon from the Flinders Medical Centre, which continues to expand.

"It didn't surprise me that I have Sjögren's as I've had so many health issues such as a hip replacement, asthma, pneumonia, I've had my gall bladder removed, shoulder replacement and I've also suffered from psoriasis, osteoporosis, psoriatic arthritis and as mentioned, the dry eyes and dry mouth," Dot said.

"I've provided bloods and biopsies for A/Prof Rischmueller for research and I'm so grateful to her and the team at TQEH for my treatment and improvement in my symptoms. I received a mouth wash from

A/Prof Rischmueller which has helped with the dryness."

Dot continues to have regular appointments with A/Prof Rischmueller and hopes that one day she can live without Sjögren's Syndrome.

"I'm so grateful for A/Prof Rischmueller who finally gave me some answers! I will continue participating in any clinical trials if it means the team will find answers on how to treat Sjögren's Syndrome!"



GROUP MEMBERS

Research Leader

Guy Maddern

Visiting Research Fellows

Paul Drew

Ehud Hauben

Research Officers

Lisa Leopardi

Jessica Reid

Chandra Kirana

Jessie Bennett

THRF Early Career Research Fellow

Kevin Fenix

NHMRC CJ Martin Early Career Fellow

Katharina Richter

Research Assistant

Teresa Tin

Postgraduate Students

Sean Brien

Justin Chan

Bimala Dhakal

Nelson Granchi

Paul Patiniott

Richard Smith

Claire Stevens

Edward Young

Laurine Kaul

Honours Students

Zein Amro

Man Ying (Celine) Li

BHI COLLABORATORS

PJ Wormald

ENT Surgery

Peter Hewett

Colorectal Cancer Research Group

Kim Moretti

SA-PCCOC

Renuka Visvanathan

Adelaide G-TRAC Centre

Adrian Abdo

Translational Vascular Function

Research Collaborative

Tim Price

Solid Tumour Group

Alex Karatassas

Colorectal Cancer Research Group

EXTERNAL COLLABORATORS

ASERNIP-S, Royal Australasian

College of Surgeons

Ed Truitt

Lubris Pty Ltd, USA

Ashley Dennison

Wen Chung

University Hospitals of Leicester,

Leicester, UK

Richard Stubbs

The Wakefield Clinic, Wellington,

New Zealand

Jonathan Karnon

Flinders University, Adelaide, Australia

Susan Woods

SAHMR, Adelaide, Australia

Bernd Klosterhalfen

Hospital of Dueren, Dueren, Germany

Andrew Zannettino

The University of Adelaide and

SAHMR, Australia

Andrea Yool

John Bruning

The University of Adelaide, Australia

Regine Suess

Albert-Ludwigs-University Freiburg,

Freiburg, Germany

Tom Coenye

Ghent University, Ghent, Belgium

Simon Swift

University of Auckland, New Zealand



The Surgical Science Research Group is primarily interested in clinical research and translational benchtop to bedside medicine in the surgical setting.

2019 research

- We conducted the first study to show objective improvement of surgeons' communication skills in the clinic after undertaking a coaching program. The data suggests that surgical coaching improves both communication skills and the quality of surgical consultation. The participating surgeons all valued the skills gained during the program and agreed that it would be a suitable format for continued professional development.
- We have identified a number of new potential protein tissue biomarkers that may be able to predict if a primary bowel cancer tumour will spread to other organs. We are also looking into ways to detect these biomarkers via blood tests. This will give doctors and patients better information about appropriate treatments and prognosis after initial diagnosis.
- We analysed the patient outcomes from 16 years of liver operations at The Queen Elizabeth Hospital. With 388 procedures studied, this is largest cohort ever published in the Southern Hemisphere. Pleasingly, our mortality rate is one of the lowest in the world.
- We investigated how different surgical meshes affect wound healing after hernia repair. Outcomes will improve our understanding of why some hernias recur and how we can discover solutions to help women suffering from chronic pain after vaginal mesh implantation. Investigations on novel mesh materials for improved clinical outcomes and prevention of bacterial infection of meshes are ongoing.

► Publications for Surgical Science Research Group

RESEARCH HIGHLIGHT OF 2019

Establishing the SALT Biobank

In 2019 we received funding to establish the South Australian Liver Tissue-Biobank (SALT) for discovery and development of prognostic biomarkers for colorectal cancer liver metastasis relapse.

The SALT biobank will be the first in South Australia to have liver metastatic tissue with matched comprehensive clinical data and will contain the majority of patient samples within the state. This will enable us to understand the molecular mechanisms that cause metastatic liver tumours. Importantly, it will allow us to prescribe early aggressive treatments to patients who are more likely to develop a metastatic tumour. This will lead to improved survival and better patient outcomes.

**THE SALT BIOBANK
WILL BE THE FIRST IN
SOUTH AUSTRALIA
TO HAVE LIVER
METASTATIC TISSUE
WITH MATCHED
COMPREHENSIVE
CLINICAL DATA
AND WILL CONTAIN
THE MAJORITY OF
PATIENT SAMPLES
WITHIN THE STATE.**

DRUG AND VACCINE DEVELOPMENT

—

**THIS IS AN EXTREMELY
IMPORTANT FINDING
FOR MAKING DELIVERY
SYSTEMS TO SUPPLY
DRUGS/ACTIVE
INGREDIENTS TO
SPECIFIC SITES OF
ACTION THROUGH
THE SKIN.**



We study at a mechanistic level what happens to the body when drugs, small molecules, nanosystems and cells are introduced.

The information we generate is used to determine regulations for their use.

Our research covers development of sophisticated analytical methods for drug and poison analysis in patients, design and testing of pharmaceutical and nanosystem products, quantifying the disposition and effects of drugs and nanosystems in living cells, physiological pharmacokinetic modelling to improve therapeutics for various conditions including medicine adherence and the impact of polypharmacy.

2019 research

- Medication management in older people is a significant clinical issue. Polypharmacy is common due to multiple diseases, and this increases the likelihood of drug-drug interactions. We have developed an analytical method using liquid chromatography-mass spectrometry capable of simultaneously measuring concentrations of over 50 of the most commonly prescribed drugs and several of their metabolites in the blood of elderly patients. This allows us to examine the appropriateness of the doses of medications in the elderly.
- We have continued our collaboration with our clinical toxicologists measuring the level of drugs and their metabolites in poisoned/overdosed patients with outcomes leading to several publications and case reports.
- We have shown that zinc oxide (a commonly used sunscreen in many different preparations applied to human skin) is more toxic to cells in culture than to the same cells when they are within the skin (*in vivo*). This has significant ramifications for the testing regulations for the commercialisation of new formulations containing zinc oxide.

RESEARCH HIGHLIGHT OF 2019

Understanding the fate of drugs applied to the skin

Professor Mike Roberts gave an invited presentation to the American Society for Clinical Pharmacology and Therapeutics pre-conference: dermal drug delivery, where he presented our work on drug delivery through the skin.

He discussed our results using physiologically based pharmacokinetic (PBPK) modelling, a mathematical modelling technique for predicting the absorption, distribution, metabolism and excretion (ADME) of synthetic or natural chemical substances applied to human skin considering the amounts applied and how it is formulated. This is extremely important as it informs what actually happens to substances that the skin is exposed to (for example, pesticides) or are intentionally applied to the skin (such as sunscreens, insect repellents) and where they end up in the body if they are able to penetrate the skin.

A fundamental premise of the field is that skin absorption of a drug/active ingredient in a formulation applied to the skin is similar for formulations with similar theoretical Hansen solubility parameters. Hansen solubility parameters (HSP) is a theoretical value that predicts how likely compounds are able to dissolve into one another. Our research demonstrated that this is not the case. Again, this is an extremely important finding for making delivery systems to supply drugs/active ingredients to specific sites of action through the skin. This work was presented at the Control Release Society Conference in Spain in July 2019 by Dr Azadeh Alinaghi.

The Food and Drug Administration (FDA) in the US have released guidelines for the registration of topical products based on our research findings.

► Publications for Therapeutics Research Centre

GROUP MEMBERS**Research Leader and Director**

Michael Roberts

Centre Manager

Lorraine Mackenzie

Postdoctoral Research Fellow

Amy Holmes

Formulations Technologist

Azadeh Alinaghi

Senior Analyst

Tom Robertson

Pharmaceutical Technologist

Ahmed Abdalla

Research Assistant

Isha Haridass

Researcher

Justin Ripper

Technician

Laura Macmasters

Postgraduate Students

Ali Alshabrawy

Lemlem Gebremichael

Muhammad Suleman Khan

Sadikalmahdi Abdella

Sean Mangion

Shuping Qiang

Tadesse Abegaz

BHI COLLABORATORS

David Jesudason

Emily Meyer

Endocrinology Unit, TQEH

Thiruvengkatarajan Venkatesan

Anaesthesia Research Group, TQEH

Warren Weightman

Dermatology, TQEH

Morgyn Warner

Infectious Diseases, TQEH

Guy Maddern

Surgical Science Research Group

Sandra Peake

Intensive Care Medicine Research Group

John Horowitz

*Cardiovascular Pathophysiology and Therapeutics Group***EXTERNAL COLLABORATORS**

Nicholas Buckley

Andrew Dawson

University of Sydney, Sydney, Australia

Geoffrey Isbister

University of Newcastle, Newcastle, Australia

Darren Roberts

St Vincent's Health Australia, Canberra, Australia

Mark Kendall

Australian National University, Canberra, Australia

Jen Martin

Environmental Protection Agency, Melbourne, Australia

Jason Roberts

Princess Alexandra Hospital, Brisbane, Australia

Jeff Grice

Xin Lui

Gregory Medley

Yousuf Mohammad

Zhiping Xu

Haolu Wang

Xiaoling Liang

Sarika Namjoshi

Eman Abd

I Haridass

Sanchez WY

Dr Mahipal Sinollareddy

J Lipman

University of Queensland, Brisbane, Australia

Yuri Anissimov

Griffith University, Southport, Gold Coast, Australia

Geoff Spurling

Inala Indigenous Health Service, Brisbane, Australia

Shaun Goad

South Australian Metropolitan Fire Service, Adelaide, Australia

Ian Delaere

Department of Public Health, Adelaide, Australia

Adrian Esterman

John van der Hoek

Ivan Kempson

University of South Australia, Adelaide, Australia

Claire Roberts

The University of Adelaide, Adelaide, Australia

Kenneth Pope

Flinders University, Adelaide, Australia

Marne Nenke

David Torpy

Royal Adelaide Hospital, Adelaide, Australia

Alice Gilbert

Bhavini Patel

Top End Health

Darwin, Australia

Heather Benson

Curtin University,

Perth, Australia

Fahim Cader

University of Peradeniya, Peradeniya, Sri Lanka

Tao Chen

Lian Guoping

Chuan-Yu Wu

University of Surrey, Guildford, UK

Dave Roberts

Mark Cronin

Liverpool John Moores University, Liverpool, UK

Johnathon Hadgraft

University College London, London, UK

Sebastian Polak

Nikunj Kumar Patel

Masoud Jamei

James Clarke

Sumit Arora

Certara UK Ltd, Sheffield, UK

Jurgen Lademann

Alexa Patzelt

Charité Universitäts, Berlin, Germany

Eckart Ruehl

Freie Universität Berlin, Berlin, Germany

Hauke Studier

Becker and Hickl, Berlin, Germany

Vania Leite-Silva

Federal University of Sao Paulo, Sao Paulo, Brazil

Howard Maibach

University of San Francisco, San Francisco, USA

Fred Frash

National Institute for Occupational Safety and Health, Washington DC, USA

Sam Raney

US Food and Drug Administration, Washington DC, USA

Frank Burczynski

University of Manitoba, Winnipeg, Canada

Maike Windberg

Goethe University Frankfurt, Frankfurt, Germany

Michael Weiss

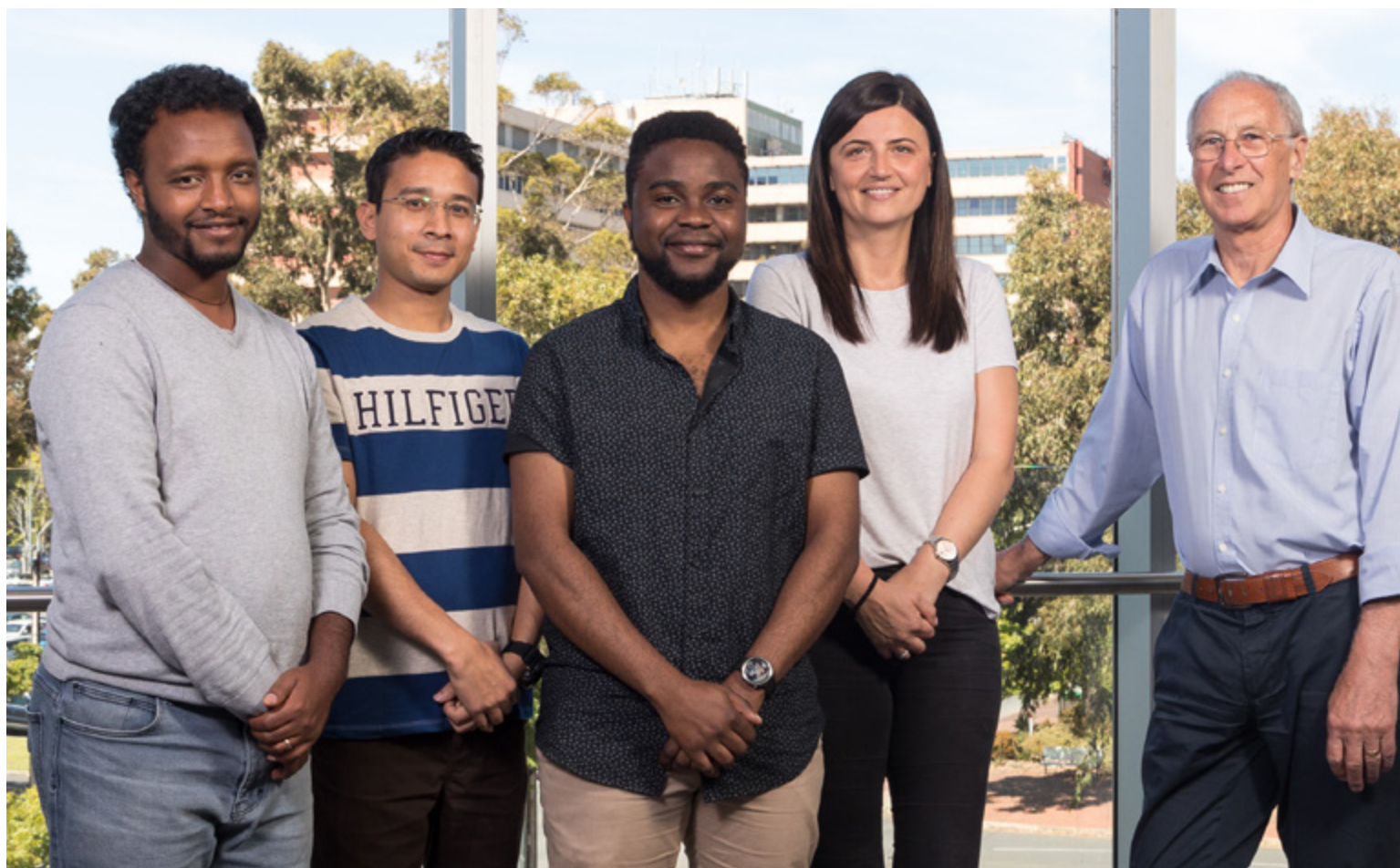
Martin Luther University, Halle-Wittenberg, Germany

Anna Macedo

Universidade Lusófona de Humanidades e Tecnologias, Lisbon, Portugal

Andrei Zvyagin

Macquarie University, Sydney and Moscow, Australia and Russia



Viruses pose a significant challenge to human health, and harnessing the body's defence system, through immunisation, is the most effective approach to disease control. There remain viruses for which no suitable vaccine exists, including Hepatitis C virus (HCV), Human immunodeficiency virus (HIV) and Zika virus.

Our group aims to develop DNA- and viral vector-vaccines for HCV, HIV and Zika virus, and to show protection against infection. We have focussed on approaches to immunisation through the development of DNA vaccines that induce cell-based immunity.

2019 research

- We have developed a vaccine regimen to elicit HCV-specific immunity in the liver, the site of HCV infection. The vaccine regimen effectively elicited liver resident HCV-specific white blood cells, and, excitingly, giving a single intravenous dose of one component of the regimen, a recombinant adeno-associated virus (AAV), was more effective. A T-cell-based vaccine against HCV should ideally result in localized T cell responses in the liver. Our initial observations of this vaccination regimen suggest it can be used to achieve this goal.
- We reported a novel, highly immunogenic DNA vaccination strategy that could be used to protect against HCV. Briefly, we fused the secreted forms of the HCV envelope proteins (sE1 and sE2) with a protein (IMX313P) that forms oligomers – long strings of protein units. Using this approach we designed DNA vaccines that expressed forms of sE1 and sE2 that would form oligomers of sE1, sE2 or mixed oligomers of sE1 and sE2. Mice vaccinated with these DNA vaccines elicited robust antibody and cell-mediated immunity against the envelope proteins. The antibodies effectively inhibited the binding of virus like particles (VLPs) to target cells and neutralized infection with HCV pseudoparticles (HCVpp) derived from different HCV genotypes. This report provides the first evidence that IMX313P can be used as an adjuvant for E1/E2-based DNA vaccines and represents a translatable approach for the development of a HCV DNA vaccine.

► Publications for Virology Group

RESEARCH HIGHLIGHT OF 2019

A novel vaccine with the potential to protect against Zika virus

We have developed a novel DNA vaccine that protects against infection with Zika virus. The vaccine is designed to generate a cell-mediated immunity - immunity provided by white blood cells rather than circulating antibodies - against a viral protein (non-structural protein 1, NS1). Immunisation with this vaccine was shown to protect mice against infection. This work was published in *Science Advances* (see below).

In this work we have demonstrated protective efficacy of a Zika virus vaccine and shown cell-mediated immunity. No other vaccine relies primarily on cell mediated immune responses. At the time when there is emphasis placed on developing vaccine strategies that elicit cell-mediated immunity, this work provides proof-of-principle that cell-mediated immune-protection against ZIKV is an achievable aim.

A DNA vaccine is relatively easy and cost effective to manufacture on a large scale. DNA vaccines have excellent safety profiles for women of childbearing age and children, both critical target populations to prevent and mitigate ZIKV outbreaks.

The vaccine we have developed is unique because it targets NS1. This avoids the potential complication of antibody-dependent enhancement (ADE) of infection. Other experimental Zika vaccines, which elicit antibodies to the virus envelope (E) protein, could potentially enhance infection as a result of sequence and structural homology between flavivirus E proteins, including Zika virus and dengue virus.

This vaccine has the potential to protect millions of individuals at risk of Zika virus infection by infected mosquitos.

Grubor-Bauk B, Wijesundara DK, Masavuli MG, Abbink P, Peterson RL, Prow NA, Larocca RA, Mekonnen Z, Shrestha A, Eyre NS, Beard MR, Gummow J, Carr J, Robertson SA, Hayball JD, Barouch DH and Gowans EJ. NS1 DNA vaccination protects against Zika infection through T cell mediated immunity in immunocompetent mice. *Science Advances*. December 2019, Vol 5, Issue 12.

► <https://advances.sciencemag.org/content/5/12/eaax2388>

GROUP MEMBERS

Research Leader

Eric Gowans

THRF Mid Career Research Fellow

Branka Grubor-Bauk

THRF Early Career Research Fellows

Makutiro Masavuli

Ashish Shrestha

Danushka Wijesundara

Postdoctoral Researcher

Zelalem Mekonnen

Postgraduate Student

Zelalem Mekonnen

Honours Student

Emerance Ishimwe

BHI COLLABORATORS

Guy Maddern

Kevin Fenix

Surgical Science Research Group

EXTERNAL COLLABORATORS

Joseph Torresi

Doherty Institute, Melbourne, Australia

Nicholas Eyre

Michael Beard

Sarah Robertson

The University of Adelaide, Adelaide, Australia

Charani Ranasinghe

Australian National University, Canberra, Australia

John Hayball

Natalie Prow

Zlatko Kopecki

Krasimir Vasilev

University of South Australia, Adelaide, Australia

Jill Carr

Flinders University of South Australia, Adelaide, Australia

Heidi Drummer

Burnet Institute, Melbourne, Australia

Rowena Bull

Andrew Lloyd

University of NSW, Sydney, Australia

David Bowen

Centenary Institute, Sydney, Australia

Peter Abbink

Dan Barouch

Harvard Medical School, Boston, USA

Andrew Leishman

N4Pharma, Derby, UK

David Hipkiss

Enesipharma, Abingdon, UK

Ashley St John

Duke-NUS, Singapore

Dave O'Connor

University of Wisconsin, Madison, USA

Breakthrough in Zika virus vaccine

DR BRANKA GRUBOR-BAUK

Virology Group

THIS IS THE FIRST VACCINE STUDY THAT SHOWS THAT A T CELL-BASED VACCINE CAN CONFER PROTECTION AGAINST A SYSTEMIC ZIKA INFECTION.



BHI researchers have made significant advances in developing a novel vaccine against Zika virus, which could potentially lead to global elimination of the disease.

The Virology Group, led by Professor Eric Gowans and Dr Branka Grubor-Bauk and supported by The Hospital Research Foundation, has developed a vaccine that prevents Zika infection in pre-clinical models of the disease.

Their findings have been published in the leading international journal *Science Advances* ► <https://advances.sciencemag.org/content/5/12/eaax2388>.

Zika is a mosquito-transmitted flavivirus which can cause microcephaly (a birth defect where a baby's head is significantly smaller than expected) and severe birth defects in infants born to infected mothers.

The introduction of an effective vaccine for Zika will prevent infection of pregnant women and the resultant congenital effects in the unborn child.

Dr Grubor-Bauk said the team had developed a novel vaccine against Zika that proved effective in pre-clinical models.

"This is the first vaccine study that shows that a T cell-based vaccine can confer protection against a systemic Zika infection," she said.

"Our vaccine offers an advantage over other vaccines in development by eliminating the ongoing concerns in the field about enhancement of infection following exposure to dengue virus. This finding demonstrates for the first time that protective T cell vaccines against Zika are achievable.

"Zika virus is extremely detrimental if you're pregnant and there has been no therapy or vaccine available to date. If we can progress this work and immunise women who are of reproductive age and most at risk, we can stop the devastating effects of Zika infection in pregnancy and make a huge difference to the health of the global community."

This research, which has been years in the making, has progressed to this significant stage thanks to funding from the National Foundation for Medical Research and Innovation (NFMRI) and ongoing funding from The Hospital Research Foundation.

The work was done in collaboration with eminent global vaccine researcher Prof Dan Barouch, Director of Harvard Medical School's Centre for Virology and Vaccine Research at Beth Israel Deaconess Medical Centre; as well as Adelaide's Prof Sarah Robertson, Director of the Robinson Research Institute, University of Adelaide; and other scientists from the universities of

Adelaide, South Australia and Flinders.

"The next steps are to advance the vaccine to being ready for Phase I human clinical trials. This involves further pre-clinical studies which are vitally important to identify the most effective dosing and demonstrate protection against Zika infection in different pre-clinical models of the disease," Dr Grubor-Bauk said.

"The goal is to de-risk and create an attractive technology with a strong intellectual property position, for licensing or co-development with a commercial partner.

"We are grateful to The Hospital Research Foundation which has been instrumental in their support of our research over this time. We could not have reached this point without them."

The findings of this study will also greatly inform other research in the development of flavivirus vaccines by shifting the focus of vaccine development from viral envelope proteins and antibody-based vaccines to non-structural proteins and T-cell based vaccines.

Dr Branka Grubor-Bauk
Virology Group

THRF Mid Career Research Fellow
The University of Adelaide



INFLAMMATORY
DISEASE

RESEARCH GROUPS

ENT Surgery

Growth and Repair of the
Small Intestine

Inflammatory Bowel Disease
Research Group

INFLAMMATORY DISEASE



RESEARCH HIGHLIGHT OF 2019

Treating disease through manipulating the nose microbiome

The nasal bacteria (known as the sinonasal microbiome) are an important regulator of nasal health and disease and underpin CRS. This year we have furthered our understanding of the role of the sinonasal microbiome plays by:

- Demonstrating that proteins secreted by the bacteria *Pseudomonas aeruginosa* play a major role in the pathophysiology of *P. aeruginosa* associated CRS by severely compromising mucosal barrier structure and function in the nasal cavities and sinuses.
- Initiating and coordinating the world's largest multinational, multi-center study to define the core sinonasal microbiome in health and disease, that is, the bacteria present in the nasal cavities and sinuses in healthy individuals and patients with CRS (report listed below). The study involved 577 CRS patients and healthy controls, recruited in 13 centres on 5 continents. Results indicate that in healthy individuals there is a dominance of the commensal *Corynebacterium*. In contrast, in CRS patients there was a dominance of *Staphylococcus*. This work is important as it unequivocally defines the sinonasal microbiome in health and disease.

We are using this information to develop and trial innovative treatments for CRS. We have completed a first-in-man phase 1 human clinical trial testing the safety, tolerability and effectiveness of a phage cocktail for the treatment of CRS, and specifically CRS that is associated with the bacteria *Staphylococcus aureus* (*S. aureus*). The treatment showed promise and is effective to kill antibiotic resistant *S. aureus*. Further research is ongoing in our team to optimise the formulation and delivery of the treatment to the nose and sinuses.

In the future we will continue to use our knowledge of the sinonasal microbiome to lay the foundation for projects aimed at effective treatments for CRS, which we believe can be found in manipulating a diseased microbiome into a healthy one.

Sathish Paramasivan, Ahmed Bassiouni, Arron Shiffer, Matthew R Dillon, Emily K Cope, Clare Cooksley, Mahnaz Ramezanzpour, Sophia Moraitis, Mohammad Javed Ali, Benjamin Bleier, Claudio Callejas, Marjolein E Cornet, Richard G Douglas, Daniel Dutra, Christos Georgalas, Richard J Harvey, Peter H Hwang, Amber U Luong, Rodney J Schlosser, Pongsakorn Tantilipikorn, Marc A Tewfik, Sarah Vreugde, Peter-John Wormald, J Gregory Caporaso, Alkis J Psaltis. The international sinonasal microbiome study (ISMS): a multi-centre, multi-national collaboration characterising the microbial ecology of the sinonasal cavity. *Allergy*, in press [Preprint ► www.biorxiv.org/content/10.1101/548743v4.full].

UNDERSTANDING AND TREATING CHRONIC RHINOSINUSITIS

Our research team is focused on improving treatment outcomes for patients suffering from chronic relapsing infections of the nose and sinuses (Chronic Rhinosinusitis, CRS) and wound healing after surgery. Professor Wormald, Associate Professor Sarah Vreugde and their group have a bench to bedside approach where novel therapeutic candidates that are discovered in our laboratories undergo extensive testing before being used to treat patients. In addition, we implement a surgical training program aimed at educating the next generation of surgeons and surgeon scientists in advanced surgical techniques of the sinuses and skull base.

2019 research

- Work in our department has been instrumental in bringing a new surgical hydrogel (Chitogel) through FDA (and MEDSAFE) approval and onto the US and NZ market. The gel improves wound healing after sinus surgery and improves outcomes after surgery with reduced scar formation. The product reduces health care costs and improves the patient's quality of life after surgery. The gel is now being used as a drug delivery device able to deliver compounds that further enhance the wound healing properties of the gel, and laboratory investigations are ongoing to develop this enhanced product further.
- We have designed a CT-scan image guided 3D printed model of the sinuses that is used to train the next generation of surgeons to improve their surgical skills.

NANOMEDICINE AND INFECTIOUS DISEASE

The lack of effective antibiotics claims the lives of millions globally. Dr Nicky Thomas and his group focus on using nanotechnology to improve the efficacy of antimicrobial therapy, reformulating existing antibiotics, delivering them with smart, infection-responsive carriers and maximising antimicrobial impact while minimising side effects. Our research aims to improve outcomes against resistant bacterial slime (biofilms), fungal infections, and intracellular infections.

RESEARCH HIGHLIGHT OF 2019

Antibiotic-carrying nanoparticles that target bacterial infection

Our study (listed below) confirmed the feasibility of using compounds produced by bacteria to trigger the release of encapsulated antibiotics. Basically, antibiotic-carrying, biocompatible nanoparticles were engineered to respond to bacteria; in the absence of an infection no antibiotic is released while the presence of bacteria triggers the release of antibiotic at the site of infection. Encapsulation of a standard-of-care antibiotic showed up to 99.9999% reduction of bacteria. Compared to the currently commercially available form of the antibiotic this is a 10000-fold improvement in efficacy. Our research, as exemplified in this study, provides a commercially viable, fast track approach to address the issues caused by biofilms and bacteria residing inside human cells that cause disease relapse and recurring antibiotic administration. We do this by i) using already approved compounds with known safety profiles; ii) specifically targeting compounds to the infection (either biofilms or infected cells); and iii) increasing the efficacy of the compounds by orders of magnitude over currently available treatments. The encapsulated antibiotic technology is currently being investigated by my student with collaborators in Germany and the US using advanced disease models for lung and wound infections.

[Thorn CR](#), Clulow AJ, Boyd BJ, Prestidge CA, [Thomas N](#). Bacterial Lipase Triggers the Release of Antibiotics from Digestible Liquid Crystal Nanoparticles. *Journal of Controlled Release*, 2019 Dec 24;319:168-182. doi: 10.1016/j.jconrel.2019.12.037. [Epub ahead of print]

2019 research

- In collaboration with Monash University we synthesised and tested a novel polymer which dramatically reduced the formation of fungal hyphae - a critical risk factor for patients suffering from severe yeast infections. When the same polymer was used to encapsulate antifungal compounds the antimicrobial activity was significantly increased.
- Using a state of the art imaging technique we have developed a pre-clinical infection model to evaluate the biocompatibility and efficacy of a novel, patented antibiotic formulation. No adverse reactions were observed clearing the path for further commercialisation efforts.

► Publications for ENT Surgery

GROUP MEMBERS

Research Leader & Consultant

Peter-John Wormald

Consultants

Alkis J Psaltis
Rowan Valentine
Steve Floreani
Suresh Rajapaksa
John Ling
Kien Ha
Harshita Pant

Chief Medical Scientist

Sarah Vreugde

Senior Research Fellow

Nicky Thomas

Postdoctoral Researchers

Ahmed Bassiouni
Clare Cooksley
Shari Javadiyan
Sha Liu
Mahnaz Ramezanzpour

Postdoctoral Research Fellows/

Visiting Scientists

Masanobu Suzuki
Hua Hu
Kazuhiro Ogi

Research Assistants

Catherine Bennett
Karen Hon

Postgraduate Students

Muhammed Awad
Lisa Marie Cherian
Sholeh Feyzi
Stephanie Anne Fong
Rachel Goggin
Michael Gouzos
Ghais Houtak
Jacob Jervis-Bardy
Stephen Kao
Giri Krishnan
Annika Mascarenhas
Anna Megow
Martha Menberu
Roshan Nepal
Mian Li Ooi
Beula Subashini Panchatcharam
Sathish Paramasivan
Gohar Shaghayeh
Santhni Subramaniam
Chelsea Thorn
Jannatul Ferdoush Tuli
Rajan VEDIAPPAN

Honours Student

Ahad Sabab

Summer Student

Delu Gunasekera

BHI COLLABORATORS

Susan Lester
Maureen Rischmueller
Rheumatology Research Group
Guy Maddern
Surgical Science Research Group
Kevin Fenix
Liver Metastasis Research Group

EXTERNAL COLLABORATORS

Tom Coenye
*Ghent University,
Ghent, Belgium*
J Gregory Caporaso
Emily Cope
*Northern Arizona University,
Flagstaff, USA*
Shaun McColl
David Parsons
Martin Donnelley
Stephen Kidd
*The University of Adelaide,
Adelaide, Australia*
Allison Cowin
Zlatko Kopecki
Clive Prestidge
Benjamin Thierry
*University of South Australia,
Adelaide, Australia*
Mohammad Javed Ali
*LV Prasad Institute,
Hyderabad, India*
Benjamin Bleier
*Harvard Medical School,
Boston, USA*
Claudio Callejas
*Catholic University of Chile,
Santiago, Chile*
Marjolein Cornet
Christos Georgalas
*Academic Medical Center,
Amsterdam, The Netherlands*
Richard Douglas
*University of Auckland,
Auckland, New Zealand*
Daniel Dutra
*University of Sao Paulo,
Sao Paulo, Brazil*
Richard Harvey
*University of Sydney,
Sydney, Australia*
Peter Hwang
*Stanford University,
Stanford, USA*
Amber Luong
*University of Texas,
Texas, USA*
Rodney Schlosser
*Medical University of South Carolina,
Charleston, USA*
Pongsakorn Tantilipikorn
*Siriraj Hospital, Mahidol University,
Bangkok, Thailand*
Marc Tewfik
*McGill University,
Montreal, Canada*
Ben Boyd
Michael Whittaker
John Quinn
*Monash University,
Melbourne, Australia*
Peter Speck
*Flinders University,
Adelaide, Australia*
Robert Hancock
*University of British Columbia,
Vancouver, Canada and SAHMRI*
Masanobu Suzuki
*Hokkaido University,
Sapporo, Japan*

The fight against antibiotic-resistant bacteria

DR NICKY THOMAS
ENT Surgery

USING OUR TROJAN HORSE APPROACH WE SEE A MILLION-FOLD REDUCTION IN BACTERIA, THAT IS A 99.9999% REDUCTION.



A new method of fighting bacteria which have become resistant to antibiotics has been developed by local researchers.

Did you know bacteria are smart? They hide in a slime to protect themselves from antibiotics. This slime is called biofilm.

Finding a way to pierce through this biofilm barrier and deliver treatments directly to a patient's infection is essential to helping patients fight off their infections, specifically those with wound, implant and upper respiratory infections.

Dr Nicky Thomas, who holds a Mid Career Fellowship from The Hospital Research Foundation, and his team have developed a unique Trojan Horse strategy (where the attack is hidden in a carrier) to help deliver an enzyme which can disperse the protective barrier.

"I met some researchers in Canada who have devised an enzyme which breaks down the slimy biofilm barrier," Dr Thomas said.

"However these enzymes are not very stable. For example, you couldn't eat them, because your stomach would destroy them.

"So we had to come up with a strategy for how we could deliver this enzyme so

it still keeps its function and doesn't get degraded by its environment. Importantly, we also want it to act only if it comes across an infection."

That's where Dr Thomas's unique fighting method comes in.

"To achieve this I have proposed a Trojan Horse strategy. So rather than knocking down that protective wall, we devised something that can get inside it and then kill the bad bacteria from the inside.

"Using a safe food-grade compound, we can make tiny containers that we load with our enzyme and antibiotic, thereby preserving them.

"The remarkable thing about this technology is that we make the bacteria believe they have a feast on what looks like food to them – but what they actually do is open the gate to let in what leads to their downfall, just like a Trojan Horse."

Dr Thomas and his team have also found a way for the carrier to sense the presence of bad bacteria and respond by releasing its load.

"The carrier senses an infection and uses the bad bacteria as a cue to release whatever it contains. We've actually shown that the carriers really like bacteria."

With the carriers able to deliver both the enzyme which breaks down the biofilm and antibiotics to kill the bacteria – plus be attracted to infections – the bacteria doesn't stand a chance.

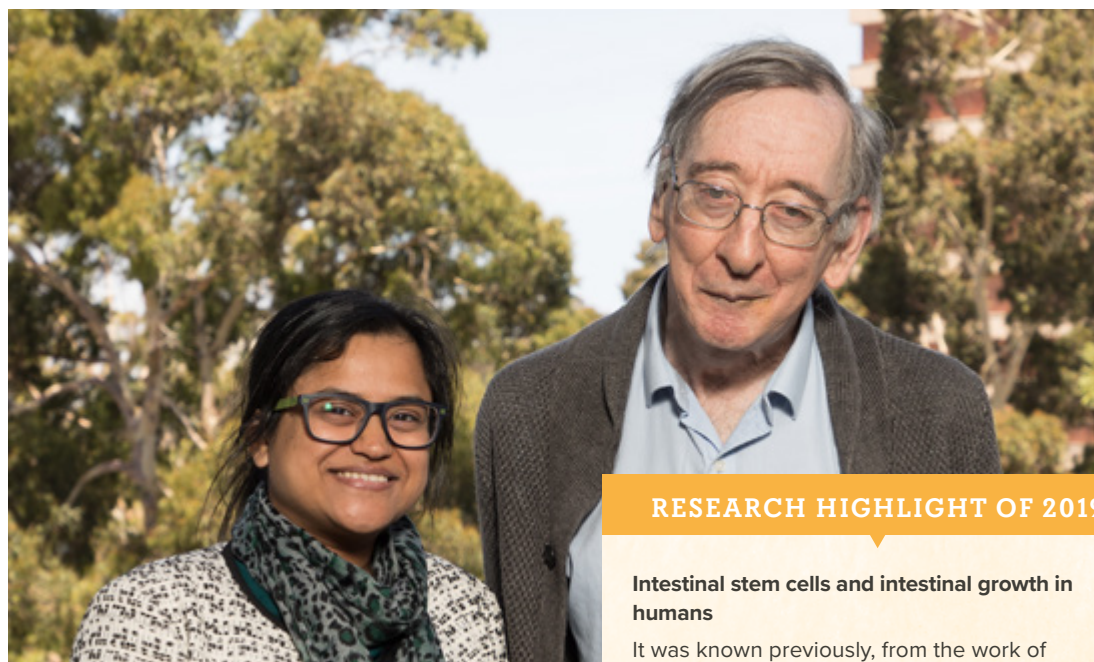
And the results in the laboratory have been mind-blowing: "Using our Trojan Horse approach we see a million-fold reduction in bacteria, that is a 99.9999% reduction."

Taking the carriers beyond the lab is the next step for Dr Thomas.

"My colleagues in Canada are very excited. It's awesome to see what happens when you marry two ideas together, you can create something new and really great."

Dr Nicky Thomas
ENT Surgery

THRF Mid Career Research Fellow
The University of South Australia



GROUP MEMBERS

Research Leader

Adrian Cummins

Postgraduate Student

Zenab Dudhwala

BHI COLLABORATOR

Paul Drew

Solid Tumour Group

EXTERNAL COLLABORATORS

Gordon Howarth

The University of Adelaide,
Adelaide, Australia

Paul Hammond

Women's and Children's Hospital,
Adelaide, Australia

RESEARCH HIGHLIGHT OF 2019

Intestinal stem cells and intestinal growth in humans

It was known previously, from the work of ourselves and others, that the Wnt- β -catenin growth factor pathway is activated in the small intestine of developing rodents. In this study we have extended our understanding to human intestinal development and shown that the Wnt- β -catenin growth pathway is activated in the small intestine of human infants. Wnt- β -catenin signaling is known to maintain the intestinal stem cell pool of adults. In our current work we are analyzing if the activity of the pathway in infants is linked to the post-natal expansion of intestinal stem cells.

In the future, we are planning to study whether early over-expansion of intestinal stem cells pre-natally or during infancy can contribute to obesity in teenagers.

Dudhwala ZM, Drew PA, Howarth GS, Moore D, Cummins AG.
Active β -Catenin Signaling in the Small Intestine of Humans during Infancy. *Dig Dis Sci.* 2019;64: 76-83.

Our group researches the developmental origin of health and adult disease, particularly understanding how the development of the small and large intestines in humans may contribute to later disease states, including obesity.

2019 research

- We are interested in the mechanisms that regulate small intestinal growth during human development. We have studied postnatal epithelial growth of the small intestine in 15 children from 1.6 to 14 years of age. We found that stem cell expansion occurs by new crypt formation, and that crypt formation results from crypt fission, the longitudinal division of a crypt, which is the "unzipping" of a crypt from the base, to form multiple new crypts. Crypt fission peaks during infancy (<2 years) and decreases during childhood.
- We found that visibly dividing intestinal stem cells in developing human gut were few. This is probably because they proliferate more slowly than other dividing cells, albeit they proliferate continuously, and the cells formed from stem cell proliferation differentiate quickly to form cells that populate new crypts. The role that intestinal stem cells play in cell proliferation and intestinal growth has been 'cloaked'.
- To achieve this work we have developed a new technique to assess crypt fission. Using tissue microdissection, rather than microscopic sections, we found this technique was five times more sensitive.

► Publications for Growth and Repair of the Small Intestine

IN THE FUTURE, WE ARE PLANNING TO STUDY WHETHER EARLY OVER-EXPANSION OF INTESTINAL STEM CELLS PRE-NATALLY OR DURING INFANCY CAN CONTRIBUTE TO OBESITY IN TEENAGERS.



Our research focusses on

- 1. The role of the microbiome and diet in inflammatory bowel disease (IBD) and other gut disorders and**
- 2. Manipulating the microbiome and diet for therapeutic effect.**

2019 research

- Our group evaluated visceral adipose tissue in patients with Crohn's disease. Also known as 'creeping fat', visceral adipose tissue has been proposed to play a pathogenic role in the inflammatory disease process through secretion of pro-inflammatory factors (adipocytokines). In a longitudinal study, we found that the volume of visceral adipose tissue in patients with Crohn's disease correlated with disease activity and quality of life over time, confirming the hypothesised pathological significance of this tissue. The findings of this study demonstrate that visceral adipose tissue may be a useful clinical biomarker of disease activity in Crohn's disease.
- We have established a new stool laboratory - "BiomeBank" - in Thebarton with the support of The Hospital Research Foundation (THRF). BiomeBank supplies stool that is used to treat South Australian patients with recurrent clostridium difficile infection and

conduct clinical trials of faecal microbiota transplantation (a stool transplant; FMT). BiomeBank will be assessed by the therapeutic goods administration (TGA) in 2020 with the aim to facilitate national distribution of stool for FMT. We have contributed to the development of international guidelines that outline how stool banks should be regulated and have worked closely with the TGA to develop local guidelines.

- We have contributed to the development of a scoring system that can stratify the risk of patients presenting with upper gastrointestinal bleeding. This will allow clinicians to assess more easily the need for immediate endoscopy and potentially reduce hospitalisation.
- Our research into body composition in IBD has demonstrated the clinical importance of looking beyond inflammation and take into account factors that contribute to morbidity in this young patient cohort. For example, obesity is an important public health issue that is not widely recognised in patients with IBD.

► Publications for Inflammatory Bowel Disease Research Group

L-R: Dr Sam Costello, Dr Rob Bryant, Samantha Hermesen and her daughter, Stephanie Hermesen with Paul Flynn (CEO, THRF).



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THE STUDY GAVE INSIGHTS INTO THE MECHANISMS BY WHICH FMT MAY HAVE ITS THERAPEUTIC EFFECT IN ULCERATIVE COLITIS.

RESEARCH HIGHLIGHT OF 2019

Ulcerative colitis is an IBD characterised by inflammation at the interface between the mucosal immune system and the luminal bacterial population. We know that the gut microbiota play a role in the pathogenesis of the disease, but our current therapies largely target the mucosal immune system without modifying the luminal microbial environment. Current therapies are hampered by incomplete efficacy and side effects that include infection and malignancy. It is for this reason that we investigated approaches that target the luminal microbial environment as therapies for ulcerative colitis.

This year we reported the outcomes of a multi-centre, randomised, double-blind, placebo-controlled trial of faecal microbiota transplantation (a stool transplant; FMT) in 73 adult patients with mild to moderately active ulcerative colitis [listed below]. Our study demonstrated that one week of induction therapy with anaerobically prepared pooled donor FMT (stool pooled from 3-4 donors) is more effective than placebo (autologous FMT ie. patient's own stool) in inducing clinical and endoscopic remission of disease at 8 weeks.

The study gave insights into the mechanisms by which FMT may have its therapeutic effect in ulcerative colitis. We found that mucosal immune cell populations do not alter significantly following FMT therapy and that luminal short chain fatty acids are also not associated with the treatment effect. This supports the theory that other metabolic products of the microbiota are the main effectors of disease remission following FMT.

These data are being used to assist in the development of rationally designed microbial therapies for ulcerative colitis. We are conducting a trial of FMT maintenance therapy to understand if we can keep patients in long term remission with this therapy and what dose of FMT may be required; and we are exploring the potential to use dietary therapy to modify the luminal microbial environment.

Costello SP, Hughes PA, Waters O, Bryant RV, Vincent AD, Blatchford P, Katsikeros R, Makanyanga J, Campaniello MA, Mavrangelos C, Rosewarne CP, Bickley C, Peters C, Schoeman MN, Conlon MA, Roberts-Thomson IC, Andrews JM. Effect of Fecal Microbiota Transplantation on 8-Week Remission in Patients With Ulcerative Colitis: A Randomized Clinical Trial. *JAMA*. 2019 Jan 15;321(2):156-164.

► <https://jamanetwork.com/journals/jama/fullarticle/2720727>

GROUP MEMBERS

Consultants

Sam Costello
Robert Bryant

Postgraduate Students

Alice Day
Karmen Telfer
University of Adelaide

Reuben Wheeler
Flinders University

Honours Student

Rachel Davis
Flinders University

RACP Advanced Training Projects

Madeleine Gill
Tom Goodsall
Wei Ting Soo

EXTERNAL COLLABORATORS

Jane Andrews
*Royal Adelaide Hospital,
Adelaide, Australia*

Geraint Rogers
*South Australian Health and
Medical Research Institute,
Adelaide, Australia*

Patrick Hughes
*The University of Adelaide,
Adelaide, Australia*

Trevor Lawley
*Sanger Institute,
Cambridge, UK*

Oliver Waters
*Fiona Stanley Hospital,
Fremantle, Australia*

Lito Papanicolas
*Flinders Medical Centre,
Adelaide, Australia*

Simon Travis
*Oxford University,
Oxford, UK*

Sam Forster
*Hudson Institute of Medical
Research and Sanger Institute,
Melbourne and Cambridge,
Australia and UK*

Peter Gibson
CK Yau
Jaci Barrett
*Monash University,
Melbourne, Australia*

Jakob Begun
*Translational Research Institute,
Brisbane, Australia*



Bimala Dhakal
PhD Student, Surgical Science
Research Group



BY ADMINISTRATIVE UNIT

Aged and Extended Care Services, TQEH

Anaesthesia, Department of, TQEH

Cardiology Unit, TQEH

**Cardiovascular Pathophysiology and
Therapeutics Group, TQEH**

Clinical Pharmacology Unit, TQEH

Endocrinology Unit, TQEH

**Gastroenterology and Hepatology Unit,
TQEH**

**Haematology and Medical Oncology,
Department of, TQEH**

Intensive Care Unit, TQEH

**Medicine, The University of Adelaide,
Discipline of**

Neurology Unit, TQEH

**Psychiatry, The University of Adelaide,
Discipline of**

Rehabilitation Medicine, TQEH

**Respiratory Medicine Unit and
Clinical Practice Unit, TQEH**

Rheumatology Unit, TQEH

**Surgery, The University of Adelaide,
Discipline of/CALHN Surgical Directorate**

**Therapeutics Research Centre,
University of South Australia**

RESEARCH

STAFF

AGED AND EXTENDED CARE SERVICES, TQEH

Professor in Geriatric Medicine & Head of Department

R Visvanathan PhD GradCertEd (Higher Ed) FRACP FANZSGM MBBS ATCL

Clinical Associate Professor in Geriatric Medicine & Deputy

S Yu PhD FRACP MBBS LTCL (Deputy Head of Department)

Consultant Epidemiologist

D Wilson PhD

Consultant Statistician

G Tucker B.MathSc PhD

Professorial, Clinical Senior Lecturers, Senior Lecturers and Lecturer

B Bikdeli MD

F Cai FRACP MBBS

F Ibrahim FRACP CCT UK MRCP MBBCh LRCPsI

K Khow MBBS

N Mahajan PhD MPsych MAPsychol BA

S Nair MPhil FRACP MBBS MRCP Fellowship Geriatric Medicine (Malaysia)

J Ng FRACP MBBS

K Parasivam FRACP MBBS

P Shibu FRACP MD CCT UK MRCP MBBS

K Tham Dip PalMed FRACP MBBS

K Umpapathysivam BSc(Hons) MSc PhD GradDip

A Wilson PhD MN BN GradDip Health Counselling FCNA

Postdoctoral Researchers

J Dollard PhD GradCertPublicHealth BA(Hons Psychology)

A Jadczak Dip Sports Science PhD

D Taylor BA(Geography) MA PhD

Research Consultant GIS

J Lange MSc-GIS

Research Nurse

K Bray RN

Research Manager, CRE Frailty and Healthy Ageing

L Baker BSc(Hons) GradDip Bus Administration (GDBA)

Visiting Research/Clinical Observers

Dr Gabriel Ding Teck Yong National Healthcare Group Polyclinics, Singapore

Dr Ronaldo Delmonte Piovezan Federal University of Sao Paulo, Brazil

ANAESTHESIA, DEPARTMENT OF, TQEH

Director

R Van Wijk MD PhD FANZCA FFPANZCA AFRACMA AFACHSM

Regional Anaesthesia

V Rao Kadam FANZCA

Laryngeal Mask Airway & High Flow Nasal Oxygen

V Thiruvenkatarajan FANZCA

Beta-Blockers and Anaesthesia

R Watts FRACGP

Clinical Researchers

A Kumar FRANZCA

G Newcombe FRANZCA

R Sethi FRANZCA

T Visvanathan FRANZCA AFRACMA

M Wahba FRANZCA

N Nanjappa FRANZCA

CARDIOLOGY UNIT, TQEH

Head of Unit

C Zeitz MBBS PhD FRACP, FCSANZ, OstJ

CARDIOVASCULAR PATHOPHYSIOLOGY AND THERAPEUTICS GROUP, TQEH

Emeritus Professor

J Horowitz AM MBBS B Med Sci (Hons) PhD FRACP FAHA FESC

Senior Scientists

C-R Chong PhD

BC Sallustio BSc PhD

Y Chirkov PhD

TH Nguyen PhD

Research Scientist

S Liu PhD

Laboratory Manager

I Stafford BSc

Research Assistant

T Heresztyn BSc

Administrative Support

P Pachen

CLINICAL PHARMACOLOGY UNIT, TQEH

Principal Medical Scientist/Professor

BC Sallustio BSc PhD

Senior Medical Scientist

S Spencer BSc(Med Chem)

Postdoctoral Researcher

J Licari BHSc(Hons) PhD

Senior Technical Officer

FA Wicks BSc

ENDOCRINOLOGY UNIT, TQEH

Head of Unit

D Jesudason MBBS FRACP PhD

Endocrinologists

N Laddipeerla MBBS FRACP

K Campbell MBBS FRACP

L Gagliardi MBBS FRACP PhD

E Myer MBBS FRACP

Registrars

S Bose MBBS

R Jalleh MBBS FRACP

S Bateman MBBS FRACP MPH

L Bichard MBBS

RESEARCH STAFF 2019

Senior Medical Scientists

J Wang BSc PhD MPH
C Seaborn BSc
E Robinson BSc

GASTROENTEROLOGY AND HEPATOLOGY UNIT, TQEH

Head of Unit

I Lidums MBBS PhD FRACP

Research Associate

AG Cummins BSc(Med) MD PhD FRACP

Senior Lecturer

DL Worthley MBBS PhD MDH FRACP

Consultants

SP Costello MBBS FRACP PhD
R Bryant MBBS FRACP PhD
D Huynh MBBS FRACP

Hospital Scientist

W Uylaki BSc

BiomeBank Research Staff

N Cook PhD
B Lett PhD

HAEMATOLOGY AND MEDICAL ONCOLOGY, DEPARTMENT OF, TQEH

Head of Haematology and Oncology Unit/Clinical Research Program

TJ Price MBBS FRACP DHSc

Chief Medical Scientist

JP Young BSc MSc Grad Dip Biotech PhD

Principal Medical Scientist

JE Hardingham BSc PhD

Clinical Research Staff

AR Townsend MBBS FRACP (Translational Clinical Leader)
V Broadbridge MBBS FRACP
WK Patterson MBBS FRACP (retired Nov 2019)
R Roberts-Thomson MBBS FRACP

Grant Funded Scientists

H Palethorpe BMedPharmSc(Hons) BLabMed Dip Biomed Sc PhD
E Smith PhD

Research Assistant

W Uylaki BSc

Research Nurse

M Horsnell EN

Clinical Research Fellows 2019

LC Chong MBBS BMedSci FRACP
M McGregor BMBS FRACPBBPharm(Hons)

CLINICAL TRIALS

Clinical Research Managers

S Yeend MClint(R) (until Nov 2019)
P Cooper BSc MMedSc

Clinical Research Coordinators

N Cvijanovic BHSc BHSc(Hons) PhD
E Egan RN
A Kuruni MD
S Papacharissiou BHlthSc BBiomedSc(Hons)
K Tran BParam
S Sequeira BMedSc

INTENSIVE CARE UNIT, TQEH

Director

SL Peake BM BS BSc(Hons) FJFICM PhD

Consultant Specialists

D Clayton BSc MBBS FRCA FANZCA FCICM
JL Moran MB BS FANZCA FRACP FJFICM MD
J Raj MBBS MS
J Abraham MBBS MD FCICM Grad Cert Ultrasound

Nursing Staff

A McFall RN GradCert Critical Care & Neonatal Intensive Care

Research Coordinator

P Williams RN BN IntC

Research Project Officer

C Kurenda

MEDICINE, THE UNIVERSITY OF ADELAIDE, DISCIPLINE OF

Michell Professor of Medicine

JF Beltrame AM BSc BMBS FRACP PhD FESC FACC FCSANZ, FAHA

Professorial Staff

R Visvanathan PhD GradCertEd (Higher Ed) FRACP FANZSGM MBBS ATCL
C Zeitz MBBS PhD FRACP

Senior Lecturers

S Rajenderan MBBS FRACP PhD
P Zalewski BSc(Hons) PhD

Postdoctoral Researchers

S Appleton BSc(Hons) PhD
S Pasupathy PhD
R Tavella BSc(Hons) PhD

Biostatistician

T Air BA(Hons) MBiostatistics

SACOR Research Assistants

C Tavella BA BMediaArts
K Sivasankar BHlthSc

CADOSA Research Assistants

CADOSA LMH
L Borg
A Lath BHSc
E Rees

RESEARCH STAFF 2019

CADOSA RAH

A Burdokova

L Simeone

CADOSA TQEH

C Cilento BMedRadSc(Hons)(NucMed)

E Kessling BHSc

S Tan BLabMed(Hons) PhD (Molecular Microbiology)

J Wu BBiotech GradDipPH MNut Dietetics PhD

CADOSA Calvary

N Damjanic

CALHN (TQEH) Research Assistants

R Jakobczak BSc

M Hay BSc(Hons)

A Milton BSc(Hons) Dip Comp Sci

The University of Adelaide Research Officers

A Abdo BMedSci(Hons) PhD

A Wawer BSc (Animal Science) MSc BSc
(Food Technology and Human Nutrition) PhD

The University of Adelaide Research Assistant

Z Tvorogova

HEALTH PERFORMANCE AND POLICY RESEARCH UNIT

NHF Future Leaders Fellow

I Ranasinghe MBChB MMed PhD FRACP

Research Officers

S Hossain PhD

S Hariharaputhiran PhD

T Dang MDevEconomics

A Ali BDenSurg MEpi and Biostats

NEUROLOGY UNIT, TQEH

Head of Neurology, Central Adelaide Local Health Network (CALHN)/Clinical Associate Professor

J Jannes BMBS FRACP PhD

Professor of Neurology and Neuroscience / Clinical Academic Neurologist / Director of Stroke Research Programme (SRP)

SA Koblar BMBS FRACP PhD

Affiliate Associate Professor / Principal Medical Scientist/ Co-Director of SRP

MA Hamilton-Bruce BSc MSc MBA PhD AFCHSE CBiol FRSB CSci FIBMS

Senior Medical Scientist, SRP

AG Milton BSc(Hons) Dip Comp Sci

Postdoctoral Research Fellow

K Kremer BBtech (Hons) PhD

PSYCHIATRY, THE UNIVERSITY OF ADELAIDE, DISCIPLINE OF

Head of Medical Specialties

C Galletly MBChB DPM PhD

Head of Discipline/Clinical Academic

S Clark MBBS PhD BSc(Hons) FRANZCP

Clinical Academic

O Shubert MD PhD FRANZCP

Advanced Trainees-Psychiatry Registrars

N Nachmani Major MUDr

V Jejuna MD FRANZCP

REHABILITATION MEDICINE, TQEH

Associate Professor

A D Gupta MBBS, MD, Grad Dip Musc Med, Clin Dip Pall Med, FAFRM

Senior Lecturer

N Quadros BSc(Hons) BMBS PhD FAFRM

Lecturer, Research Associate

K Umapathysivam BSc(Hons) MSc PhD GradDip

Registrars

J Smith MBBS FRACGP

T Khanom MBBS

RESPIRATORY MEDICINE UNIT AND CLINICAL PRACTICE UNIT, TQEH

Acting Head of Unit

J Polasek FRACP MBBS

Consultants

A Fon FRACP MBBS

S Lehman FRACP MBBS

J Polasek FRACP MBBS

A Roy FRACP MBBS

Z Usmani FRACP MBBS

A Veale PhD FRACP MBBS

Principal Medical Scientist

M Jurisevic PhD

Pulmonary Function Laboratory

D Keatley BSc (Biomed) (Hons)

X Liu BSc PhD

P Kid BSc

R Morena

Clinical Research Coordinators

TB Truong BPsych(Hons)

A Tabner BAppSc

Research Officers

TB Truong BPsych (Hons)

Z Kopsaftis BMedRadSc(NucMed) BHlthSci(Hons) PhD

Respiratory Nurses

K Lawton BAN

K Royals RN

RHEUMATOLOGY UNIT, TQEH

Head of Department

C Hill MBBS MD MSc (Epi) FRACP

Staff Consultant Rheumatologists

M Rischmueller MBBS FRACP

S Whittle MBBS (Hons) MClinEpi

S Burnet MBBS FRACP

R Black MBBS FRACP PhD

J Tieu MBBS FRACP

Rheumatology Clinical Trials Manager

S Downie-Doyle PhD

Postdoctoral Researchers

C Ruediger PhD

C Davis PhD

Advanced Trainees

J New-Tolley MBBS

A Quinlivan MBBS, BMedSci (University of Melbourne)

T Khoo MBBS

Rheumatology Clinical Trials Staff

A Cayzer RN

S White RN

K Dyer BSc(Hons)

J Harris BBus

Chief Medical Scientist

S Lester BSc(Hons)

Secretary

M Devine

SURGERY, THE UNIVERSITY OF ADELAIDE, DISCIPLINE OF/CALHN SURGICAL DIRECTORATE

RP Jepson Professor of Surgery

G Maddern PhD MS MD FRACS FAAHMS

Professor of Colorectal Surgery

P Hewett MBBS FRACS

Clinical Academic

M Trochsler MD FMH MMIS FRACS

Staff Specialists, Upper GI

H Kanhere MS FRACS Masters Clin T (R) AFRACMA

A Karatassas MBBS FRACS

G Kiroff MBBS MS FRACS

Associate Professor

M Goggin MB BCh BAO DO FRCSI (Ophth) FRCOphth FRANZCO MS

Senior Medical Scientist

E Hauben PhD

NHMRC Early Career Research Fellow

K Richter PhD

THRF Early Career Research Fellow

K Fenix PhD

Research Officer

C Kirana PhD

Research Assistant

T Tin BA/BSc DipN

Visiting Research Fellow

PA Drew PhD

E Hauben PhD

Project Coordinators

L Leopardi BSc BEng(Biomedical)(Hons)

J Reid BSc PhD

J Bennett BPsycholSc

Technical Officers

M Smith

M Slawinski

B Hutchens

SURGERY – ENT

Research Leader and Consultant

Professor of Otorhinolaryngology Head & Neck Surgery

PJ Wormald MD FRACS FCS(SA) FRCS(Ed)

Head of Clinical Services

A Psaltis MBBS FRACS PhD

Senior Lecturers

G Rees MBBS FRACS

A Foreman MBBS MSc

S Boase MBBS FRACS

Consultants

S Floreani MBBS FRACS

J Ling MBBS FRACS

K Ha MBBS FRACS

H Pant MBBS FRACS

S Rajapaksa MBBS FRACS

R Valentine MBBS FRACS PhD

Chief Scientist, Otolaryngology Head & Neck Surgery

S Vreugde MD PhD

ENT Postdoctoral Researchers

A Bassiouni PhD

C Cooksley BSc(Hons) PhD

S Liu PhD

M Ramezanpour MSc PhD

S Javadiyan MBiotech (Plant Biotechnology) PhD

ENT Research Assistants

C Bennett BMedSc

K Hon BSc(Biotechnology) MBiotech(Biomedical Science)

Visiting Research Fellows

H Hu MD PhD ENT Surgeon

K Ogi MD PhD

M Suzuki PhD

Secretary

A Kreutner AssocDipAcc

THRF Mid Career Research Fellow (University of South Australia)

Nicky Thomas PhD

SURGERY – VIROLOGY GROUP

Professor

EJ Gowans MAppSci PhD

Postdoctoral Researcher

B Grubor-Bauk BSc(Hons) PhD

RESEARCH STAFF 2019

THRF Early Career Research Fellows

D Wijesundara BSc(Hons) PhD
A Shrestha PhD

Postdoctoral Researchers

M Masavuli PhD
Z Mekonnen PhD

Visiting Research Fellow

M Mahzounieh BVM(Batchelor Veterinary Medicine) PhD

SURGERY – BREAST CANCER RESEARCH UNIT

Professor

A Evdokiou PhD

Postdoctoral Researchers

I Zinonos PhD
J Licari PhD

Senior Research Officer

R Panagopoulos BBiotechnology(Hons)

Visiting Research Fellow

H Takezawa PhD

SURGERY – BREAST BIOLOGY AND CANCER UNIT

Associate Professor

W Ingman PhD

Postdoctoral Researcher

P Dasari PhD

Research Assistant

L Hodson BSc(Hons)

SURGERY – VASCULAR SURGERY RESEARCH GROUP

Professor

R Fitridge MBBS MS FRACS

Consultant Vascular Surgeon

J Dawson MBBS ChM MD MRCS FRCS(Gen) FRACS(Vasc) MFSTEd

Principal Medical Scientist

P Cowled BSc(Hons) PhD

Research Assistant

R Battersby BSc GradCertDrugDev

SA-PROSTATE CANCER CLINICAL OUTCOMES COLLABORATIVE

Chair

K Moretti MBBS FRACS(Urol)

THERAPEUTICS RESEARCH GROUP, UNIVERSITY OF SOUTH AUSTRALIA

Professor

MS Roberts BPharm PhD DSc MBA FACP

Therapeutics Research Centre Manager

L Mackenzie BSc PhD

Postdoctoral Researcher

A Holmes BSc(Hons) PhD

Pharmaceutical Technologist

A Abdalla BPharm PhD

Formulations Technologist

A Alinaghi BPharm PhD

Senior Analyst

T Robertson BSc PhD

Researcher

J Ripper BSc PhD

Research Assistant

I Haridass BPharm

Technician

L MacMaster

RESEARCH STUDENTS



RESEARCHERS IN TRAINING

The Basil Hetzel Institute is committed to providing academic training opportunities in research, and this year over 90 students across our campus were being supervised by BHI clinical and research staff affiliated with either The University of Adelaide or the University of South Australia. Of these, 12 students completed their research higher degrees and were awarded either PhD's or Masters Degrees (in Surgery or Medicine) and another 6 were awarded First Class Honours Degrees. We congratulate completing recipients for their aptitude, dedication and particularly for their contribution to knowledge in their chosen field.

BHI has excellent research facilities at The Queen Elizabeth Hospital campus, providing an ideal environment for undertaking research.

Enquiries from new students with clinical (medical/nursing/allied health) and science backgrounds, are always welcome.

► Information for prospective students can be found on the BHI website.

The University of Adelaide

Postgraduate Coordinators for 2020, based at the BHI

Dr Prue Cowled

Discipline of Surgery
prue.cowled@adelaide.edu.au

A/Prof Sarah Vreugde

Discipline of Surgery (ENT)
sarah.vreugde@adelaide.edu.au

Professor Betty Sallustio

Discipline of Medicine
benedetta.sallustio@sa.gov.au or
benedetta.sallustio@adelaide.edu.au

Faculty of Health and Medical Sciences Honours Coordinator for 2020 (Discipline cluster: Medical Sciences)

Dr Joanne Bowen

joanne.bowen@adelaide.edu.au

Adelaide Medical School Honours Coordinator for 2020 (Discipline cluster: Medicine and Specialties), based at the BHI

Dr Peter Zalewski

peter.zalewski@adelaide.edu.au

University of South Australia

Postgraduate Coordinator for 2020

Professor John Hayball

School of Pharmacy and Medical Sciences
john.hayball@unisa.edu.au

Dr Alexandra Shoubridge and Dr Zelalem Mekonnen each received their Doctorate of Philosophy from The University of Adelaide at the Faculty of Health and Medical Sciences graduation ceremony in September.

RESEARCH STUDENTS 2019

COMPLETED RESEARCH HIGHER DEGREES & HONOURS

LISTED ALPHABETICALLY BY SURNAME

BHI-BASED SUPERVISORS ARE UNDERLINED

THE UNIVERSITY OF ADELAIDE DISCIPLINE OF MEDICINE, TQEH

PhDs Awarded

Rachel BLACK MBBS FRACP PhD

The epidemiology of glucocorticoid prescribing and ophthalmological side effects in patients with rheumatoid arthritis

Supervisors: Hill C, Dixon WG, Cleland L

Rheumatology Research Group

The University of Adelaide, PhD awarded 19 August 2019

Rong HU BSc MSc

Pharmacogenomics research on tacrolimus and mycophenolate mofetil among patients receiving kidney transplantation

Supervisors: Somogyi AA, Sallustio BC, Collier JK, Daniel TB

Clinical Pharmacology Research Group

The University of Adelaide, PhD awarded 5 August 2019

Zoe KOPSFTIS BMedRadSc(NucMed) BHLthSc(Hons) PhD

Best-practice evidence based medicine for the effective management of Chronic Obstructive Pulmonary Disease (COPD)

Supervisors: Phillips P, Carson-Chahhoud KV, Nottle M

Respiratory Research Group

The University of Adelaide, PhD awarded 31 July 2019

PHMED Dean's Commendation for Doctoral Thesis Excellence

Clare MCNALLY MPhil (Dent) GCHP Assoc DDH

An exploratory Investigation of the Oral Health of Hospitalised Older Patients

Supervisors: Adams R, Visvanathan R, Liberali S

The Health Observatory

The University of Adelaide, PhD awarded 7 June 2019

Anjali NAGPAL MBBS MD FRCA (UK)

Exploring determinants of execution in early phase clinical studies with cell therapies in stroke

Supervisors: Koblar S, Hamilton-Bruce A

Stroke Research Programme

The University of Adelaide, PhD Awarded 10 May 2019

Sven SURIKOW BSc(Hons)

The role of oxidative and nitrosative stress in the pathogenesis of Tako-Tsubo Cardiomyopathy

Supervisors: Horowitz JD, Nguyen TH, Chirkov Y

Cardiovascular Pathophysiology and Therapeutics Group

The University of Adelaide, PhD awarded 31 July 2019

Honours Awarded

James CLARKE BHSc

Is aquaporin 1 expression a poor prognostic marker in colorectal cancer?

Supervisors: Smith E, Hardingham J

Solid Tumour Group

The University of Adelaide, First class Honours awarded Nov 2019

Steven HA BHSc

The identification of microRNAs predictive of response to therapeutic agents in colorectal cancer

Supervisors: Hardingham J, Smith E

Solid Tumour Group

The University of Adelaide, First class Honours awarded 2019

Aakriti LATH BHSc

Gender differences in Post Myocardial Infarction

Supervisors: Tavella R, Beltrame J

Translational Vascular Function Research Collaborative

The University of Adelaide, First class Honours awarded 2019

THE UNIVERSITY OF ADELAIDE DISCIPLINE OF PSYCHIATRY, TQEH

Edward LUONG BHSc

Differential Candidate Gene Expression Analysis for Cognition and Schizophrenia

Supervisors: Toben C, Clark SR, Ciobanu L

The University of Adelaide, BHealthSc First class Honours awarded 2019

THE UNIVERSITY OF ADELAIDE DISCIPLINE OF SURGERY, TQEH

PhDs Awarded

Lisa CHERIAN MBBS

Corticosteroids and the sinonasal microbiome

Supervisors: Wormald PJ, Vreugde S

ENT Surgery

The University of Adelaide, PhD awarded 21 October 2019

Sam COSTELLO MBBS FRACP PhD

The role of faecal transplantation in the treatment of ulcerative colitis

Supervisors: Roberts-Thomson I, Hughes P, Conlon M, Andrews J

Inflammatory Bowel Disease Research Group

The University of Adelaide, PhD awarded 31 July 2019

Zelalem MEKONNEN BSc(Hons)

Pre-Clinical Evaluation of a Vaccination Strategy to Induce Liver Resident memory T Cells against Hepatitis C Virus

Supervisors: Gowans EJ, Grubor-Bauk B, Wijesundara D

Virology Group

The University of Adelaide, PhD awarded 10 May 2019

Alexandra SHOUBRIDGE BSc(Hons)

A New Role for Peroxidases in Bone Repair

Supervisors: Evdokiou A, Panagopoulos V, De Nichilo M, Anderson P

Breast Cancer Research Unit

The University of Adelaide, PhD awarded 17 July 2019

RESEARCH STUDENTS 2019

COMPLETED RESEARCH HIGHER DEGREES & HONOURS

Masters Awarded

Justin CHAN MBBS, FRACS

Mortality and Morbidity Cardiothoracic Surgery in Australia

Supervisors: Maddern G, Worthington M

Surgical Science Research Group

The University of Adelaide, MPhil (Surg) awarded 20 November 2019

Junwei WANG BSc (Biomedical Science)

Single Cell RNA-Seq Analysis Reveals the Heterogeneity of the Colonic Mesenchymal Cells in Inflammatory Bowel Disease

Supervisors: Pederson S, Smith E

Solid Tumour Group

The University of Adelaide, Master of Biotechnology (Biomedical)

Awarded High Distinction

Honours Awarded

Zein AMRO BHSc

Evaluating novel antibacterial treatments targeting bacterial water channels

Supervisors: Richter K, Yool A

Surgical Science Research Group

The University of Adelaide, BHealthSc Honours awarded 2019

Rachel DAVIS APD (Accredited Practising Dietitian)

Diet and Inflammatory Bowel Disease

Supervisors: Day A, Bryant R, Miller M

Inflammatory Bowel Disease Research Group

Flinders University of South Australia, First Class Honours

Awarded 2019

Man Ying LI BSc

Nano-formulation of Curcumin as novel oral treatment for colorectal liver metastases

Supervisors: Fenix K, Zhou X-F

Surgical Science Research Group

The University of Adelaide, First Class Honours awarded 2019

Ahad SABAB

Efficacy and safety of fibrin patches in the management of small vessel bleed intracranially

Supervisor: Wormald PJ

ENT Surgery

The University of Adelaide, First Class Honours awarded 2019

RESEARCH STUDENTS 2019

CONTINUING RESEARCH HIGHER DEGREES & HONOURS STUDENTS

THE UNIVERSITY OF ADELAIDE DISCIPLINE OF MEDICINE, TQEH

ADELAIDE G-TRAC CENTRE

PhD students

Sally AHIP M.Med MBBS

The Malaysian Pictorial Fit-Frail Scale (M-PFFS): Development and testing of feasibility, validity and reliability in Malaysia

Supervisors: [Visvanathan R](#), Theou O

Government of Malaysia Scholarship

Rachel AMBAGTSHEER

Screening for frailty in general practice

Supervisors: Beilby J, [Yu S](#)

Anupam Datta GUPTA MBBS, MD, Grad Dip Musc Med, Clin Dip Pall Med, FAFRM

Improving lower limb functioning in post-stroke spasticity and foot dystonia with botulinum toxin

Supervisors: [Visvanathan R](#), Cameron I, [Koblar S](#)

Louise HEUZENROEDER B.Nurs MBA MPH M Health Sci

Developing and testing the reliability and validity of a questionnaire to measure Dignity in Care for older people (and their carer) in the hospital setting.

Supervisors: Kitson A, Woodman R, [Ibrahim F](#)

Dementia Australia Consumer Priority PhD Scholarship

Unyime JASPER MSc

Evaluating the knowledge, attitude and strategies for reducing sedentary behaviour and increasing physical activity among older patients, carers and health professionals in hospital- A qualitative study

Supervisors: [Visvanathan R](#), [Jadczak A](#)

The University of Adelaide International Wildcard Scholarship; CRE Frailty in Healthy Ageing Top-up Scholarship

Kareeann Sok Fun KHOW MBBS

Fractures and outcomes in older people

Supervisors: [Visvanathan R](#), [Yu S](#)

NHMRC Postgraduate Research Scholarship

Beatriz MARTINS BMed (University of San Paolo, Brazil)-specialisation in Geriatric and Internal Medicine

Physical activity and Frailty: Exploring cross-cultural and neighbourhood influences

Supervisors: [Visvanathan R](#), Barrie H

The University of Adelaide Beacon of Enlightenment/Nagoya University Joint Postgraduate Research Scholarship

James SMYTH MBBS MB, BCh, BAO, FACEM, FRCEM, FRCSI, FFSEM, DCH, BA(Mod)

Potential roles of assessments of frailty and activities of daily living for nursing home residents in relation to the transfer to the hospital emergency department

Supervisors: [Visvanathan R](#), Arendts G, Grantham H

Mark THOMPSON BAppliedSc (Occupational Therapy) M Pub Health

The trajectory of frailty and associated factors and influence on mortality and quality of life in community dwelling older South Australians

Supervisors: [Visvanathan R](#), Theou O

CARDIOVASCULAR PATHOPHYSIOLOGY AND THERAPEUTICS GROUP

PhD student

Gao ONG MBChB

The natural history and treatment of Tako-Tsubo Cardiomyopathy

Supervisors: [Horowitz JD](#), [Chirkov Y](#)

CLINICAL PHARMACOLOGY RESEARCH GROUP

PhD student

Mirabel ALONGE BHMedSc(Hons)

Using pharmacokinetic principles to improve the safety of tacrolimus in kidney transplant recipients

Supervisors: [Sallustio B](#), [Jesudason S](#)

The University of Adelaide Divisional Scholarship; The Hospital Research Foundation Top Up Scholarship

ENDOCRINOLOGY UNIT

PhD students

Sunita DESOUSA MBBS

The role of ARMC5 in non-adrenal tumours

Supervisors: [Torpy D](#), [Gagliardi L](#), [Scott H](#)

Master of Philosophy (Medicine) student

Usman MUSHTAQ MBBS FRACP

Pathophysiology of changes in calcium homeostasis and testosterone levels and its impact on regulation of bone mineral density following bariatric surgery

Supervisors: [Wittert G](#), [Jesudason D](#)

Freemason's Centre for Men's Health Scholarship

HEALTH PERFORMANCE AND POLICY RESEARCH UNIT

PhD student

Linh Thi Hai NGO DMed(Hanoi Vietnam)

Outcomes of catheter ablation for treatment of Atrial Fibrillation in Australia: a population-wide study

Supervisors: [Adams R](#), [Ganesan A](#), [Ranasinghe I](#)

The Hospital Research Foundation Postgraduate Research Scholarship

STROKE RESEARCH PROGRAMME

PhD students

Stephen BACCHI MBBS

Deep learning in the prediction of clinically significant outcomes in Stroke and General Medicine patients.

Supervisors: [Koblar S](#), [Kleinig T](#), [Jannes J](#)

Chelsea M GRAHAM BSc (Animal Sc)(Hons)

Developing a Schwann cell line from Tasmanian devil (Sarcophilus harrisii) dental pulp stem cells

Supervisors: [Pyecroft SB](#), [Hamilton-Bruce A](#), [Kremer KL](#)

Victor J KRAWCZYK BSocSc(Hum Serv) BA(Hons) GDipArtHist

Human-animal relations in organizations: Identifying discourses for compassionate engagements with animals

Supervisors: [Higgins-Desbiolles F](#), [Caluya G](#), [Hamilton-Bruce A](#), [Walton S](#)

RESEARCH STUDENTS 2019

CONTINUING RESEARCH HIGHER DEGREES & HONOURS STUDENTS

RESPIRATORY MEDICINE UNIT AND CLINICAL PRACTICE UNIT, TQEH

PhD student

Karen ROYALS RN

Outreach respiratory nursing in the management of Chronic Obstructive Pulmonary Disease (COPD)

Supervisors: Nottle M, [Veale A](#), Carson-Chahhoud K

Masters student

Kathryn LAWTON RN

Management of bronchiectasis: a tertiary healthcare perspective

Supervisors: Nottle M, [Veale A](#), Carson-Chahhoud K

RHEUMATOLOGY RESEARCH GROUP

PhD students

Jem NINAN MBBS MD FRACP

Giant Cell Arteritis - understanding mechanisms of disease, improving the diagnostic certainty, and optimising management through Fast Track Clinics

Supervisors: [Hill C](#), McNeil J, Bartholomeusz D

Huai Leng (Jessica) PISANIELLO MBBS FRACP

The Role of Mobile Health Application in Real-Time Capture of Self-Reported Symptoms and Longitudinal Activity, and its Feasibility in Patient-focused Remote Monitoring in Musculoskeletal Disorders

Supervisors: [Hill C](#), [Beltrame J](#), Dixon W (Manchester), [Whittle S](#)

Arthritis Australia Ken Muirden Travelling Scholarship

Joanna TIEU MBBS

Optimising therapy in ANCA-associated Vasculitis

Supervisors: [Hill C](#), Proudman S, Jayne D (Cambridge), Peh CA

NHMRC Postgraduate Research Scholarship

Masters student

Oscar RUSSELL MBBS

The influence of socio-economic factors on medication use and health outcomes in Australians with rheumatoid arthritis

Supervisors: [Hill C](#), [Gill T](#)

The University of Adelaide Research Training Program Stipend

SOLID TUMOUR GROUP

PhD students

Reger MIKAEEL MSc, Molecular Pathology and Toxicology (University of Leicester, UK)

The Pathology of Young Onset Colorectal Cancer

Supervisors: [Price T](#), [Young J](#)

The University of Adelaide International Wildcard Scholarship

Maryam NAKHJAVANI Dip Sc Professional doctorate of Pharmacy

Novel inhibitors of tumour growth and angiogenesis in advanced breast cancer

Supervisors: [Hardingham J](#), [Townsend A](#)

The University of Adelaide International Wildcard Scholarship

Yoko TOMITA MBBS FRACP MSc

Pharmacological blocking of Aquaporin 1 to restrict tumour angiogenesis and metastasis in pre-clinical models of human colon cancer

Supervisors: [Hardingham J](#), [Price T](#), Yool A

The University of Adelaide Research Training Program Stipend

TRANSLATIONAL VASCULAR FUNCTION RESEARCH COLLABORATIVE

PhD students

Tracy AIR MBIostatistics

The Burden of Disease in Depression and Cardiovascular Disease

Supervisors: [Beltrame J](#), [Tavella R](#), Schrader G

Clementine LABROSCIANO BSc BHSc(Hons)

Adverse patient outcomes following pacemaker and implanted converter defibrillator implantations in Australia

Supervisors: [Beltrame J](#), [Tavella R](#)

The University of Adelaide Faculty of Health and Medical Sciences
Divisional Scholarship

Eng Lee OOI MBBS

Coronary and Peripheral Haemodynamic Studies in Obstructive Sleep Apnoea Population with Angina

Supervisors: Arstall M, Mahadevan G, [Beltrame J](#), Rajendran S

The University of Adelaide Research Training Program Stipend

Tim SURMAN MBBS

The structural apparatus of the aortic valve and patient outcomes for transapical and open aortic valve surgery.

Supervisors: [Beltrame J](#), Worthington M

The Hospital Research Foundation Postgraduate Research Scholarship

Honours student

Sarena LA BHMSc(Advanced)

Characteristics and Clinical outcomes of Myocardial Infarction with Non-Obstructive Coronary Arteries (MINOCA) patients undergoing cardiac Magnetic Resonance Imaging

Supervisors: [Tavella R](#), [Pasupathy S](#)

The University of Adelaide, Midyear intake

The Hospital Research Foundation Honours Research Scholarship

THE UNIVERSITY OF ADELAIDE DISCIPLINE OF PSYCHIATRY, TQEH

PhD students

Micah CEARNES BPsych

Personalised Psychiatry: A Machine Learning Approach

Supervisors: Baune B, [Clark SR](#)

Andrew OLAGUNJU MBBS Psych

Predictors of functional outcome in individuals with Psychosis

Supervisors: Baune B; [Clark SR](#)

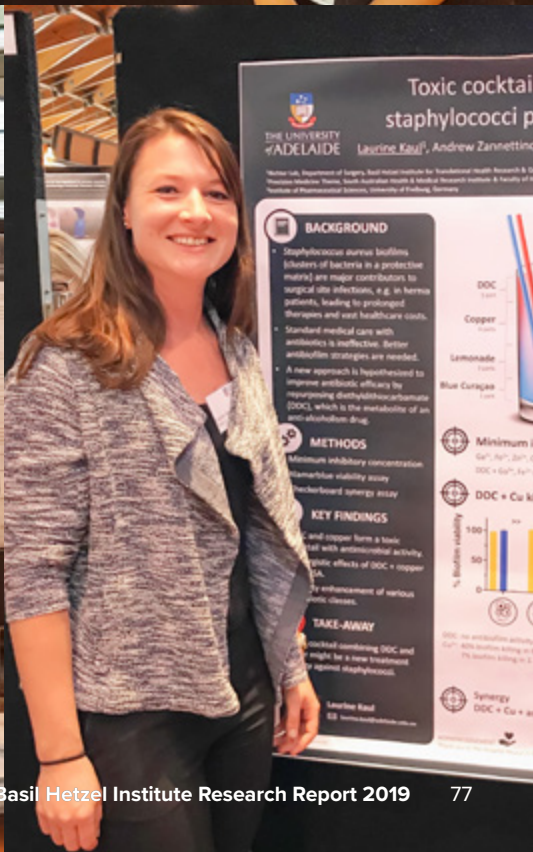
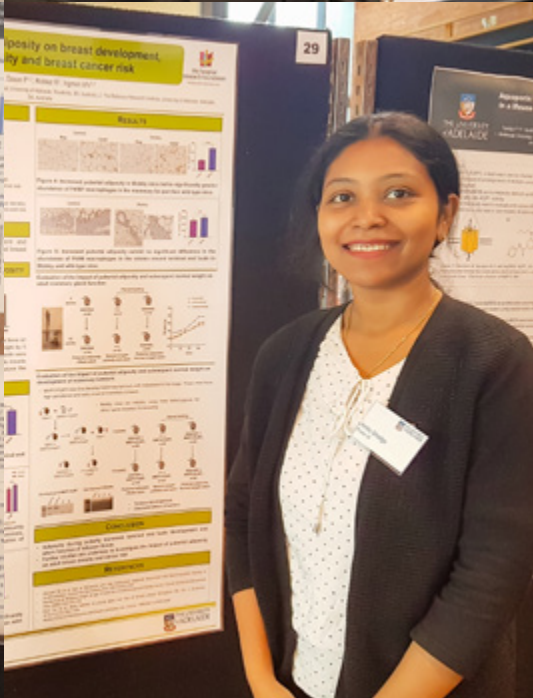
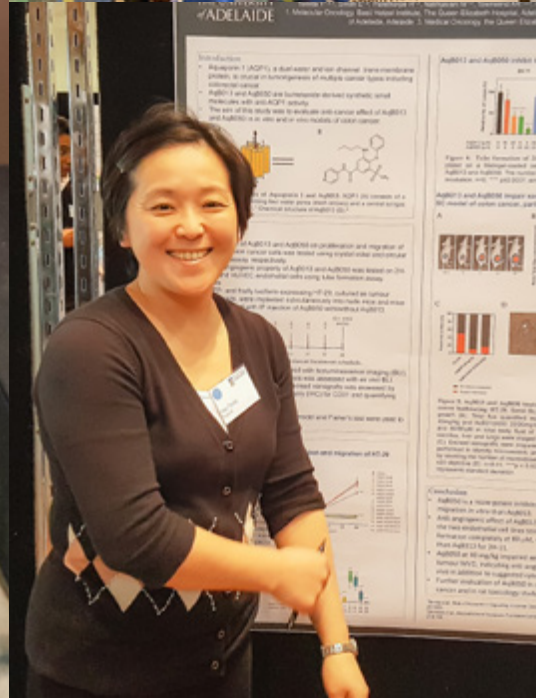
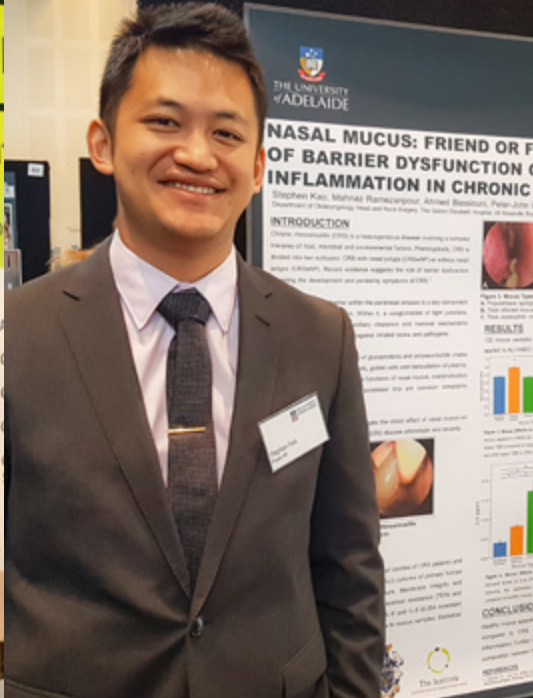
The University of Adelaide International Scholarship

Kai Tit TAN BHSc

Association between TMS-EEG with symptoms, cognition and function in psychiatric disorders

Supervisors: Schubert O, [Clark SR](#), Goldsworthy M

The University of Adelaide International Scholarship, The Hospital Research Foundation Top Up Scholarship



RESEARCH STUDENTS 2019

CONTINUING RESEARCH HIGHER DEGREES & HONOURS STUDENTS

THE UNIVERSITY OF ADELAIDE DISCIPLINE OF SURGERY, TQEH

BREAST BIOLOGY AND CANCER UNIT

PhD students

Maddison ARCHER BSc(Biomedical science) BHSc(Hons)
Immune modulation of breast density and cancer risk

Supervisors: [Ingman W](#), [Evdokiu A](#), [Dasari P](#)

Breast Biology and Cancer Unit

The University of Adelaide Research Training Program Stipend

Sarah BERNHARDT BSc(Biomedical) BHSc(Hons)
Hormonal modulation of prognostic and predictive biomarkers in premenopausal breast cancer

Supervisors: [Ingman W](#), [Price T](#), [Townsend A](#)

Breast Biology and Cancer Unit

The University of Adelaide Research Training Program Stipend

Amita GHADGE Integrated BSc MSc
Biological determinants of breast density

Supervisors: [Ingman W](#), [Dasari P](#)

The University of Adelaide International Wildcard Scholarship

Joe WRIN BSc
The role of C1q and macrophages in breast carcinogenesis and cancer progression

Supervisors: [Ingman W](#), [Evdokiu A](#)

The University of Adelaide Research Training Program Stipend

BREAST CANCER RESEARCH UNIT

PhD students

Christopher DIFELICE BSc(Hons)
Fibrosis, cancer and the pre-metastatic niche: implications for peroxidases

Supervisors: [Evdokiu A](#), [De Nichilo M](#), [Zinonos I](#)

The University of Adelaide Research Training Program Stipend

Namfon (Bee) PANTARAT BSc(Biology) MSc(Biotech)
Hydrogel-based delivery of cancer fighting T cells for the localised treatment of completely resected or inoperable tumours

Supervisors: [Evdokiu A](#), [Zinonos I](#), [Hauben E](#)

The University of Adelaide Discipline of Surgery Scholarship

ENT SURGERY

PhD students

Muhammed AWAD MPharmSc
Novel nanoparticles for photodynamic antimicrobial therapy

Supervisors: [Thomas N](#), [Prestidge C](#), [Barnes T](#)

International Research Training Program (RTPi)

Sholeh FEIZI MSc
Green synthesis of silver nanoparticles and their biomedical applications

Supervisors: [Wormald PJ](#), [Vreugde S](#), [Psaltis AJ](#)

The Hospital Research Foundation Postgraduate Research Scholarship

Stephanie FONG MBBS DipChildHlth
Surfactant-based carriers incorporating corticosteroids for the treatment of Chronic Rhinosinusitis

Supervisor: [Wormald PJ](#), [Vreugde S](#)

Rachel GOGGIN MBBS BMedSc(Hons)
The role of viruses in Chronic Rhinosinusitis

Supervisor: [Vreugde S](#), [Wormald PJ](#), [Psaltis A](#)

The University of Adelaide Research Training Program Stipend

Michael GOUZOS BPhysiotherapy MD
Effect of antibiotic reagents on Nitrogen reactive species and postoperative adhesions

Supervisors: [Wormald PJ](#), [Psaltis A](#), [Vreugde S](#)

The University of Adelaide Research Training Program Stipend

Ghais HOUTAK BMed MNeuroscience(Research) MMed
Development of a personalised therapeutic protocol for S. aureus recalcitrant CRS

Supervisors: [Vreugde S](#), [Wormald PJ](#)

The University of Adelaide Divisional and Fee scholarship; The Hospital Research Foundation Postgraduate Research Top-Up Scholarship

Jacob JERVIS-BARDY MBBS
Comparative microbial genomics of the upper respiratory tract in health and disease

Supervisor: [Wormald PJ](#)

Stephen KAO MBBS
Determine the effect of barrier dysfunction on mucosal inflammation

Supervisors: [Wormald PJ](#), [Psaltis A](#), [Vreugde S](#)

The University of Adelaide Research Training Program Stipend & the Bertha Sudholz Research Scholarship

Giri KRISHNAN MBBS MClinSc
Evaluating the accuracy of lymphotropic iron tracers for sentinel lymph node mapping in an orthotopic VX2 rabbit head and neck cancer model

Supervisors: [Wormald PJ](#), [Foreman A](#)

The University of Adelaide Faculty of Health and Medical Sciences Divisional Scholarship/ Garnett Passe and Rodney Williams Research Scientist Scholarship (from March 2018)

Annika MASCARENHAS MBBS
An endoscopic bovine model of small vessel intracranial arterial haemorrhage control

Supervisors: [Wormald PJ](#), [Psaltis A](#)

Anna MEGOW MBBS
The protective role of Corynebacterium species in chronic rhinosinusitis

Supervisors: [Wormald PJ](#), [Psaltis A](#), [Vreugde S](#)

The University of Adelaide Divisional Scholarship

Martha MENBERU Msc
Microbial interactions in chronic rhinosinusitis

Supervisors: [Vreugde S](#), [Wormald PJ](#), [Psaltis A](#)

The University of Adelaide International Scholarship

Roshan NEPAL BSc, MScience(Biotechnology)
Synthetic phage and phage lysins as potential antibacterial agents against multi-drug resistant pathogens

Supervisors: [Vreugde S](#), [Wormald PJ](#)

The Hospital Research Foundation Postgraduate Research Scholarship; The University of Adelaide Fee scholarship

RESEARCH STUDENTS 2019

CONTINUING RESEARCH HIGHER DEGREES & HONOURS STUDENTS

Mian Li OOI MBBS

The use of chitodex gel as slow-release drug delivery system to improve wound healing after sinus surgery in chronic rhinosinusitis

Supervisors: [Wormald PJ](#), [Psaltis A](#), [Vreugde S](#)

Beula Subashini PANCHATCHARAM MBBS MD(Microbiology)

Effect of toxins of Staphylococcus aureus on the nasal epithelial barrier in chronic sinusitis

Supervisors: [Wormald PJ](#), [Vreugde S](#)

The University of Adelaide International Scholarship

Sathish PARAMASIVAN MBBS BMedSc(Hons)

Microbe-microbe and microbe-host interactions in Chronic Rhinosinusitis

Supervisors: [Vreugde S](#), [Wormald PJ](#), [Psaltis A](#)

The Garnett Passe and Rodney Williams Memorial Foundation Research Scientist Scholarship

Gohar SHAGHAYEGH BSc MDSc

Investigating the relationship between exoprotein production and inflammation in Chronic Rhinosinusitis

Supervisors: [Vreugde S](#)

The Hospital Research Foundation Postgraduate Research Scholarship;
The University of Adelaide Fee scholarship

Santhni SUBRAMANIAM BPharmSc(Honours)

Nanoantibiotics as a drug delivery strategy for intracellular infections

Supervisors: [Prestidge C](#), [Thomas N](#)

University of South Australia President's Scholarship

Chelsea THORN BPharm (Hons)

Infection triggered drug delivery of novel antimicrobial bio-macromolecules

Supervisors: [Thomas N](#), [Prestidge C](#), [Boyd B](#)

University of South Australia Research Training Program Stipend

Jannatul Ferdoush TULI BSc MSc

Effect of bacterial exotoxin on mucosal barrier in Chronic Rhinosinusitis

Supervisors: [Wormald PJ](#), [Ramezanpour M](#)

The University of Adelaide Research Training Program Stipend

Rajan Sundaresan VEDIAPPAN MBBS DLO MSurg(ENT) MA(Organisational Leadership)

Chitosandextran (Chitodex) gel with and without Deferiprone and Gallium Protoporphyrin: wound healing and postoperative outcomes in Chronic Rhinosinusitis

Supervisors: [Wormald PJ](#), [Psaltis A](#), [Vreugde S](#)

The Hospital Research Foundation Postgraduate Scholarship

GROWTH AND REPAIR OF THE SMALL INTESTINE

PhD student

Zenab DUDHWALA BHSc(Hons)

Wnt signalling and postnatal growth of small intestine

Supervisors: [Cummins A](#), [Howarth G](#), [Drew P](#)

The University of Adelaide Research Training Program Stipend

INFLAMMATORY BOWEL DISEASE RESEARCH GROUP

PhD students

Alice DAY APD (Accredited Practising Dietitian)

Diet and Inflammatory Bowel Disease

Supervisors: [Andrews J](#), [Bryant R](#)

The University of Adelaide Research Training Program Stipend

Karmen TELFER BPharm BMBS

The development, maintenance and changes of the gastrointestinal microbiome, and their relationship to Ulcerative Colitis

Supervisors: [Weinstein P](#), [Costello S](#), [Bryant R](#)

Reuben WHEELER BSc(Hons)

Bacteria associated with Ulcerative Colitis stool.

Supervisors: [Mitchell J](#), [Costello S](#), [Bann L](#)

OESOPHAGEAL PHYSIOLOGY GROUP

PhD student

Tom ELDREDGE MBBS

Bile Reflux Post-Bariatric Surgery

Supervisors: [Kiroff G](#), [Shenfine J](#), [Myers JC](#)

Master of Philosophy (Surgery) students

Siang Wei GAN MBBS

Pressure and flow dynamics of the gastro-oesophageal junction after laparoscopic fundoplication

Supervisors: [Kiroff G](#), [Myers JC](#)

Bridget HEIJKOOP MBBS

Extended Thromboprophylaxis post radical prostatectomy: review of efficacy, safety and economic impact

Supervisors: [Kiroff G](#), [Spernat D](#)

SURGICAL SCIENCE RESEARCH GROUP

PhD students

Bimala DHAKAL BSc MSc

Porous silicon nanoparticles as drug delivery system for anti-metastatic therapy

Supervisors: [Maddern G](#), [Drew P](#), [Voelcker NH](#)

Schlumberger Foundation Faculty for the Future Fellowship

Laurine KAUL MPharm & PharmSc

Novel treatments with antibacterial and wound-healing properties

Supervisors: [Richter K](#), [Zannettino A](#), [Suess R](#)

Joint Postgraduate Research Scholarship (The University of Adelaide & Freiburg University, Germany)

Master of Philosophy (Surgery) students

Sean BRIEN MBBS AFRACMA

Surgical perioperative mortality for urological oncological procedures performed in Australia 2001-2015

Supervisor: [Maddern G](#)

RESEARCH STUDENTS 2019

CONTINUING RESEARCH HIGHER DEGREES & HONOURS STUDENTS

Nelson GRANCHI MBBS

Surgical coaching in the outpatient environment - a video-based intervention

Supervisors: [Maddern G](#), [Trochsler M](#), [Breuning M](#)

The University of Adelaide Research Training Program Stipend

Roy ONG MBBS

Factors effecting surgical mortality of head and neck patients in Australia

Supervisors: [Maddern G](#), [Sambrook P](#)

Paul PATINIOTT MBBS

Developing a Hernia Mesh Tissue Integration Index

Supervisors: [Maddern G](#), [Karatassas A](#), [Anthony A](#)

The Hospital Research Foundation Postgraduate Scholarship

Richard SMITH FRACS

Optimising post-operative radiotherapy for retroperitoneal sarcoma

Supervisors: [Maddern G](#), [Neuhaus S](#)

Claire STEVENS MBBS FRACS

Trends and variability in Hepatobiliary Surgery in Australia

Supervisors: [Maddern G](#), [Trochsler M](#)

Edward YOUNG MBBS

Factors influencing the clinical outcomes of emergency general surgery in Australia

Supervisors: [Maddern G](#), [Trochsler M](#)

VASCULAR SURGERY RESEARCH GROUP

PhD student

Guilherme PENA MD Basic Surgical training degree

Predicting outcomes in patients with diabetic foot ulcers

Supervisors: [Fitridge R](#), [Cowled P](#), [Dawson J](#)

The University of Adelaide Research Training Program Stipend (until 3 Feb 2019)

Master of Philosophy (Surgery) student

Beatrice KUANG MBBS

Technological developments in the assessment and management of diabetic foot ulcers

Supervisors: [Fitridge R](#), [Cowled P](#)

The University of Adelaide Research Training Program Stipend

VIROLOGY GROUP

Honours

Emerance ISHIMWE BSc MClinNursing

Vaccination studies to elicit non-canonical neutralising antibodies to HIV

Supervisors: [Gowans E](#), [Grubor-Bauk B](#), [Wijesundara D](#)

Virology Group

The University of Adelaide

UNIVERSITY OF SOUTH AUSTRALIA

THERAPEUTICS RESEARCH CENTRE

PhD students

Sadikalmahdi ABDELLA MSc (ClinPharmacy)

Development of novel topical products for treatment of skin and musculoskeletal disorders

Supervisors: [Roberts M](#), [Mackenzie L](#), [Williams D](#)

The Hospital Research Foundation Postgraduate Scholarship; University of South Australia President's Fee Scholarship

Tadesse ABEGAZ MSc (ClinPharmacy)

Toxicokinetics and Adverse Health Outcomes of Common Exogenous Substances

Supervisors: [Roberts M](#), [Mackenzie L](#), [Williams D](#), [Suppiah V](#)

University of South Australia President's Scholarship (UPS)

Ali Khaled Abdel Rahman ALSHABRAWY BPharmSc

Analysis, drug delivery and pharmacokinetics of endocrine and other drugs

Supervisors: [Roberts MS](#), [Anderson P](#), [Reuter Lange S](#), [Williams D](#)

Research Training Program International (RTPi) Scholarship

Lemlem GEBREMICHAEL MSc (Pharmacology)

Pharmacokinetics of drugs and drug response in at risk patients

Supervisors: [Roberts MS](#), [Mackenzie L](#)

University of South Australia President's Scholarship (UPS)

Muhammad Suleman KHAN MMedBiol(Sweden) MPhil(Clinical Epidemiology) Australia

Optimising therapies in vulnerable patients - a pharmacokinetic approach

Supervisors: [Roberts M](#), [Mackenzie L](#)

University of Queensland Postgraduate Research Scholarship

Sean MANGION BBiomed Research (Hons)

Developing better treatment strategies for non-healing wounds

Supervisors: [Roberts MS](#), [Holmes A](#), [Kempson I](#), [Mackenzie L](#), [Weightman W](#), [Grice J](#)

University of South Australia Research Training Program Stipend

Shuping QIANG BPharm MPharm analysis

Quantification, pharmacokinetics and efficacy of drug poisoning treatment

Supervisors: [Roberts M](#), [Mackenzie L](#)

University of South Australia President's Scholarship (UPS)

GRANTS 2019



\$4,798,094
NHMRC

\$5,612,619
PEER REVIEWED

\$3,788,506
THRF

\$141,667
NON-PEER

NHMRC grants

**Peer reviewed grants
(excluding NHMRC and THRF)**

The Hospital Research Foundation

**Non-peer reviewed externally
funded grants**

Grants commencing in 2020

NHMRC GRANTS 2019

\$4,798,094

BHI BASED RESEARCHERS ARE IN **BOLD**

GRANT RECIPIENTS	GRANTING BODY FUNDING PERIOD	PROJECT TITLE	REVENUE 2019 TYPE OF GRANT	TOTAL GRANT FUNDING
Buchbinder R, Maher C, March L, Day R, Hinman R, Harris I, Ferreira M, Glasziou P, Green S, Billot L	NHMRC CRE with Monash Jul 2018 - Jun-2021	ANZ Musculoskeletal Trials Network	132,840 Practitioner Fellow: Dr Sam Whittle	398,520
Tieu J	NHMRC 2017-2019	Optimising therapy in ANCA-associated Vasculitis	45,000 Postgraduate Research Scholarship	119,187
Lipman J, Roberts J, Myburgh J, Peake SL , Dulhunty J, Paterson D, McGuinness S, Rhodes A, De Waele J, Finfer S	NHMRC 1121481 2017-2021	BLING III: A phase III randomised controlled trial of continuous beta-lactam infusion compared with intermittent beta-lactam dosing in critically ill patients	653,989 Project Grant	3,269,943
Beltrame JF, Tavella R, Zeitz C , Spertus J, Arstall M, Worthley M, Chew D	NHMRC 1150036 2018-2021	Value-Based Healthcare in Elective Coronary Stenting	267,122 Partnership grant	1,220,111
Chapman M, Peake SL , Dean A, O'Connor	NHMRC 1078026 2015-2019	The Augmented versus Routine approach to Giving Energy Trial (TARGET)	622,000 Project Grant	3,696,854
Stevenson A, Solomon M, Hewett P , Lumley J, Fleshman J, Clouston A, Hague W	NHMRC 1078113 2015-2019	A La CaRT: Australasian Laparoscopic Cancer of the Rectum Trial. A phase III prospective randomised trial comparing laparoscopic-assisted resection versus open resection for rectal cancer	121,722 Project Grant	573,259
Visvanathan R , Hill K, Ranasinghe D, Lange K, Wilson A	NHMRC 1082197 2016-2019	Effectiveness of an Ambient Intelligence Geriatric Management system to prevent falls in older people in hospitals: a clinical trial	Time extension only Project Grant	1,646,080
Hodge S, Zalewski P , Roscioli E	NHMRC 1099040 2016-2019	Exploiting increased autophagy in bronchial epithelial cells: a new therapeutic approach for chronic obstructive pulmonary disease (COPD)	248,463 Centres of Research Excellence - Clinical	745,390
Roberts JA, Lipman J, Peake S , Turnidge J, Slavin M, Hopkins P, Bulitta J, Paul S, De Waele J, Joynt G	NHMRC 1099452 2016-2020	Centre for REdefining antibiotic use to reDUce resistanCE and prolong the lives of antibiotics (REDUCE)	431,659 Centres of Research Excellence - Health Services	2,158,296
Visvanathan R , Karnon J, Kitson A, Beilby J, Cameron I, Chehade M, Bell S, Feist H	NHMRC 1102208 2016-2020	Frailty Trans-Disciplinary Research To Achieve Healthy Ageing	370,262 Project Grant	2,301,169
Aitken D, Jones G, Cicuttini F, Winzenberg T, Keen H Al: Hill C	NHMRC 1147370 2018-2020	DICKENS - A randomised controlled trial of DilaCerein to treat KneE osteoarthritis with effusioN-Synovitis. This is a multicenter study with TQEH as one of 4 recruiting centres	0 Project Grant	0
Roberts M	NHMRC 1107356 2016-2020	Research Fellowship	170,396 Fellowship	851,980
Ritchie R, Horowitz J , Kemp-Harper B, Du XJ, Chirkov Y	NHMRC 1120859 2017-2019	Therapeutic Approaches to Circumvent NO• Resistance in the Type 2 Diabetic Heart and Vasculature	67,000 Project	576,743
Khaw K	NHMRC 1133707 2017-2019	Fragility fractures and outcomes in older people	21,683 Postgraduate Research Scholarship	86,733

NHMRC GRANTS 2019

\$4,798,094

GRANT RECIPIENTS	GRANTING BODY FUNDING PERIOD	PROJECT TITLE	REVENUE 2019 TYPE OF GRANT	TOTAL GRANT FUNDING
Zalewski P , Hodge S, Beltrame J , Murgia C, Tavella R	NHMRC 1138917 2018-2020	Role for zinc and ZIP2 in the action of nitric oxide and in vascular protection against cigarette smoke and cardiovascular disease	268,000 Project Grant	685,941
Sallustio B , Evdokiou A, Horowitz J	NHMRC 1145776 2018-2020	Prevention of Heart Damage during anthracycline cancer	109,071 Project Grant	327,214
Wormald PJ , Vreugde S	NHMRC 1153663 2019-2021	A novel medicated surgical hydrogel to prevent epidural adhesions post-laminectomy	161,798 Project Grant	522,607
Forster S, Lawley T, Costello S	NHMRC 1156333 2019-2021	Characterisation of mobile antimicrobial resistance in human gastrointestinal microbiota	50,000 Project Grant	878,108
Ramsay R, Worthley D, Heriot A, Narasimhan V, Tie J, Woods S, Price T , Graham T, Hewett P , Grandori C	NHMRC 1156391 2019-2023	From the Stone Age to the State of the Art – Multidimensional Precision Medicine for Peritoneal Colorectal cancer	0 Project Grant	1,399,877
Stanton N, Moseley G, Hill CL , Ratcliffe J, Smuck M, Tomkins-Lane C	NHMRC 1161634 2019-2021	Targeting unhelpful pain beliefs to promote physical activity in people with knee osteoarthritis: a multi-centre, randomised controlled trial with cost-effectiveness analysis	398,752 Project Grant	1,196,257
Richter K	NHMRC 1163634 2019-2022	Maximising the effectiveness of antimicrobial treatments for infection control after surgery	104,298 NHMRC CJ Martin Biomedical Early Career Research Fellowship	417,192
Vreugde S , Psaltis A , Prestidge C, Thomas N	NHMRC 1164562 2019-2021	Maximising the antimicrobial and anti-inflammatory performance of next generation therapeutics for Chronic Rhinosinusitis	208,596 Project Grant	767,389
Grzeskowiak L, Amir L, Smithers L, Jacobs S, Ingman W , Grivell R	NHMRC 1165457 2019-2021	OPTimising Mothers' Own Milk supply in the neonatal unit – enhancing breast milk supply with Domperidone in mothers of preterm infants (OPTIMOM-D)	300,000 Project Grant	980,000
Chong CR	NHMRC/Heart Foundation 1162356 2019-2022	Novel strategy to prevent cardiovascular complications in diabetes: the role of poly(ADP-ribose) polymerase-1 inhibition	45,443 Peter Doherty Biomedical Early Career Researcher Fellowship	327,193

PEER REVIEWED GRANTS (EXCLUDING NHMRC AND THRF) 2019

\$5,612,619

BHI BASED RESEARCHERS ARE IN **BOLD**

GRANT RECIPIENTS	GRANTING BODY FUNDING PERIOD	PROJECT TITLE	REVENUE 2019 (AUD) TYPE OF GRANT	TOTAL GRANT FUNDING
Rao Kadam V, Van Wijk R, Moran J, Williams P, Thiruvengkatarajan V	ANZCA Trials Group 2017-2019	Comparison of Trans-muscular Quadratus Lumborum (TQL) block catheter technique with surgical pre-peritoneal catheter for postoperative analgesia in abdominal surgery	14,000 Novice	14,000
Davis C, Hill C, Murphy K, Ruediger C	Arthritis Australia 2019	Comparison of dietary oils in osteoarthritis patients: a feasibility study	15,000 Small grant	15,000
Soebarto V, Pisaniello D, Zuo J, Williamson T, Hansen A, Visvanathan R	Australian Research Council 2018-2020	Improving thermal conditions in housing to support ageing in place	137,667 Discovery grant	413,000
Maddern G, Granchi N	Avant Foundation 2019	A comprehensive video based coaching program for continuing surgical services improvement - design, efficacy, assessment and clinical implementation	100,000 Project	100,000
Symonds E, Young GP, Young JP	Cancer Australia APP 1161720 1 June 2019 - 31 Aug 2022	Evaluation of blood-based screening tests for colorectal neoplasia; from biomarker candidates to accurate and acceptable tests	80,000 Priority-driven Collaborative Cancer Research Scheme 2018	500,000
Price T, Holden C, Poprawski D, Roder D, Ratcliffe J, Turnbull D, Buckley E, Singhal N, Wichmann M	Cancer Council SA 2019	Does ageism prevail in access to multidisciplinary cancer care?	67,350 No Australians Dying of Bowel Cancer Initiative: Translational Research Package	134,700
Worthley D, Hewett P	Cancer Council SA Beat Cancer 1167836 2019-2021	Australian trial of Peritoneal Organoid guided therapy to Lengthen Life in patients without Opportunity for cure (APOLLO2)	127,550 Translational Research package	382,650
Maddern G, Fenix K	Cancer Council Beat Cancer 2019-2020	Construction of the South Australian Liver Tissue-Biobank (SALT) for discovery and development of prognostic biomarkers of colorectal cancer liver metastasis	100,000 Infrastructure grant	100,000
Wijesundara D, Gowans E, Robertson S, Grubor-Bauk B, Shrestha A	Channel 7 Children's Research Foundation/ THRF 2019-2020	A pre-clinical evaluation of an innovative DNA based vaccination regimen to protect women of childbearing age against the Zika virus during sexual transmission	120,000 Project grant	240,000
Grubor-Bauk B, Prow N, Robertson SA, Hayball J, Wijesundara D, Gowans E	Channel 7 Children's Research Foundation/ THRF 2019-2020	Maternal immunisation with a novel Zika vaccine to protect offspring from congenital Zika syndrome	200,000 Project grant	200,000
Wormald PJ, Vreugde S	Cystic Fibrosis-South Australia 2018-2020	A new treatment for cystic fibrosis chronic relapsing upper airway infections	30,000 Project	60,000
Wormald PJ, Vreugde S	Cure4CF 2018-2020	A new treatment for cystic fibrosis chronic relapsing upper airway infections	0 Project	27,000
Keijzers G, McDonald S, Williams J, Fraser J, Peake S, Delaney A, Taylor D, Jones P, Williams P	Emergency Medicine Foundation 2018-2019	Fluid Resuscitation in Emergency patients with Sepsis and Hypotension	96,018 Queensland Research Program	96,018
Maddern G, Trochler M, Tivey D, Vreugdenburg T	Federal Office of Public Health, Health and Accident Insurance, Benefits, Department of Health Technology Assessment, Switzerland 2018-2020	HTA Framework Agreement	900,000 Project	2,800,000

PEER REVIEWED GRANTS (EXCLUDING NHMRC AND THRF) 2019

\$5,612,619

GRANT RECIPIENTS	GRANTING BODY FUNDING PERIOD	PROJECT TITLE	REVENUE 2019 (AUD) TYPE OF GRANT	TOTAL GRANT FUNDING
Ma L, Liang Q, Hauben E, Fenix K	Flinders Innovation Partnership Seed Grants Scheme 2018-2019	Study of bioactivity of Hengshan Astragalus Shiitake as biological response modifiers in cancer therapy	26,104 Seed Grant	125,000
Wormald PJ, Vreugde S	Garnett Passe and Rodney Williams Memorial Foundation 2019-2021	A novel treatment for S. aureus recalcitrant Chronic Rhinosinusitis	125,000 Conjoint grant	375,000
Krishnan S	Garnett Passe and Rodney Williams Memorial Foundation 2018-2019	Magnetic Nanotechnology For Diagnostics and Guided Therapeutics in Oral Cancer	35,000 Academic Surgeon Scientist Research Scholarship	70,000
Paramasivam S	Garnett Passe and Rodney Williams Memorial Foundation 2018-2019	Host-Microbe interactions in Chronic Rhinosinusitis	10,000 Academic Surgeon Scientist Research Scholarship	70,000
Boyd M, Schubert KO, Clark SR, Gail M, Harding D, McMichael G, Baune B, Beckwith A, Shaw D, Tse E	Gilead Sciences 2019-2021	Eplusa (sofosbuvir/velpatasvir) in people living with severe, enduring mental illness and chronic viral hepatitis C infection	30,000 Investigator initiated project	951,122
Wesselingh S, Visvanathan R, Whitehead C, Russell P, Daniel M, Roder D, Stanley A, Griffith L, Karnon J, Miller C, Phillips P, Denson L, Ward L, Gill T, Ratcliffe J, Walters J, Kerrins E	Government, SA 2017-2020	Measuring and Intervening for Healthy Ageing In South Australia - R Visvanathan component: Frailty In Residential Sector Over Time (FIRST) Study	200,000 Premier's Research and Industry Fund Research Consortia Program	4,000,000
Graham C	Hans-Jürgen & Marianne Ohff 2019	Schwann cell differentiation of Tasmanian devil dental pulp stem cells	4,700 Research Grant to study or do fieldwork at a German-speaking university or research institute	4,700
Ranasinghe I	Heart Foundation 101186 2017-2020	Observing Recurrent Incidence of Adverse Outcomes following HospitalisationNs (ORION)	130,000 Future Leader Fellowship	520,000
Clark SR, Toben C, Jawahar C, Symon J, Mills N	HSCG Board Mar 2019 - June 2020	To investigate the association of complement, oxidative and inflammatory markers and BDNF with cognitive and general function in chronic psychosis	10,061 Clinical Project	40,242
Clark SR, Schubert KO, Liu D, Galletly C	Janssen-Cilag Australia 2020-2021	Impact of Relapse in Schizophrenia Study (IRISS)	299,969 Investigator initiated	299,969
Frenneaux M, Speakman J, Zanda M, Horowitz J, Feelisch M, Dawson D, Welch A, Brittenden J, Redpath T, Selman C, Madhani M	Medical Research Council UK 2011-2019	Therapeutic aspects of nitrite supplementation	Time extension only Program	3,500,000 AUD

PEER REVIEWED GRANTS (EXCLUDING NHMRC AND THRF) 2019

\$5,612,619

GRANT RECIPIENTS	GRANTING BODY FUNDING PERIOD	PROJECT TITLE	REVENUE 2019 (AUD) TYPE OF GRANT	TOTAL GRANT FUNDING
Hillier S, Kleinig T, Koblar S, Jannes J, Khadka J, Dixon K, Martin B, Hamilton-Bruce A, Milton A	Medical Research Future Fund via South Australian Academic Health Science and Translation Centre (The SA Centre) 2018-2019	Acting fast to increase time-critical stroke treatments to all South Australians	196,000 Rapid Applied Research Translation for Health Impact Grants	196,000
Moretti K, O'Callaghan M, Walsh S, Kopsaftis T	Movember Foundation March 2019 - June 2020	SA Prostate Cancer Outcomes Registry	130,000 Project	130,000
Moretti K, O'Callaghan M, Vincent A, Beckmann K, Smith D, Mark S, Frydenberg M, Evans S, Clarke J, Walsh S, Kopsaftis T, Evans M, Merry D	Movember Foundation 2019 - 2020	Predicting Urinary Incontinence and Erectile Dysfunction after Prostate Cancer Surgery	0 Project	90,000
Pasupathy S	National Heart Foundation 2019	Support to attend the European Society of Cardiology Congress 2019 to present "MINOCA - unravelling the enigma"	5,000 Travel Award: Doreen Susan Champion Travel Grant	5,000
Pasupathy S	National Heart Foundation – South Australian Division 2019	Support for MINOCA Data Collection in the Coronary Angiogram Database of South Australia (CADOSA)	15,000 Tom Simpson Trust Fund Equipment Grant	15,000
Ranasinghe I	National Heart Foundation 2019	Contribution of Physician and Device to CIED Complications	160,000 Project	160,000
Johnson G, Abramson M, Dooley M, Bonevski B, Veale A, Webb A	Pfizer 2018-2019	Varenicline And Nicotine replacement therapy for Smokers admitted to Hospitals (VANISH)	138,900 Global Research Awards for Nicotine Dependence (GRAND)	200,000 USD
Karatassas A	RACS Foundation for Surgery 2019	Developing a hernia mesh tissue integrated index	10,000 Small Project Grant	10,000
Clark SR, Toben C, Jawahar C, Symon J, Mills N	RAH Research Committee MyIP Ref: 10946 Mar 2019 - June 2020	To investigate the association of complement, oxidative and inflammatory markers and BDNF with cognitive and general function in chronic psychosis	10,061 Clinical Project Grant	40,242
Clark SR, Toben C, Baune BT	RAH Research Committee MyIP Ref: 9754 2017-2019	Patterns of gene expression in chronic psychosis associated with cognitive and general function	24,944 Clinical Project	49,888
Eldredge TA	Royal Australasian College of Surgeons (RACS) 2018-2019	Bile Reflux Post-Bariatric Surgery - A Cohort Study	66,000 RP Jepson Scholarship	66,000
Maddern G, Price T, Young J, Hewett P, Hardingham J, Worthley D, White D, Mulligan D	SAHMRI/Beat Cancer/ The Hospital Research Foundation 2014-2019 fys	Individualised Risk Assessment and Therapeutic Intervention for Colorectal Cancer in the South Australian Population	150,000 Project	750,000

PEER REVIEWED GRANTS (EXCLUDING NHMRC AND THRF) 2019

\$5,612,619

GRANT RECIPIENTS	GRANTING BODY FUNDING PERIOD	PROJECT TITLE	REVENUE 2019 (AUD) TYPE OF GRANT	TOTAL GRANT FUNDING
Dhakal B	Schlumberger Foundation 2018-2020	The immune cell compartment in colorectal liver metastasis	74,000 Faculty for the Future Fellowship (International PhD Scholarship)	150,000 USD
Ahip SS, Visvanathan R, Shariff S, Theou O	The Ministry of Health Malaysia 2017-2019	The Malaysian Pictorial Fit-Frail Scale (M-PFFS): Development and Testing of Feasibility, Validity and Reliability in Malaysia	83,500 National Institutes of Health Research Grant (MTG)	282,400 MYR
Evdokiou A	The University of Adelaide 2018-2021	New Immunotherapeutic approaches targeting incompletely resected or inoperable tumours	25,000 FHMS leverage support for THRF project	75,000
Grubor-Bauk B, Wijesundara WK, Gowans EJ	The University of Adelaide/THRF 2019	A novel vaccine against Zika virus	200,000 Commercial Accelerator Scheme	200,000
Grubor-Bauk B	The University of Adelaide/THRF 2019	Research support Fellowship	60,000 Barbara Kidman Fellowship	60,000
Hill CL, Rischmueller M, March L	University of Sydney Jul 2017 - June 2020	The Australian Arthritis and Autoimmune Biobank Collaborative (A3BC)	50,000 Project	150,000
Kopeki Z, Grubor-Bauk B, Wijesundara D, Fenix K, Cowin A	University of South Australia 2018-2019	Identify a diagnostic marker for psoriasis	28,619 New Adventures Fund grant	28,619
Thomas N, Ogunniya D, Kopecki Z, Prestidge C, Cowin A	University of South Australia 2019 - 2020	Resensitising resistant bacteria against antibiotics: giving new power to failing medicines	40,000 Research Theme Investment Scheme	40,000
Polak S, Patel N, Jamei M, Clarke J, Arora S, Martins F, Salem F, Abdulla T, Barnett A, Su Y, Crouzet N, Roberts MS	US-FDA 2018-2020	Characterization of key system parameters of mechanistic dermal PBPK models in various skin diseases and performance verification of the model using observed local and systemic concentrations	101,465 FDA Project	140,000 USD
Roberts M, Liu X, Grice J, Mohammad Y, Medley G, Cheruvu H, Alinaghi A, van der Hoek J, Paolac S, Nikunjikumar P, Sumit A, Abdula T, Wragg K, Clarke J, Frash H, Assimov Y, Cronin M, Maibach H, Chen T, Pope K	US FDA 1U01FD006522 University of Queensland Sept 2018 - Sept 2020	Formulation Drug Product Quality Attributes in Dermal Physiologically-Based Pharmacokinetic Models for Topical Dermatological Drug Products and Transdermal Delivery Systems	367,485 FDA Project	500,000 USD
Roberts M, Anissimov Y, Benson H, Hussain MY, Lehmann P, Medley G, Namjoshi S, Leite de Silva V, Windbergs M, Walters K, Mahima H	US-FDA 1U01FD005226-01 2014-2019	Characterisation of critical quality attributes for semisolid topical drug products	360,750 FDA Project	1,499,500 USD
Roberts M, Mohammad Y, Grice J, Namjoshi S, Laita Silva V, Benson H, Chen T, Maibach H, Roberts D, Lian G, Wu C-Y, Alinaghi A, Ladermann J, Cronin M, Assimov Y, Frash H, van der Hoek J, Xu Z, Patzelt A	US-FDA 1U01FD006496 University of South Australia Sept 2018 - Sept 2023	Bioequivalence of topical products: elucidating the thermodynamic and functional characteristics of compositionally different topical formulations	367,485 FDA Project	1,250,000 USD

THE HOSPITAL RESEARCH FOUNDATION 2019

\$3,788,506

BHI BASED RESEARCHERS ARE IN **BOLD**

GRANT RECIPIENTS	FUNDING PERIOD	PROJECT TITLE	REVENUE 2019 TYPE OF GRANT	TOTAL GRANT FUNDING
Appleton S, Adams R, Beltrame J	2018-2019	Broken Sleep – Broken Heart?: Longitudinal follow-up of cardiovascular and cognitive outcomes in middle aged and older men in North-West Adelaide	73,500 Project	147,000
Beltrame J, Zeitz C, Lindahl B	2017-2020	Potential mechanisms and treatment of post-infarct Angina in patients with Myocardial Infarction in Non Obstructive Coronary Arteries (MINOCA)	240,000 Translational	750,000
Costello S, Bryant R	2018-2019	BiomeBank establishment	50,000 Establishment	100,000
Evdokiou A	2016-2019	Michell McGrath Breast Cancer Research Fellowship	250,000 Michell-McGrath Breast Cancer Fellowship	750,000
Evdokiou A 2019-15-83100	1 Jul 2018 - 30 June 2021	New immnuotherapeutic approaches targeting breast cancer development, progression and metastatic spread	125,000 Michell-McGrath Breast Cancer Fellowship	750,000
Evdokiou A, Zinonos I	2018-2021	New Immunotherapeutic approaches targetting incompletely resected or inoperable tumours	75,000 Project	225,000
Fenix K	2018-2020	Using Tissue-Resident T cells to develop new prognostics and treatments against bowel cancer	120,000 Early Career Researcher	240,000
Fenix K, Maddern G	26 Aug 2019 - 25 Aug 2020	Construction of the SA Liver Tissue-Biobank (SALT) for discovery and development of prognostic biomarkers of colorectal cancer liver metastasis	25,000 Matched funding (Beat Cancer grant)	100,000
Fitridge R, Bursill C, Nicholls S	1 July 2018 - 30 Sept 2019	Evaluation of the topical application of high-density lipoproteins on wound healing in patients with diabetic foot ulcers: a phase 1/2 clinical trial	150,000 BioMed City Project	250,000
Gupta AD	2018-2020	Efficacy of Botulinum toxin A on Walking and Quality of Life in Post-Stroke Lower Limb Spasticity- a randomized double blind placebo controlled Study	35,000 Project	105,000
Hill CL, Rischmeuller M, March L	2017-2020	The Australian Arthritis and Autoimmune Biobank Collaborative (A3BC)	70,000 Project	233,118
Ingman W	1 Jul 2016 - 30 June 2019	THRF Breast Cancer Research Fellowship	100,000 Associate Professor in Breast Cancer Research Fellowship	600,000
Ingman W 2019-16-83100	1 Jul 2019 - 30 June 2022	Towards zero deaths from breast cancer	225,000 Associate Professor in Breast Cancer Research Fellowship	750,000
Koblar S, Jannes J, Hamilton-Bruce MA, Kleinig T, Milton A	2018-2019	Stroke prevention and recovery	45,000 Cure for Stroke Australia grant	90,000
Maddern G	1 Aug 2019 - 31 July 2020	A comprehensive video-based coaching program for continuing surgical improvement -design, efficacy assessment and clinical implementation	35,000 Project	84,000

THE HOSPITAL RESEARCH FOUNDATION 2019

\$3,788,506

GRANT RECIPIENTS	FUNDING PERIOD	PROJECT TITLE	REVENUE 2019 TYPE OF GRANT	TOTAL GRANT FUNDING
Maddern G, Price T, Young J, Hewett P, Hardingham J, Worthley D, White D, Mulligan D	2014-2019	Individualised risk assessment and therapeutic intervention for colorectal cancer in the South Australian population	150,000 Joint SAHMRI Beat Cancer and THRF Project	750,000
Ngo THL	2018-2021	Outcomes of catheter ablation for treatment of atrial Fibrillation in Australia: a population-wide study	32,000 PhD Scholarship	112,000
Ranasinghe I, Gallagher M, Scott I	2018-2019	Safety, effectiveness of care and resource use among Australian hospitals (SAFER HOSPITALS)	125,000 Translational	250,000
Richter K	2018-2020	Improving effectiveness of infection control after surgery	120,000 Early Career Research consumable funding	240,000
Shaghayegh G	2018-2021	Investigating the relationship between exoprotein production and inflammation in CRS	32,000 PhD Scholarship	112,000
Srestha A	2017-2019	The development of novel cytolytic DNA vaccine which elicits cellular immunity to conserved viral proteins	120,000 Early Career Researcher	240,000
Stallman H	2018-2021	Improving sleep and coping in inpatients to improve clinical outcomes and reduce hospital readmissions	160,000 Mid-Career Fellowship	480,000
Taylor D	2017-2020	Inequalities in neighborhood Accessibility: Implications for Frailty and Healthy Ageing	140,000 Mid Career Fellowship	420,000
Thomas N	2018-2021	A Trojan Horse strategy for antimicrobial biologicals	180,000 Mid-Career Fellowship	540,000
Townsend A, Hardingham J, Tomita Y, Yool A, Price T, Evdokiou A	2017-2019	Preclinical investigation of the efficacy of novel aquaporin1 inhibitors in preventing growth and metastasis of breast cancer	85,000 ABCR Elcombe Breast Cancer Fellowship	255,000
Townsend A, Hardingham J, Tomita Y, Price T	2019-2021	Continuation of 'Preclinical investigation of the efficacy of novel aquaporin1 inhibitors in preventing growth and metastasis of breast cancer'	60,000 Strategic	120,000
Vediappan R	2018-2020	Chitosan dextran (Chitogel) with and without Deferiprone and Gallium Protoporphryn: wound healing and postoperative outcomes in Chronic Rhinosinusitis	32,000 PhD Scholarship	112,000
Visvanathan R	2016-2020	Frailty to achieve healthy ageing	125,000 CRE Challenge funding	625,000
Whittle S	2018-2021 fys	Australia & New Zealand Musculoskeletal Trials Network (ANZMUSC)	50,000 Practitioner Fellowship - NHMRC CRE Fellowship Leverage funding	150,000
Wormald PJ, Maddern G, Vreugde S	2018-2020	A novel medicated resorbable adhesion barrier device for use in abdominal surgery	75,000 Development	150,000

THE HOSPITAL RESEARCH FOUNDATION 2019

\$3,788,506

GRANT RECIPIENTS	FUNDING PERIOD	PROJECT TITLE	REVENUE 2019 TYPE OF GRANT	TOTAL GRANT FUNDING
Wormald PJ, Vreugde S, Saleh H	Jul 2018 - Jun 2020	A new treatment for cystic fibrosis chronic relapsing upper airway infections	100,000 Translational	250,000
Young J, Price TJ	2019-2020	Personal and family history of Type 2 Diabetes and Colorectal Cancer risk in young adults	30,000 Strategic	30,000
Various	2019	THRF Vacation, Honours and Postgraduate Research Scholarships	204,506 Strategic Research Directions	212,200
Basil Hetzel Institute	2019	Infrastructure support	147,500 Strategic Research Directions	147,500
Basil Hetzel Institute	2019	Equipment Support	160,000 Strategic Research Directions	160,000
Basil Hetzel Institute	2019	Career and research skills training support for research staff and Postgraduate students (attendance at workshops, conference dinners, posters, conference travel awards, TQEH Research Expo)	42,000 Strategic Research Directions	42,000

NON-PEER REVIEWED EXTERNALLY FUNDED GRANTS 2019

\$141,667

BHI BASED RESEARCHERS ARE IN **BOLD**

CHIEF INVESTIGATOR	DEPARTMENT/ORGANISATION NAME	SOURCE TYPE (EG FEDERAL GOVERNMENT, STATE GOVERNMENTS, PHARMA, NON- GOVERNMENT)	REVENUE 2019
Gupta AD	Neurology / Rehabilitation Medicine	Allergan Australia (in kind - Botulinum toxin)	26,667
Gupta AD	Neurology / Rehabilitation Medicine	Investigator Initiated Trial Grant	40,000
Maddern G , Patiniott P, Karatassas A	The University of Adelaide Discipline of Surgery TQEH	GORE (in kind - Gore mesh for mesh tissue integration index project)	75,000



Dr Makutiro Masavuli
THRF Early Career Research Fellow,
Virology Group

GRANTS COMMENCING IN 2020

\$2,139,749

BHI BASED RESEARCHERS ARE IN **BOLD**

GRANT RECIPIENTS	GRANTING BODY FUNDING PERIOD	PROJECT TITLE	REVENUE 2020 TYPE OF GRANT	TOTAL GRANT FUNDING
Hill C, Black R	Arthritis Australia 2020	Development of a patient reported outcome measure (PROM) for glucocorticoid impact in Rheumatic Diseases	15,000 Project grant	15,000
Black R	Australian Rheumatology Association 2020	Reassessing the mortality gap in Rheumatoid Arthritis in Australia	50,000 Barbara Cameron Research Fellowship	
Grubor-Bauk B, Prow N, Robertson S, Hayball J, Gowans E, Wijesundara D	Channel 7 Children's Research Foundation & THRF 2020	Maternal immunisation with a novel Zika vaccine to protect offspring from congenital Zika syndrome	200,000 Project	200,000
Kremer K, Hamilton-Bruce A, Koblar S, Gancheva M	Cure for Stroke 2020	Treatment of Stroke – Translational Project	22,500 Project	22,500
Hamilton-Bruce A, Koblar K, Young J, Hazel S	Cure for Stroke 2020-2021	DOgSS - Dogs Offering Support after Stroke	15,000 Project Grant	15,000
Psaltis AJ, Ramezanzpour M, Vreugde S	Garnett Passe and Rodney Williams Memorial Foundation 2020-2022	A personalised therapeutic plan for S. aureus recalcitrant CRS	120,788 Conjoint grant	362,363
Clark SR, Schubert KO, Liu D, Galletly C	Janssen-Cilag Australia 2020-2021	Impact of Relapse in Schizophrenia Study (IRISS)	299,969 Investigator initiated	299,969
Maddern G, Inacio M, Visvanathan R, Karnon J	MRFF 2020-2022	Mobile X-ray services provided within residential aged care facilities	630,000 MRFF Targeted Health System and Community Organisation Research Project	1,970,000
Vreugde S, Wormald PJ, Parsons D, Donnelley M	NFMRI 2020-2021	A novel treatment for Non-Tuberculous Mycobacteria lung infections in people with cystic fibrosis	87,500 Barbara Stow-Smith CF Innovation grant	175,000
Wormald PJ, Vreugde S, Maddern G	NHMRC APP1171756 2020-2022	A novel medicated resorbable adhesion barrier device for use in abdominal surgery	317,960 Development	953,800
Vreugde S, Wormald PJ, Parsons D, Donnelley M	THRF 2019-052-83100 1 Dec 2019-31 Oct 2021	A novel treatment for Non-Tuberculous Mycobacteria lung infections in people with cystic fibrosis	15,000 Matched funding	30,000
Grubor-Bauk B	THRF 2020-2022	Neutralizing the menace of Zika virus	160,000 Mid Career Research Fellowship	480,000
Masavuli M	THRF 2020-2021	Hepatitis C Virus (HCV) challenge in vaccinated HCV-permissive transgenic mice	120,000 Early Career Research Fellowship	240,000
Holmes A	THRF 2020-2021	Postpartum infections: Development of novel prevention and treatment strategies for postpartum vaginal and perineal infections	76,000 Early Career Research Fellowship	152,000
Condina M, Klingler-Hoffmann M, Plush S, Hoffmann P, Licari G, Pasupathy S, Tavella R, Beltrame JF	University of South Australia 2020	Is it dangerous to be different? Discovering mechanisms of patients with Myocardial Infarction with nonobstructive Coronary Arteries (MINOCA)	38,012 RTIS Research Themes Investment Scheme	38,012

GRANTS COMMENCING IN 2020

\$2,139,749

GRANT RECIPIENTS	GRANTING BODY FUNDING PERIOD	PROJECT TITLE	REVENUE 2020 TYPE OF GRANT	TOTAL GRANT FUNDING
Hamilton-Bruce A, Koblar K, Jannes J, Kleinig T	Waltham Estate / Health Services Charitable Gifts Board (HSCGB) 2020-2021	FAST-IT - Find A Simple Test In TIA (Transient Ischaemic Attack) – Proteomics biomarker project	12,500 Project	12,500
Hamilton-Bruce A, Noschka E, Koblar S, Jannes J, Kleinig T	Waltham Estate / HSCGB 2020-2021	FAST-IT - Find A Simple Test In TIA (Transient Ischaemic Attack) – Lipidomics biomarkers	7,500 Project	

BY ADMINISTRATIVE UNIT

Aged and Extended Care Services, TQEH

Anaesthesia, Department of TQEH

Cardiology Unit / Cardiovascular
Pathophysiology and Therapeutics
Group, TQEH

Clinical Pharmacology Unit, TQEH

Endocrinology Unit, TQEH

Gastroenterology and Hepatology Unit,
TQEH

Haematology and Medical Oncology,
Department of, TQEH

Intensive Care Unit, TQEH

Medicine, The University of Adelaide,
Discipline of

Neurology Unit, TQEH

Psychiatry, The University of Adelaide,
Discipline of

Rehabilitation Medicine, TQEH

Respiratory Medicine Unit, TQEH

Rheumatology Unit, TQEH

University of Adelaide Discipline of
Surgery ENT

Therapeutics Research Centre,
University of South Australia

AGED AND EXTENDED CARE SERVICES, TQEH

1. Afzali H, Karnon J, Theou O, Beilby J, Cesari M, Visvanathan R. Structuring a conceptual model for cost effectiveness analysis of frailty interventions. *PLoS ONE*. 2019;14(9), e0222049. doi:10.1371/journal.pone.0222049.
2. Ambagtsheer R, Beilby J, Visvanathan R, Dent E, Yu S, Braunack-Mayer A. Should we screen for frailty in primary care settings? A fresh perspective on the frailty evidence base: A narrative review. *Preventive Medicine*. 2019;119,63-69. doi:10.1016/j.ypmed.2018.12.020.
3. Ambagtsheer R, Visvanathan R, Dent E, Yu S, Schultz T, Beilby J. Commonly used screening instruments to identify frailty among community-dwelling older people in a general practice (primary care) setting: a study of diagnostic test accuracy. *The journals of gerontology. Series A, Biological Sciences and Medical Sciences*. 2019. doi:10.1093/gerona/glz260.
4. Bikdeli B, Visvanathan R, Jimenez D, Monreal M, Goldhaber S, Bikdeli B. Use of prophylaxis for prevention of venous thromboembolism in patients with isolated foot or ankle surgery: A systematic review and meta-analysis. *Thrombosis & Haemostasis*. 2019 Aug. doi:10.1055/s-0039-1693464.
5. Cusack L, Wiechula R, Schultz T, Dollard J, Maben J. Anticipated advantages and disadvantages of a move to 100% single-room hospital in Australia. A case study. *J Nurs Mang*. 2019;27(5): 963-970.
6. Datta Gupta A, Visvanathan R, Cameron ID, Koblar S, Howell S, Wilson D. Efficacy of Botulinum Toxin A in Modifying Spasticity to Improve Walking and Quality of Life in Post-Stroke Lower Limb Spasticity - a Randomized Double-blind Placebo Controlled Study. *BMC Neurology*. 2019 May 11;19(1):96.
7. Dent E, Hoogendijk E, Visvanathan R, Wright O. Malnutrition screening and assessment in hospitalised older people: a review. *Journal of Nutrition, Health and Aging*. 2019;23(5), 431-441. doi:10.1007/s12603-019-1176-z.
8. Harvey G, Dollard J, Marshall A, Mittinty MM. Creating the right sort of ship to achieve integrated care. A response to recent commentaries. *Int J Health Policy Manag*. 2019;8(5): 317-318. doi:10.15171/ijhpm.2019.04.
9. Hendrix I, Page A, Korhonen M, Bell J, Tan E, Visvanathan R, Cooper T, Robson L, Sluggett J. Patterns of high-dose and long-term proton pump inhibitor use: A cross-sectional study in six South Australian residential aged care services. *Drugs Real World Outcomes*. 2019 Sep;6(3):105-113.
10. Huang YC, Lei RL, Lei RW, Ibrahim F. An exploratory study of dignity in dementia care. *Nurs Ethics*. 2019 Jun 17: 969733019849458. doi:10.1177/0969733019849458.
11. Inacio MC, Visvanathan R, Lang CE, Amare A, Harrison SL, Wesselingh S. Pain in Older Australians Seeking Aged Care Services: Findings From the Registry of Older South Australians (ROSA). *J Am Med Dir Assoc*. 2019 Mar 6. pii: S1525-8610(19)30154-9. doi:10.1016/j.jamda.2019.01.127 [Epub ahead of print].
12. Inacio M, Bray S, Whitehead C, Corlis M, Visvanathan R, Evans K, Griffith E, Wesselingh S. Registry of Older South Australians (ROSA): framework and plan. *BMJ Open*. 2019 Jun;9(6):e026319.
13. Jadczak AD, Visvanathan R. Anorexia of Aging - An Updated Short Review. *J Nutr Health Aging*. 2019;23(3):306-309.
14. Jadczak A, Visvanathan R. The sustained impact of a medical school-based physical activity module on interns' perceived competence in advising older adults about exercise. *The Journal of Frailty & Aging*. 2019;1-3. doi:10.14283/jfa.2019.39.
15. Jayatilaka A, Dang Q, Chen S, Visvanathan R, Fumeaux C, Ranasinghe D. Designing batteryless wearables for hospitalized older people. In *Proceedings - International Symposium on Wearable Computers*. 2019;91-95. online: ACM. doi:10.1145/3341163.3347740.
16. Khadka J, Visvanathan R, Theou O, Wesselingh S, Inacio M. Development and Validation of a National Frailty Index. *Journal of the American Geriatrics Society*. 2019; Vol. 67:S147. Portland, OR: Wiley.
17. Martins B, Jadczak A, Dollard J, Barrie H, Marahajan N, Tam K, Visvanathan R. The self-perceived importance and competence of 5th year medical students in assessing, diagnosing and managing frailty before and after a geriatric medicine course. *The Australian and New Zealand Society for Geriatric Medicine Annual Scientific Meeting*, Adelaide, Australia, Volume: Australasian Journal on Ageing, 2019; 38 Suppl 1: 58.
18. Martins B, Visvanathan R, Barrie H, Huang C, Matsushita E, Okada K, Satake S, Uno C, Kuzuya M. Frailty prevalence using Frailty Index, associated factors and level of agreement among frailty tools in a cohort of Japanese older adults. *Archives of Gerontology and Geriatrics*. 2019; 84, 8 pages. doi:10.1016/j.archger.2019.103908.
19. Mohd Nawi S, Khaw K, Lim W, Yu S. Screening tools for sarcopenia in community-dwellers: A scoping review. *Annals of the Academy of Medicine, Singapore*. 2019 Jul;48(7):201-216.
20. Sluggett J, Lalic S, Hosking S, Ilomaki J, Shortt T, McLoughlin J, Yu S, Cooper T, Robson L, Van Dyk E, Visvanathan R, Bell J. Root cause analysis of fall-related hospitalisations among residents of aged care services. *Aging-Clinical & Experimental Research*. 2019 Nov; doi:10.1007/s40520-019-01407-z.
21. Soebarto V, Bennetts H, Hansen A, Zuo J, Williamson T, Pisaniello D, van Hoof J, Visvanathan R. (2019). Living environment, heating-cooling behaviours and well-being: Survey of older South Australians. *Building and Environment*. 2019;157, 215-226.
22. Taylor D, Barrie H, Lange J, Thompson M, Theou O, Visvanathan R. Geospatial modelling of the prevalence and changing distribution of frailty in Australia – 2011 to 2027. *Experimental Gerontology*. 2019;123, 57-65.
23. Theou O, Andrew M, Ahip S, Squires E, McGarrigle L, Blodgett J, Goldstein J, Hominick K, Godin J, Hougau G, Armstrong J, Wallace L, Szalina S, Moorhouse P, Fay S, Visvanathan R, Rockwood K. The Pictorial Fit-Frail Scale: Developing a visual scale to assess frailty. *Canadian Geriatrics Journal*. 2019 Jun;22(2):64-74.
24. Thompson MQ, Theou O, Tucker GR, Adams R, Visvanathan R. Recurrent Measurement of Frailty Is Important for Mortality Prediction: Findings from the North West Adelaide Health Study. *J Am Geriatr Soc*. 2019 Jul 18. doi:10.1111/jgs.16066.
25. Visvanathan R, Ranasinghe D, Wilson A, Lange K, Dollard J, Boyle E, Karnon J, Raygan E, Maher S, Ingram K, Pazhvoor S, Hoskins S, Hill K. Effectiveness of an ambient intelligent geriatric management system (AmblGeM) to prevent falls in older people in hospitals: protocol for the AmblGeM stepped wedge pragmatic trial. *Injury Prevention*. 2019 Jun;25(3):157-165.

26. Visvanathan R, Amare A, Wesselingh S, Hearn R, McKechnie S, Mussared J, Inacio M. Prolonged wait time prior to entry to home care packages increases the risk of mortality and transition to permanent residential aged care services: findings from the Registry of Older South Australians (ROSA). *Journal of Nutrition, Health and Aging*. 2019;23(3), 271-280.
27. Yadav L, Gill TK, Taylor A, Jasper U, De Young J, Visvanathan R, Chehade MJ. Cocreation of a digital patient health hub to enhance education and person-centred integrated care post hip fracture: a mixed-methods study protocol. *BMJ Open*. 2019;9(12): e033128.
28. Yadav L, Haldar A, Jasper U, Taylor A, Visvanathan R, Chehade M, Gill T. Utilising digital health technology to support patient -healthcare provider communication in fragility fracture recovery: systematic review and meta-analysis. *International Journal of Environmental Research and Public Health*. 2019;16(20), 4047-1-4047-22.
29. Zanker J, Scott D, Reijnierse EM, Brennan-Olsen SL, Daly RM, Girgis CM, Grossmann M, Hayes A, Henwood T, Hirani V, Inderjeeth CA, Iuliano S, Keogh JWL, Lewis JR, Maier AB, Pasco JA, Phu S, Sanders KM, Sim M, Visvanathan R, Waters DL, Yu SCY, Duque G. Establishing an Operational Definition of Sarcopenia in Australia and New Zealand: Delphi Method Based Consensus Statement. *J Nutr Health Aging*. 2019;23(1):105-110.

ANAESTHESIA, DEPARTMENT OF, TQEH

1. Loadman J, Craigie M. Clinical assessment of pain and its measurement and reporting for research: A state of discomfort. *Anaesthesia & Intensive Care*. 2019; 47(5):411-412.
2. Rao Kadam V, Ludbrook G, van Wijk RM, Hewett PJ, Moran JL, Thiruvankatarajan V, Williams PJ. Comparison of ultrasound-guided transmuscular quadratus lumborum block catheter technique with surgical pre-peritoneal catheter for postoperative analgesia in abdominal surgery: a randomised controlled trial. *Anaesthesia*. 2019 Nov;74(11):1381-1388.
3. Rao Kadam V. Inadvertent intravenous transverse abdominis plane block (TAP) bolus dose- case report and anatomy of epigastric vessels in relation to TAP block. *Indian Journal of Anaesthesia*. 2019 May;63(5):406-408.
4. Rao Kadam V, Van Wijk RMAW, Ludbrook GL, Thiruvankatarajan V. Anatomical and ultrasound description of two transmuscular quadratus lumborum block approaches at L2 level and their application in abdominal surgery. *Anaesth Intensive Care*. 2019 Mar;47(2):141-145.
5. Rao Kadam V. Inhalation Insufflation Technique with Local Anaesthetic Spray without Intubation and Opioids for Paediatric Upper Airway Surgery - Observational Case Series Study. *The Open Anaesthesia Journal*. 2019;13: 44-46.
6. Thiruvankatarajan V, Lee JY, Sembu M, Watts R, Van Wijk R. Effects of esmolol on QTc interval changes during tracheal intubation: a systematic review. *BMJ Open*. 2019 Apr;9(4):e028111.
7. Thiruvankatarajan V, Meyer E, Nanjappa N, Van Wijk R, Jesudason D. Perioperative diabetic ketoacidosis associated with sodium-glucose co-transporter-2 inhibitors: a systematic review. *Br J Anaesth*. 2019 Jul;123(1):27-36.

8. Thiruvankatarajan V, Sim J, Emmerson R, Tong D, Liu W, Van Wijk R, Currie J. Predictors of early pharyngolaryngeal complications with cuffed supraglottic airway devices: A prospective observational study. *Journal of Clinical Anesthesia*. 2019 Oct. doi:10.1016/j.jclinane.2019.09.008.
9. Thiruvankatarajan V, Wood R, Watts R, Curie J, Wahba M, Van Wijk R. The intraoperative use of non-opioid adjuvant analgesic agents: A survey of anaesthetists in Australia and New Zealand. *BMC Anesthesiology*. 2019 Oct;19 (1), 188.

CARDIOLOGY UNIT / CARDIOVASCULAR PATHOPHYSIOLOGY AND THERAPEUTICS GROUP, TQEH

1. Ajaero CN, Ganesan A, Horowitz JD, McGavigan AD. Electrical remodelling post cardiac resynchronization therapy in patients with ischemic and non-ischemic heart failure. *J Electrocardiol*. 2019 Mar - Apr;53:44-51.
2. Ajaero C, Procter N, Chirkov Y, Heresztyn T, Arstall M, McGavigan A, Frenneaux M, Horowitz JD. Endothelial dysfunction and glycocalyx shedding in heart failure: insights from patients receiving cardiac resynchronisation therapy. *Heart & Vessels*. 2019 Aug. doi:10.1007/s00380-019-01481-3.
3. Cammann VL, Sarcon A ...Horowitz JD et al. Clinical Features and Outcomes of Patients With Malignancy and Takotsubo Syndrome: Observations From the International Takotsubo Registry. *J Am Heart Assoc*. 2019 Aug 6;8(15):e010881. doi:10.1161/JAHA.118.010881.
4. D'Ascenzo F, Gili S, Bertaina M...Horowitz JD et al. Impact of aspirin on takotsubo syndrome: a propensity score-based analysis of the InterTAK Registry. *Eur J Heart Fail*. 2019 Dec 20. doi:10.1002/ehfj.1698.
5. Gili S, Cammann V, Schlossbauer S...Horowitz JD et al. Cardiac arrest in takotsubo syndrome: results from the InterTAK Registry. *European Heart Journal*. 2019 Jul; 40 (26), 2142-2151.
6. Grech M, Turnbull DA, Wittert GA, Tully PJ; CHAMPS Investigators, including Horowitz JD, Beltrame J. Identifying the Internalizing Disorder Clusters Among Recently Hospitalized Cardiovascular Disease Patients: A Receiver Operating Characteristics Study. *Front Psychol*. 2019 Dec 17;10:2829.
7. Horowitz JD, Chong CR. Matrix metalloproteinase-2 activation: critical to myocardial contractile dysfunction following ischemia-reperfusion. *Cardiovasc Res*. 2019 Dec 4. pii: cvz271. doi:10.1093/cvr/cvz271. [Epub ahead of print], Editorial.
8. Imam H, Nguyen T, De Caterina R, Nooney V, Chong C-R, Horowitz JD, Chirkov Y. Impaired adenylate cyclase signaling in acute myocardial ischemia: Impact on effectiveness of P2Y<inf>12</inf> receptor antagonists. *Thrombosis Research*. 2019 Sep; 181:92-98.
9. Jurisic S, Gili S, Cammann VL... Horowitz JD et al. Clinical Predictors and Prognostic Impact of Recovery of Wall Motion Abnormalities in Takotsubo Syndrome: Results From the International Takotsubo Registry. *J Am Heart Assoc*. 2019 Nov 5;8(21):e011194.
10. Iyngkaran P, Chan W, Liew D, Zamani J, Horowitz JD, Jelinek M, Hare DL, Shaw JA. Risk stratification for coronary artery disease in multi-ethnic populations: Are there broader considerations for cost efficiency? *World J Methodol*. 2019 Jan 18;9(1):1-19.

11. [Liu S](#), [Horowitz JD](#). Interactions between Influenza and Heart Failure Hospitalizations-Diagnostic and Pathogenetic Issues. *JAMA Cardiol*. 2019 volume 4, number 9, 949.
12. [Nguyen TH](#), [Heresztyn T](#), [Horowitz JD](#). Risk indexation and atrial fibrillation. *Aging (Albany NY)*. 2019 Mar 28;11(6):1607-1608.
13. [Nguyen TH](#), [Stansborough J](#), [Ong GJ](#), [Surikow S](#), [Price TJ](#), [Horowitz JD](#). Antecedent cancer in Takotsubo syndrome predicts both cardiovascular and long-term mortality. *Cardio-Oncology*. 2019; 5:20.
14. [Ntessalen M](#), [Procter N](#), [Schwarz K](#), [Loudon B](#), [Minnion M](#), [Fernandez B](#), [Vassiliou V](#), [Vauzour D](#), [Madhani M](#), [Constantin-Teodosiu D](#), [Horowitz JD](#), [Feelisch M](#), [Dawson D](#), [Crichton P](#), [Frenneaux M](#). Inorganic nitrate and nitrite supplementation fails to improve skeletal muscle mitochondrial efficiency in mice and humans. *American Journal of Clinical Nutrition*. 2019 Oct; doi:org/10.1093/ajcn/nqz245.
15. [Ong G](#), [Nguyen T](#), [Stansborough J](#), [Surikow S](#), [Mahadavan G](#), [Worthley M](#), [Horowitz JD](#). The N-AcetylCysteine and RAMipril in Takotsubo Syndrome Trial (NACRAM): Rationale and design of a randomised controlled trial of sequential N-AcetylCysteine and RAMipril for the management of Takotsubo Syndrome. *Contemporary Clinical Trials*. 2019 Nov. doi:10.1016/j.cct.2019.105894.
16. [Qin C](#), [Anthonisz J](#), [Leo C](#), [Kahlberg N](#), [Velagic A](#), [Li M](#), [Jap E](#), [Woodman O](#), [Parry L](#), [Horowitz JD](#), [Kemp-Harper B](#), [Ritchie R](#). NO* resistance, induced in the myocardium by diabetes, is circumvented by the no* redox sibling, nitroxyl. *Antioxid Redox Signal*. 2019 Nov; doi:10.1089/ars.2018.7706.
17. [Roberts G](#), [Chong C-R](#), [Quinn S](#), [Cameron-Collins S](#), [Forbes H](#), [Johnson J](#), [Kitto L](#), [Marotti S](#), [Nguyen H](#), [Reid S](#), [Sullivan C](#), [Spyrou N](#), [Wierenga L](#), [Wisdom A](#). Evaluation of the effect of direct oral anticoagulant availability on hospital presentations for bleeding related to oral anticoagulation in South Australia. *Journal of Pharmacy Practice and Research*. 2019 Dec; doi:10.1002/jppr.1567.
18. [Washam J](#), [Hohnloser S](#), [Lopes R](#), [Wojdyla D](#), [Vinereanu D](#), [Alexander J](#), [Gersh B](#), [Hanna M](#), [Horowitz J](#), [Hylek E](#), [Xavier D](#), [Verheugt F](#), [Wallentin L](#), [Granger C](#), [ARISTOTLE Committees and Investigators](#). Interacting medication use and the treatment effects of apixaban versus warfarin: results from the ARISTOTLE Trial. *Journal of Thrombosis & Thrombolysis*. 2019 Feb doi:org/10.1007/s12399-019-01823-y.
19. [Wischnewsky M](#), [Candrea A](#), [Bacchi B](#), [Cammann V](#)...[Nguyen T](#), ... [Horowitz JD](#) et al. Prediction of short - and long-term mortality in Takotsubo Syndrome: the InterTAK Prognostic Score. *European Journal of Heart Failure*. Nov 2019; 21 (11), 1469-1472.

CLINICAL PHARMACOLOGY, TQEH

1. [Hu R](#), [Barratt D](#), [Coller J](#), [Sallustio B](#), [Somogyi A](#). Effect of tacrolimus on dispositional genetics on acute rejection in first two weeks and estimated glomerular infiltration rate in the first three months following kidney transplantation. *Pharmacogenetics and Genomics*. 2019 Jan;29(1) 9:17.
2. [Sallustio B](#), [Noll B](#), [Coller J](#), [Tuke J](#), [Russ G](#), [Somogyi A](#). Relationship between allograft cyclosporin concentrations and P-glycoprotein expression in the 1st month following renal transplantation. *British Journal of Clinical Pharmacology*. 2019 May; 85(5):1015-1020.

ENDOCRINOLOGY UNIT, TQEH

1. [Bracken K](#), [Hague W](#), [Keech A](#), [Conway A](#), [Handelsman DJ](#), [Grossmann M](#), [Jesudason D](#), [Stuckey B](#), [Yeap BB](#), [Inder W](#), [Allan C](#), [McLachlan R](#), [Robledo KP](#), [Wittert G](#). Recruitment of men to a multi-centre diabetes prevention trial: an evaluation of traditional and online promotional strategies. *Trials*. 2019 Jun 19;20(1):366. doi:10.1186/s13063-019-3485-2.
2. [De Sousa SMC](#), [Jesudason D](#). Rebound vertebral and non-vertebral fractures during denosumab interruption in a postmenopausal woman. *Clin Endocrinol (Oxf)*. 2019 Jan;90(1):250-252.
3. [Thiruvankatarajan V](#), [Meyer E](#), [Nanjappa N](#), [Van Wijk R](#), [Jesudason D](#). Perioperative diabetic ketoacidosis associated with sodium-glucose co-transporter-2 inhibitors: a systematic review. *Br J Anaesth*. 2019 Jul;123(1):27-36.
4. [Young JP](#), [Symonds EL](#), [Jesudason D](#), [Poplawski N](#), [Ruszkiewicz A](#), [Uylaki W](#), [Horsnell ME](#), [Smith E](#), [Drew P](#), [Hardingham J](#), [Palethorpe HM](#), [Rico GT](#), [Dainik P](#), [Wong S](#), [Tomita Y](#), [Vatandoust S](#), [Townsend A](#), [Roder D](#), [Parry S](#), [Young GP](#), [Tomlinson I](#), [Wittert GA](#), [Price TJ](#). Increased Prevalence of Type 2 Diabetes in Young Onset Colorectal Cancer. *Gastroenterology*. 2019;156(6):S676-S677.
5. [Thiruvankatarajan V](#), [Meyer E](#), [Jesudason D](#). Euglycaemic diabetic ketoacidosis associated with sodium-glucose cotransporter-2 inhibitors: New Drugs bring new problems. *Australasian Anaesthesia*. Pp 251-64. Published by ANZCA 2019.

GASTROENTEROLOGY AND HEPATOLOGY UNIT, TQEH

1. [Biswas S](#), [Bryant RV](#), [Travis S](#). Interfering with leukocyte trafficking in Crohn's disease. *Best Pract Res Clin Gastroenterol*. 2019 Feb - Apr;38-39:101617.
2. [Bryant RV](#), [Schultz CG](#), [Ooi S](#), [Goess C](#), [Costello SP](#), [Vincent AD](#), [Schoeman S](#), [Lim A](#), [Bartholomeusz FD](#), [Travis SPL](#), [Andrews JM](#). Visceral Adipose Tissue Is Associated With Stricturing Crohn's Disease Behavior, Fecal Calprotectin, and Quality of Life. *Inflamm Bowel Dis*. 2019 Feb 21;25(3):592-600.
3. [Bryant R](#), [Schultz C](#), [Ooi S](#), [Goess C](#), [Costello S](#), [Vincent A](#), [Schoeman S](#), [Lim A](#), [Bartholomeusz F](#), [Travis S](#), [Andrews J](#). Authors' reply: The association between visceral adipose tissue and stricturing Crohn's disease behavior, fecal calprotectin and quality of life. *Inflammatory Bowel Diseases*. 2019 May 25; (6):e62-e63.
4. [Bryant RV](#), [Costello SP](#). Editorial: assessing histological disease activity in Crohn's disease-a call for standardisation of mucosal biopsy location. *Aliment Pharmacol Ther*. 2019 Jul;50(1):103-104.
5. [Cammarota G](#), [Ianiro G](#), [Kelly CR](#), [Mullish BH](#), [Allegretti JR](#), [Kassam Z](#), [Putignani L](#), [Fischer M](#), [Keller JJ](#), [Costello SP](#), [Sokol H](#), [Kump P](#), [Satokari R](#), [Kahn SA](#), [Kao D](#), [Arkkila P](#), [Kuijper EJ](#), [Vehreschild MJG](#), [Pintus C](#), [Lopetuso L](#), [Masucci L](#), [Scaldeferri F](#), [Terveer EM](#), [Nieuwdorp M](#), [López-Sanromán A](#), [Kupcinkas J](#), [Hart A](#), [Tilg H](#), [Gasbarrini A](#). International consensus conference on stool banking for faecal microbiota transplantation in clinical practice. *Gut*. 2019 Dec;68(12):2111-2121.
6. [Chande N](#), [Costello SP](#), [Limketkai BN](#), [Parker CE](#), [Nguyen TM](#), [Macdonald JK](#), [Feagan BG](#). Alternative and Complementary Approaches for the Treatment of Inflammatory Bowel Disease: Evidence From Cochrane Reviews. *Inflamm Bowel Dis*. 2019 Sep 27. pii: izz223. doi:10.1093/ibd/izz223.

7. [Costello S](#), [Bryant R](#). Faecal microbiota transplantation in Australia: bogged down in regulatory uncertainty. *Internal Medicine Journal*. 2019 Feb 49(2):148-151.
8. [Costello S](#), [Hughes P](#), [Waters O](#), [Bryant R](#), [Vincent A](#), [Blatchford P](#), [Katsikeros R](#), [Makanyanga J](#), [Campaniello M](#), [Mavrangelos C](#), [Rosewarne C](#), [Bickley C](#), [Peters C](#), [Schoeman M](#), [Conlon M](#), [Roberts-Thomson J](#), [Andrews J](#). Effect of fecal microbiota transplantation on 8-week remission in patients with ulcerative colitis: A randomized clinical trial. *JAMA*. 2019 Jan; 321(2):156-164.
9. [Costello S](#), [Conlon M](#), [Andrews J](#). Fecal microbiota transplantation for ulcerative colitis-Reply. *JAMA*. 2019 Jun; 321(22):2240-2241.
10. [Dudhwala Z](#), [Drew P](#), [Howarth G](#), [Moore D](#), [Cummins A](#). Active beta-catenin signaling in the small intestine of humans during infancy. *Digestive Diseases & Sciences*. 2019 01;64(1):76-83.
11. [Kopecki Z](#), [Yang G](#), [Treloar S](#), [Mashtoub S](#), [Howarth GS](#), [Cummins AG](#), [Cowin AJ](#). Flightless I exacerbation of inflammatory responses contributes to increased colonic damage in a mouse model of dextran sulphate sodium-induced ulcerative colitis. *Sci Reports*. 2019 Sep;9:12797.
12. [Kuijper EJ](#), [Allegretti J](#), [Hawkey P](#), [Sokol H](#), [Goldenberg S](#), [Ianiro G](#), [Gasbarrini A](#), [Kump P](#), [Costello SP](#), [Keller J](#), [Vehreschild MJGT](#). A necessary discussion after transmission of multidrug-resistant organisms through faecal microbiota transplantations. *Lancet Infect Dis*. 2019 Nov;19(11):1161-1162.
13. [Noble A](#), [Durant L](#), [Hoyles L](#), [McCartney AL](#), [Man R](#), [Segal J](#), [Costello SP](#), [Hendy P](#), [Reddi D](#), [Bouri S](#), [Lim DNF](#), [Pring T](#), [O'Connor MJ](#), [Datt P](#), [Wilson A](#), [Arebi N](#), [Akbar A](#), [Hart AL](#), [Carding SR](#), [Knight SC](#). Deficient Resident Memory T-Cell and Cd8 T-Cell Response to Commensals in Inflammatory Bowel Disease. *J Crohns Colitis*. 2019 Oct 26. doi:10.1093/ecco-jcc/jjz175.
14. [Oakland K](#), [Kahan B](#), [Guizzetti L](#), [Martel M](#), [Bryant R](#), [Brahmania M](#), [Singh S](#), [Nguyen N](#), [Sey M](#), [Barkun A](#), [Jairath V](#). Development, validation, and comparative assessment of an international scoring system to determine risk of upper gastrointestinal bleeding. *Clinical Gastroenterology and Hepatology*. 2019 May;17(6):1121-1129.e2.
15. [Papanicolas LE](#), [Choo JM](#), [Wang Y](#), [Leong LEX](#), [Costello SP](#), [Gordon DL](#), [Wesselingh SL](#), [Rogers GB](#). Bacterial viability in faecal transplants: Which bacteria survive? *EBioMedicine*. 2019 Mar;41:509-516.
16. [Ramachandran J](#), [Kaambwa B](#), [Muller K](#), [Haridy J](#), [Tse E](#), [Tilley E](#), [Altus R](#), [Waddell V](#), [Gordon D](#), [Shaw D](#), [Huynh D](#), [Stewart J](#), [Nelson R](#), [Warner M](#), [Boyd MA](#), [Chinnaratha MA](#), [Harding D](#), [Ralton L](#), [Colman A](#), [Woodman R](#), [Wigg AJ](#). Cost effectiveness of treatment models of care for hepatitis C: the South Australian state-wide experience. *Eur J Gastroenterol Hepatol*. 2019 Dec 31. doi:10.1097/MEG.0000000000001659.
17. [Roberts-Thomson IC](#), [Bryant RV](#), [Costello SP](#). Uncovering the cause of ulcerative colitis. *JGH Open*. 2019 Aug;3(4):274-276.
18. [Selvanderan S](#), [Goldblatt F](#), [Nguyen N](#), [Costello S](#). Faecal microbiota transplantation for *Clostridium difficile* infection resulting in a decrease in psoriatic arthritis disease activity. *Clinical and Experimental Rheumatology*. 2019 May-Jun;37(3):514-515.
19. [Wardill H](#), [Secombe K](#), [Bryant R](#), [Hazenbergh M](#), [Costello S](#). Adjunctive fecal microbiota transplantation in supportive oncology: Emerging indications and considerations in immunocompromised patients. *EBioMedicine*. 2019 Jun;44:730-740.

HAEMATOLOGY AND MEDICAL ONCOLOGY DEPARTMENT, TQEH

1. [Canon J](#), [Rex K](#), [Saiki AY](#), [Mohr C](#), [Cooke K](#), [Bagal D](#), [Gaida K](#), [Holt T](#), [Knutson CG](#), [Koppada N](#), [Lanman BA](#), [Werner J](#), [Rapaport AS](#), [San Miguel T](#), [Ortiz R](#), [Osgood T](#), [Sun JR](#), [Zhu X](#), [McCarter JD](#), [Volak LP](#), [Houk BE](#), [Fakih MG](#), [O'Neil BH](#), [Price TJ](#), [Falchook GS](#), [Desai J](#), [Kuo J](#), [Govindan R](#), [Hong DS](#), [Ouyang W](#), [Henary H](#), [Arvedson T](#), [Cee VJ](#), [Lipford JR](#). The clinical KRAS(G12C) inhibitor AMG 510 drives anti-tumour immunity. *Nature*. 2019 Nov;575(7781):217-223.
2. [Chong LC](#), [Townsend AR](#), [Young J](#), [Roy A](#), [Piantadosi C](#), [Hardingham JE](#), [Roder D](#), [Karapetis C](#), [Padbury R](#), [Maddern G](#), [Moore J](#), [Price TJ](#). Outcomes for Metastatic Colorectal Cancer Based on Microsatellite Instability: Results from the South Australian Metastatic Colorectal Cancer Registry. *Target Oncol*. 2019 Feb;14(1):85-91.
3. [Chong LC](#), [Karapetis C](#), [Roy A](#), [Padbury R](#), [Price TJ](#). Authors' Reply to Yu: "Outcomes for Metastatic Colorectal Cancer Based on Microsatellite Instability: Results from the South Australian Metastatic Colorectal Cancer Registry". *Target Oncol*. 2019 Apr 24;14:367-368.
4. [De Ieso ML](#), [Pei JV](#), [Nourmohammadi S](#), [Smith E](#), [Chow PH](#), [Kourghi M](#), [Hardingham JE](#), [Yool AJ](#). Combined pharmacological administration of AQP1 ion channel blocker AqB011 and water channel blocker Bacopaside II amplifies inhibition of colon cancer cell migration. *Sci Rep*. 2019 Sep 2;9(1):12635.
5. [Guccione L](#), [Gough K](#), [Drosowsky A](#), [Fisher K](#), [Price T](#), [Pavakis N](#), [Khasraw M](#), [Wyld D](#), [Ransom D](#), [Kong G](#), [Rogers M](#), [Leyden S](#), [Leyden J](#), [Michael M](#), [Schofield P](#). Defining the supportive care needs and psychological morbidity of patients with functioning versus nonfunctioning neuroendocrine tumors: Protocol for a Phase 1 Trial of a Nurse-Led Online and Phone-Based Intervention. *JMIR Research Protocols*. 2019;8(12):e14361.
6. [Holden C](#), [Poprawski D](#), [Singhal N](#), [Buckley E](#), [Caruso J](#), [Wichmann M](#), [Price T](#). A systematic scoping review of determinants of multidisciplinary cancer team access and decision-making in the management of older patients diagnosed with colorectal cancer. *Journal of Geriatric Oncology*. 2019 Nov. doi:10.1016/j.jgo.2019.11.002.
7. [Li M](#), [Olver I](#), [Keefe D](#), [Holden C](#), [Worthley D](#), [Price T](#), [Karapetis C](#), [Miller C](#), [Powell K](#), [Buranyi-Trevarton D](#), [Fusco K](#), [Roder D](#). Pre-diagnostic colonoscopies reduce cancer mortality - results from linked population-based data in South Australia. *BMC Cancer*. 2019 Aug; 19(1):856.
8. [McGregor M](#), [Price TJ](#). Moving miRNAs to therapeutic targets in colorectal cancer. *EBioMedicine*. 2019 May 3. doi:10.1016/j.ebiom.2019.04.051.
9. [Nakhjavani M](#), [Hardingham J](#), [Palethorpe H](#), [Tomita Y](#), [Smith E](#), [Price T](#), [Townsend A](#). Ginsenoside Rg3: Potential molecular targets and therapeutic indication in metastatic breast cancer. *Medicines*. 2019 Jan;6(17).
10. [Nakhjavani M](#), [Hardingham JE](#), [Palethorpe HM](#), [Tomita Y](#), [Smith E](#), [Price TJ](#), [Townsend AR](#). Ginsenoside Rg3: Potential Molecular Targets and Therapeutic Indication in Metastatic Breast Cancer. *Medicines (Basel)*. 2019 Jan 23;6(1).
11. [Nakhjavani M](#), [Hardingham JE](#), [Palethorpe HM](#), [Price TJ](#), [Townsend AR](#). Druggable Molecular Targets for the Treatment of Triple Negative Breast Cancer. *J Breast Cancer*. 2019 Sep;22(3):341-361.

12. [Nakhjavani M](#), [Palethorpe HM](#), [Tomita Y](#), [Smith E](#), [Price TJ](#), [Yool AJ](#), [Pei JV](#), [Townsend AR](#), [Hardingham JE](#). Stereoselective Anti-Cancer Activities of Ginsenoside Rg3 on Triple Negative Breast Cancer Cell Models. *Pharmaceuticals (Basel)*. 2019 Aug 1;12(3).
13. [Nguyen TH](#), [Stansborough J](#), [Ong GJ](#), [Surikow S](#), [Price TJ](#), [Horowitz JD](#). Antecedent cancer in Takotsubo syndrome predicts both cardiovascular and long-term mortality. *Cardio-Oncology*. 2019; 5:20.
14. [Palethorpe HM](#), [Smith E](#), [Tomita Y](#), [Nakhjavani M](#), [Yool AJ](#), [Price TJ](#), [Young JP](#), [Townsend AR](#), [Hardingham JE](#). Bacopasides I and II Act in Synergy to Inhibit the Growth, Migration and Invasion of Breast Cancer Cell Lines. *Molecules*. 2019 Sep; 30;24(19).
15. [Pires da Silva I](#), [Glitz I](#), [Haydu L...](#) [Roberts-Thomson R et al](#). Incidence, features and management of radionecrosis in melanoma patients treated with cerebral radiotherapy and anti-PD-1 antibodies. *Pigment Cell and Melanoma Research*. 2019 Feb 15;1(11).
16. [Price T](#), [Shen L](#), [Ma B](#), [Esser R](#), [Chen W](#), [Gibbs P](#), [Lim R](#), [Cheng A](#). Phase II APEC trial: The impact of primary tumor side on outcomes of first-line cetuximab plus FOLFOX or FOLFIRI in patients with RAS wild-type metastatic colorectal cancer. *Asia-Pacific Journal of Clinical Oncology*. 2019 Aug;15 (4), 225-230.
17. [Smith E](#), [Tomita Y](#), [Palethorpe H](#), [Howell S](#), [Nakhjavani M](#), [Townsend A](#), [Price T](#), [Young J](#), [Hardingham J](#). Reduced aquaporin-1 transcript expression in colorectal carcinoma is associated with promoter hypermethylation. *Epigenetics: Official Journal of the DNA Methylation Society*. 2019 Feb;14(2):158-170.
18. [Tapia Rico G](#), [Price T](#), [Tebbutt N](#), [Hardingham J](#), [Lee C](#), [Buizen L](#), [Wilson K](#), [Gebiski V](#), [Townsend A](#). Right or left primary site of colorectal cancer: Outcomes from the molecular analysis of the AGITG MAX Trial. *Clinical Colorectal Cancer*. 2019 Jun;18(2):141-148.
19. [Tie J](#), [Cohen J](#), [Wang Y](#), [Li L](#), [Christie M](#), [Simons K](#), [Elsaleh H](#), [Kosmider S](#), [Wong R](#), [Yip D](#), [Lee M](#), [Tran B](#), [Rangiah D](#), [Burge M](#), [Goldstein D](#), [Singh M](#), [Skinner I](#), [Faragher I](#), [Croxford M](#), [Bampton C](#), [Haydon A](#), [Jones I](#), [S Karapetis C](#), [Price T](#), [Schaefer M](#), [Ptak J](#), [Dobbyn L](#), [Silliman N](#), [Kinde I](#), [Tomasetti C](#), [Papadopoulos N](#), [Kinzler K](#), [Volgestein B](#), [Gibbs P](#). Serial circulating tumour DNA analysis during multimodality treatment of locally advanced rectal cancer: A prospective biomarker study. *Gut*. 2019 Apr;68(4): 663-671.
20. [Tomita Y](#), [Palethorpe H](#), [Smith E](#), [Nakhjavani M](#), [Townsend A](#), [Price T](#), [Yool A](#), [Hardingham J](#). Bumetanide-derived Aquaporin 1 inhibitors, AqB013 and AqB050 inhibit tube formation of endothelial cells through induction of apoptosis and impaired migration in vitro. *International Journal of Molecular Sciences*. 2019 Apr;20(8).
21. [Tsuchimochi M](#), [Yamaguchi H](#), [Hayama K](#), [Okada Y](#), [Kawase T](#), [Suzuki T](#), [Tsubokawa N](#), [Wada N](#), [Ochiai A](#), [Fujii S](#), [Fujii H](#). Imaging of metastatic cancer cells in sentinel lymph nodes using affibody probes and possibility of a theranostic approach. *International Journal of Molecular Sciences*. 2019 Jan;20(2).
22. [Wells JC](#), [Tu D](#), [Siu LL](#), [Shapiro JD](#), [Jonker DJ](#), [Karapetis C](#), [Simes J](#), [Liu G](#), [Price TJ](#), [Tebbutt NC](#), [O'Callaghan CJ](#). Outcomes of Older Patients (≥ 70 Years) Treated With Targeted Therapy in Metastatic Chemorefractory Colorectal Cancer: Retrospective Analysis of NCIC CTG CO.17 and CO.20. *Clin Colorectal Cancer*. 2019 Mar;18(1):e140-e149.
23. [Young JP](#), [Symonds EL](#), [Jesudason D](#), [Poplawski N](#), [Ruszkiewicz A](#), [Uylaki W](#), [Horsnell ME](#), [Smith E](#), [Drew P](#), [Hardingham J](#), [Palethorpe HM](#), [Rico GT](#), [Dainik P](#), [Wong S](#), [Tomita Y](#), [Vatandoust S](#), [Townsend A](#), [Roder D](#), [Parry S](#), [Young GP](#), [Tomlinson I](#), [Wittert GA](#), [Price TJ](#). Increased Prevalence of Type 2 Diabetes in Young Onset Colorectal Cancer. *Gastroenterology*. 2019;156(6):S676-S677.

INTENSIVE CARE UNIT, TQEH

1. [Abraham J](#), [Sinnollareddy M](#), [Roberts M](#), [Williams P](#), [Peake S](#), [Lipman J](#), [Roberts J](#). Plasma and interstitial fluid population pharmacokinetics of vancomycin in critically ill patients with sepsis. *International Journal of Antimicrobial Agents*. 2019 Feb;53(2):137-142.
2. [Chapple L](#), [Weinel L](#), [Ridley E](#), [Jones D](#), [Chapman M](#), [Peake S](#). Clinical sequelae from overfeeding in enterally fed critically ill adults: Where is the evidence? *JPEN Journal of Parenteral and Enteral Nutrition*. 2019 Nov.doi:10.1002/jpen.1740.
3. [Chen A](#), [Moran J](#), [Libianto R](#), [Baqar S](#), [O'Callaghan C](#), [MacIsaac R](#), [Jerums G](#), [Ekinci E](#). Effect of angiotensin II receptor blocker and salt supplementation on short-term blood pressure variability in type 2 diabetes. *Journal of Human Hypertension*. 2019 Sep. doi:10.1038/s41371-019-0238-3.
4. [Cudini D](#), [Smith K](#), [Bernard S](#), [Stephenson M](#), [Andrew E](#), [Cameron P](#), [Lum M](#), [Udy A](#), on behalf of the ARISE Investigators including [Peake S](#), [Williams P](#). Can pre-hospital administration reduce time to initial antibiotic therapy in septic patients? *Emergency Medicine Australasia*. 2019 Aug;31(4):669-672.
5. [Delaney A](#), [Finnis M](#), [Bellomo R](#), [Udy A](#), [Jones D](#), [Keijzers G](#), [MacDonald S](#), [Peake S](#). Initiation of vasopressor infusions via peripheral versus central access in patients with early septic shock: A retrospective cohort study. *Emerg Med Australas*. 2019 Oct 9. doi:10.1111/1742-6723.13394.
6. [Higgins AM](#), [Peake SL](#), [Bellomo R](#), [Cooper DJ](#), [Delaney A](#), [Harris AH](#), [Howe BD](#), [Nichol AD](#), [Webb SA](#), [Williams PJ](#) on behalf of the Australasian Resuscitation in Sepsis Evaluation (ARISE) Investigators and the ANZICS Clinical Trials Group. Quality of Life and 1-Year Survival in Patients With Early Septic Shock: Long-Term Follow-Up of the Australasian Resuscitation in Sepsis Evaluation Trial. *Critical Care Medicine*. 2019 Jun;47(6):765-773.
7. [Moran JL](#), [Graham PL](#). Risk related therapy in meta-analyses of critical care interventions: Bayesian meta-regression analysis. *J Crit Care*. 2019 Oct;53:114-119.
8. [Keijzers G](#), [Macdonald S](#), [Udy A](#), [Arendts G](#), [Bailey M](#), [Bellomo R](#), [Blecher G](#), [Burcham J](#), [Delaney A](#), [Coggins A](#), [Fatovich D](#), [Fraser J](#), [Harley A](#), [Jones P](#), [Kinnear F](#), [May K](#), [Peake S](#), [Taylor D](#), [Williams J](#), [Williams P](#). ARISE FLUIDS Study Group. The Australasian Resuscitation In Sepsis Evaluation: FLUID or vasopressors in Emergency Department sepsis, a multicentre observational study (ARISE FLUIDS observational study): Rationale, methods and analysis plan. *Emergency Medicine Australasia*. 2019 Feb ;31(1):90-96.
9. [Lambell K](#), [Peake S](#), [Ridley E](#). Nutrition management of obese critically ill patients: More research is urgently needed. *Clin Nutr*. 2019 Aug;38(4):1957.
10. [Lipman J](#), [Brett SJ](#), [De Waele JJ](#), [Cotta MO](#), [Davis JS](#), [Finfer S](#), [Glass P](#), [Knowles S](#), [McGuinness S](#), [Myburgh J](#), [Paterson DL](#), [Peake S](#), [Rajbhandari D](#), [Rhodes A](#), [Roberts JA](#), [Shirwadkar C](#), [Starr T](#), [Taylor C](#), [Billot L](#), [Dulhunty JM](#). A protocol for a phase 3 multicentre randomised controlled trial of continuous versus intermittent β -lactam antibiotic infusion in critically ill patients with sepsis: BLING III. *Crit Care Resusc*. 2019 Mar;21(1):63-68.
11. [Luethi N](#), [Bailey M](#), [Higgins A](#), [Howe B](#), [Peake S](#), [Delaney A](#), [Bellomo R](#), ARISE investigators. Gender differences in mortality and quality of life after septic shock: A post-hoc analysis of the ARISE study. *Journal of Critical Care*. 2019 Nov ;55:177-183.

12. [Peake S](#), Delaney A, French C. Evolution not revolution: the future of randomized controlled trial in intensive care research. *MJA*. 2019 Oct;211(7):303-305.e1.
13. [Peake SL](#), Chapman MJ; TARGET Investigators. Energy-Dense versus Routine Enteral Nutrition in the Critically Ill. *N Engl J Med*. 2019 Jan;380(5):499-500.
14. [Rao Kadam V](#), Ludbrook G, [van Wijk RM](#), [Hewett PJ](#), [Moran JL](#), [Thiruvengkatarajan V](#), [Williams PJ](#). Comparison of ultrasound-guided transmuscular quadratus lumborum block catheter technique with surgical pre-peritoneal catheter for postoperative analgesia in abdominal surgery: a randomised controlled trial. *Anaesthesia*. 2019 Nov;74(11):1381-1388.
15. Reddi B, Finnis M, [Peake S](#). Difficulties in knowing which critical care trial data warrant change in practice. *Medical Journal of Australia*. 2019 Sep. doi:10.5694/mja2.50331.
16. Tian D, Smyth C, Keijzers G, Macdonald S, [Peake S](#), Udy A, Delaney A. Safety of peripheral administration of vasopressor medications: A systematic review. *Emergency Medicine Australasia*. 2019 Nov. doi:10.1111/1742-6723.13406.
17. Udy A, Finnis M, Jones D, Delaney A, MacDonald S, Bellomo R, [Peake S](#). Incidence, patient characteristics, mode of drug delivery, and outcomes of septic shock patients treated with vasopressors in the Arise Trial. *Shock*. 2019;52(4):400-407.
8. Crea F, Bairey Merz CN, [Beltrame JF](#), Berry C, Camici PG, Kaski JC, Ong P, Pepine CJ, Sechtem U, Shimokawa H. Mechanisms and diagnostic evaluation of persistent or recurrent angina following percutaneous coronary revascularization. *Eur Heart J*. 2019 Aug 1;40(29):2455-2462.
9. Dreyer R, [Tavella R](#), Curtis J, Wang Y, [Pasupathy S](#), Messenger J, Rumsfeld J, Maddox T, Krumholz H, Spertus J. Myocardial infarction with non-obstructive coronary arteries as compared with myocardial infarction and obstructive coronary disease: outcomes in a Medicare population. *European Heart Journal*. 2019 Jun doi:10.1093/eurheartj/ehz403.
10. Ferguson S, [Appleton S](#), Reynolds A, Gill T, Taylor A, McEvoy R, [Adams R](#). Making errors at work due to sleepiness or sleep problems is not confined to non-standard work hours: results of the 2016 Sleep Health Foundation national survey. *Chronobiology International*. 2019 Jun;36(6):758-769.
11. Ganesan A, Moore K, [Horton D](#), Heddle W, McGavigan A, [Hossain S](#), [Ali A](#), [Hariharaputhiran S](#), [Ranasinghe I](#). Complications of Cardiac Implantable Electronic Device Placement in Public and Private Hospitals *Intern Med J*. 2019 Nov 24. doi:10.1111/imj.14704.
12. Gyawali P, Martin SA, Heilbronn LK, Vincent AD, Jenkins AJ, Janusweski AS, [Adams RJ](#), O'Loughlin PD, [Wittert GA](#). Higher serum sex hormone-binding globulin (SHBG) levels are associated with incident cardi ovascular disease (CVD) in men. *J Clin Endocrinol Metabol*. 2019 Dec; 104 (12), 6301-6315.
13. Hausvater A, [Pasupathy S](#), Tornvall P, Gandhi H, [Tavella R](#), [Beltrame J](#), Agewall S, Ekenbäck C, Brolin EB, Hochman JS, Collste O, Reynolds HR. ST-segment elevation and cardiac magnetic resonance imaging findings in myocardial infarction with non-obstructive coronary arteries. *Int J Cardiol*. 2019 Jul 15;287:128-131.
14. Hochman JS, Reynolds HR, Bangalore S, O'Brien SM, Alexander KP, Senior R, Boden WE, Stone GW, Goodman SG, Lopes RD, Lopez-Sendon J, White HD, Maggioni AP, Shaw LJ, Min JK, Picard MH, Berman DS, Chaitman BR, Mark DB, Spertus JA,..... Maron DJ; ISCHEMIA Research Group. Baseline Characteristics and Risk Profiles of Participants in the ISCHEMIA Randomized Clinical Trial. *JAMA Cardiol*. 2019 Mar 1;4(3):273-286.
15. [Jaghooi A](#), [Lamin V](#), [Jacobczak R](#), Worthington M, Edwards J, Viana F, Stuklis R, Wilson D, [Beltrame J](#). Sex differences in vascular reactivity of coronary artery bypass graft conduits. *Heart & Vessels*. 2019 Oct; doi:10.1007/s00380-019-01508-9.
16. [Jaghooi A](#), [Lamin V](#), [Jacobczak R](#), Worthington M, Edwards J, Viana F, Stuklis R, Wilson DP, [Beltrame JF](#). Sex differences in vascular reactivity of coronary artery bypass graft conduits. *Heart Vessels*. 2019 Oct 1. doi:10.1007/s00380-019-01508-9. [Epub ahead of print].
17. Komajda M, Schöpe J, Wagenpfeil S, Tavazzi L, Böhm M, Ponikowski P, Anker SD, Filippatos GS, Cowie MR; QUALIFY Investigators, including [Beltrame J](#). Physicians' guideline adherence is associated with long-term heart failure mortality in outpatients with heart failure with reduced ejection fraction: the QUALIFY international registry. *Eur J Heart Fail*. 2019 Jul;21(7):921-929.
18. [Labrosciano C](#), [Air T](#), [Tavella R](#), [Beltrame JF](#), [Ranasinghe I](#). Readmissions following hospitalisations for cardiovascular disease: a scoping review of the Australian literature. *Aust Health Rev*. 2019 Feb 20. doi:10.1071/AH18028. [Epub ahead of print].
19. Lee C, Colagiuri S, Woodward M, Gregg EW, [Adams R](#), Azizi F, ... Huxley, R. R. Comparing different definitions of prediabetes with subsequent risk of diabetes: an individual participant data meta-analysis involving 76 513 individuals and 8208 cases of incident diabetes. *BMJ Open Diabetes Research & Care*. 2019;7(1).

THE UNIVERSITY OF ADELAIDE DISCIPLINE OF MEDICINE, TQEH

1. Abu-Assi R, Campbell J, [Bacchi S](#), Gill T, George D, Chehade M. Association between atrial fibrillation and hip fractures and the implications for hip fracture patients: a systematic review. *ANZ Journal of Surgery*. 2019 Oct doi:10.1111/ans.15460.
2. Aliprandi-Costa B, Morgan L, Snell L, D Souza M, Kritharides L, French J, Brieger D, [Ranasinghe I](#). ST-elevation acute myocardial infarction in Australia-temporal trends in patient management and outcomes 1999-2016. *Heart, Lung & Circulation*. 2019 Jul;28(7):1000-1008.
3. Angraal S, Nuti SV, Masoudi FA, Freeman J V, Murugiah K, Shah NJ, Desai NR, [Ranasinghe I](#), Wang Y, Krumholz H. Digoxin Use and Associated Adverse Events Among Older Adults *Am J Med*. 2019 Oct;132(10), 1191-1198.
4. [Appleton SL](#), Vakulin A, D'Rozario A, Vincent A D, Teare A, Martin SA, [Wittert GA](#), McEvoy R D, Catcheside PG, [Adams RJ](#). Quantitative EEG measures in REM and NREM sleep are associated with AHI and nocturnal hypoxemia in men, *Sleep*. 2019 Jul;42 (7).
5. Astley C, Chew D, Keech W, Nicholls S, [Beltrame J](#), Horsfall M, [Tavella R](#), Tirimacco R, Clark R. The Impact of Cardiac Rehabilitation and Secondary Prevention Programs on 12-Month Clinical Outcomes: A Linked Data Analysis. *Heart Lung and Circulation*. 2019 Apr 12. pii: S1443-9506(19)30330-0.
6. Bixby H, Bentham J, Zhou B, Di Cesare M, Paciorek C, Bennett J, including [Adams R](#). (NCD Risk Factor Collaboration (NCD-RisC)). A. Rising rural body-mass index is the main driver of the global obesity epidemic in adults. *Nature*. 2019;569(7755),260-264.
7. Chiu PW , Wang Y, [Ranasinghe I](#), Mitiku TY, Seto AH, Rosman L, Lampert R , Minges KE, Enriquez AD, Curtis JP. Association of Physician Specialty With Long-Term Implantable Cardioverter-Defibrillator Complication and Reoperations Rates. *Circ Cardiovasc Qual Outcomes*. 2019 Jun;12 (6), e005374.

20. Melaku YA, [Appleton S](#), Reynolds AC, Sweetman AM, Stevens DJ, Lack L, [Adams RJ](#). Association Between Childhood Behavioral Problems and Insomnia Symptoms in Adulthood. *JAMA Network Open*. 2019;2 (9), e1910861-e1910861.
21. Melaku YA, [Gill TK](#), [Appleton SL](#), [Hill C](#), Boyd MA, [Adams RJ](#). Sociodemographic, lifestyle and metabolic predictors of all-cause mortality in a cohort of community-dwelling population: an 18-year follow-up of the North West Adelaide Health Study. *BMJ open*. 2019;9 (8), e030079.
22. Melaku YA, [Gill TK](#), Taylor AW, [Appleton SL](#), Gonzalez-Chica D, [Adams R](#), Achoki T, Shi Z, Renzaho A. Trends of mortality attributable to child and maternal undernutrition, overweight/obesity and dietary risk factors of non-communicable diseases in sub-Saharan Africa, 1990–2015: findings from the Global Burden of Disease Study 2015. *Public Health Nutrition*. 2019 Apr;22 (5), 827-840.
23. Melaku YA, Reynolds AC, [Gill TK](#), [Appleton S](#), [Adams R](#). Association between Macronutrient Intake and Excessive Daytime Sleepiness: An Iso-Caloric Substitution Analysis from the North West Adelaide Health Study. *Nutrients*. 2019;11, 2374.
24. Moore K, Ganesan A, [Labrosciano C](#), Heddle W, McGavigan A, [Hossain S](#), [Horton D](#), [Hariharaputhiran S](#), [Ranasinghe I](#). Sex Differences in Acute Complications of Cardiac Implantable Electronic Devices: Implications for Patient Safety. *J Am Heart Assoc*. 2019 Jan;8 (2), e010869.
25. NCD Risk Factor Collaboration. National trends in total cholesterol obscure heterogeneous changes in HDL and non-HDL cholesterol and total-to-HDL cholesterol ratio: a pooled analysis of 458 population-based studies in Asian and Western countries. *Int J Epidemiol*. 2019 Jul 18. pii: dyz099. doi:10.1093/ije/dyz099.
26. [Ngo L](#), [Ali A](#), Ganesan A, [Adams R](#), [Ranasinghe I](#). Complications of Catheter Ablation for Atrial Fibrillation: a Population-Wide Study in Australia and New Zealand. *Heart, Lung and Circulation*. 2019. doi:10.1016/j.hlc.2019.06.029.
27. [Pasupathy S](#), [Tavella R](#), [Beltrame JF](#). Myocardial Infarction with Non Obstructive Coronary Arteries (MINOCA): Are there ethnic differences? *Int J Cardiol*. 2019 Jul 15;287:46-47.
28. [Ranasinghe I](#), [Labrosciano C](#), [Horton D](#), Ganesan A, Curtis J, Krumholz H, McGavigan A, [Hossain S](#), [Air T](#), [Hariharaputhiran S](#). Institutional variation in quality of cardiovascular implantable electronic device implantation: A cohort study. *Annals of Internal Medicine*. 2019 Sep;171 (5), 309-317.
29. Reynolds A, [Adams R](#). Treatment of sleep disturbance in older adults. *Journal of Pharmacy Practice and Research*. 2019;49(3):296-304.
30. Reynolds, A.C, Marshall, N.J, [Hill CL](#), [Adams RJ](#). Systematic review of the efficacy of commonly prescribed pharmacological treatments for primary treatment of sleep disturbance in patients with diagnosed autoimmune disease. *Sleep Medicine Reviews*. 2019;101232.
31. Sato K, Takahashi J, Odaka Y, Suda A, Sueda S, Teragawa H, Ishii K, Kiyooka T, Hirayama A, Sumiyoshi T, Tanabe Y, Kimura K, Kaikita K, Ong P, Sechtem U, Camici P, Kaski J, Crea F, [Beltrame J](#), Shimokawa H, Japanese Coronary Spasm Association. Clinical characteristics and long-term prognosis of contemporary patients with vasospastic angina: Ethnic differences detected in an international comparative study. *International Journal of Cardiology*. 2019 Sep;291:13-18.
32. Tamis-Holland JE, Jneid H, Reynolds HR, Agewall S, Brilakis ES, Brown TM, Lerman A, Cushman M, Kumbhani DJ, Arslanian-Engoren C, Bolger AF, [Beltrame JF](#); American Heart Association Interventional Cardiovascular Care Committee of the Council on Clinical Cardiology; Council on Cardiovascular and Stroke Nursing; Council on Epidemiology and Prevention; and Council on Quality of Care and Outcomes Research. *Circulation*. 2019 Apr 30;139(18):e891-e908.
33. [Stallman HM](#). Problems with the 'Ask for Help' Approach to mental illness and suicide prevention. *Australas Psychiatry*. 2019 Oct;27 (5), 534.
34. [Stallman HM](#). Science needs better reporting to improve translational mental health research. *Aust N Z J Psychiatry*. 2019;4867419876693.
35. [Stallman HM](#), Wilson C. Attending to the Biopsychosocial Approach in Australia's Mental Health Agenda. *Aust N Z J Psychiatry*. 2019 Feb;53 (2), 173.
36. Stevens D, Holtzhausen L, [Appleton S](#), [Adams R](#). Concussion assessment tools - A possible measure of sleepiness? *Sleep Medicine*. 2019 Aug. doi:10.1016/j.sleep.2019.08.006.
37. Streatfeild J, Hillman D, [Adams R](#), Mitchell S, Pezzullo L. Cost-effectiveness of continuous positive airways pressure therapy for obstructive sleep apnea: health care system and societal perspectives. *Sleep*. 2019 Dec;42 (12).
38. [Thompson MQ](#), Theou O, Tucker GR, [Adams R](#), [Visvanathan R](#). Recurrent Measurement of Frailty Is Important for Mortality Prediction: Findings from the North West Adelaide Health Study. *J Am Geriatr Soc*. 2019;Jul 18. doi:10.1111/jgs.16066.

NEUROLOGY UNIT, TQEH

1. [Bacchi S](#), Zerner T, Oakden-Rayner L, Kleinig T, Patel S, [Jannes J](#). Deep Learning in the Prediction of Ischaemic Stroke Thrombolysis Functional Outcomes: A Pilot Study. *Acad Radiol*. 2019 Apr 30. pii: S1076-6332(19)30174-6.
2. [Bacchi S](#), Oakden-Rayner L, Zerner T, Kleinig T, Patel S, [Jannes J](#). Deep Learning Natural Language Processing Successfully Predicts the Cerebrovascular Cause of Transient Ischemic Attack-Like Presentations. *Stroke*. 2019 Mar;50(3):758-760.
3. Campbell BCV, Majoie CBLM... HERMES collaborators, inc [Jannes J](#). Penumbra imaging and functional outcome in patients with anterior circulation ischaemic stroke treated with endovascular thrombectomy versus medical therapy: a meta-analysis of individual patient-level data. *Lancet Neurol*. 2019 Jan;18(1):46-55.
4. Constantine S, [Roach D](#), Liberali S, Kiermeier A, [Sarkar P](#), [Jannes J](#), Sambrook P, Anderson P, [Beltrame J](#). Carotid Artery Calcification on Orthopantomograms (CACO Study) - is it indicative of carotid stenosis? *Aust Dent J*. 2019 Mar;64(1):4-10.
5. Campbell BCV, Majoie CBLM, Albers GW, et al. incl [Jannes J](#); HERMES collaborators. Penumbra imaging and functional outcome in patients with anterior circulation ischaemic stroke treated with endovascular thrombectomy versus medical therapy: a meta-analysis of individual patient-level data. *Lancet Neurol*. 2019 Jan;18(1):46-55.

6. [Datta Gupta A](#), [Visvanathan R](#), Cameron I, [Koblar SA](#), [Howell S](#), Wilson D. Efficacy of botulinum toxin in modifying spasticity to improve walking and quality of life in post-stroke lower limb spasticity - a randomized double-blind placebo controlled study. *BMC Neurol*. 2019 May 11;19(1):96.
7. Gancheva MR, Kremer KL, Gronthos S, [Koblar SA](#). Using Dental Pulp Stem Cells for Stroke Therapy. *Front Neurol*. 2019 Apr 29;10:422. Review.
8. Leung E, [Hamilton-Bruce MA](#), [Koblar S](#). Case 3 in "Check – Independent Learning Program for GPs". *ACGP Check*. 2019 July; Unit 562:13-16. www.racgp.org.au/check.
9. Ma H, Campbell BCV, Parsons MW, Churilov L, Levi CR, Hsu C, Kleinig TJ, Wijeratne T, Curtze S, Dewey HM, Miteff F, Tsai CH, Lee JT, Phan TG, Mahant N, Sun MC, Krause M, Sturm J, Grimley R, Chen CH, Hu CJ, Wong AA, Field D, Sun Y, Barber PA, Sabet A, Jannes J, Jeng JS, Clissold B, Markus R, Lin CH, Lien LM, Bladin CF, Christensen S, Yassi N, Sharma G, Bivard A, Desmond PM, Yan B, Mitchell PJ, Thijs V, Carey L, Meretoja A, Davis SM, Donnan GA; EXTEND Investigators; the EXTEND Investigators. Thrombolysis Guided by Perfusion Imaging up to 9 Hours after Onset of Stroke. *N Engl J Med*. 2019 May 9;380(19):1795-1803.
10. Nagpal A, Milte R, Kim S, Hillier S, [Hamilton-Bruce M](#), Ratcliffe J, [Koblar S](#). Economic evaluation of stem cell therapies in neurological diseases: A systematic review. *Value in Health*. 2019 Feb; 22(2):254-262.
11. Nagpal A, Hillier S, [Milton AG](#), [Hamilton-Bruce MA](#), U. PERSPECTIVES: Stroke survivors' views on the design of an early-phase cell therapy trial for patients with chronic ischaemic stroke. *Health Expectations*. 2019 Oct;22(5):1069-1077.
12. Unsworth DJ, Mathias JL, Dorstyn DS, [Koblar SA](#). Stroke survivor attitudes toward, and motivations for, considering experimental stem cell treatments. *Disabil Rehabil*. 2019 Feb; 1:1-9.
7. Kalman JL *et al*, including [Clark SR](#). Investigating polygenic burden in age at disease onset in bipolar disorder: Findings from an international multicentric study. *Bipolar Disord*. 2019 Feb;21(1):68-75.
8. Ledesma A, Bidargaddi N, [Strobel J](#), Schrader G, Nieminen H, Korhonen I, Ermes M. Health timeline: an insight-based study of a timeline visualization of clinical data. *BMC Medical Informatics & Decision Making*. 2019 Aug; 19(1):170.
9. [Olagunju AT](#), [Clark SR](#), Baune BT. Long-acting atypical antipsychotics in schizophrenia: A systematic review and meta-analyses of effects on functional outcome. *ANZ J Psychiatry*. 2019 Jun; 53 (6), 509-527.
10. Opel N, [Cearns M](#), [Clark S](#), Toben C, Grotegerd D, Heindel W, . . . Baune B. Large-scale evidence for an association between low-grade peripheral inflammation and brain structural alterations in major depression in the bidirect study. *Journal of Psychiatry and Neuroscience*. 2019 Nov; 44(6), 423-431.
11. [Plevin D](#), Smith N. Assessment and Management of Depression and Anxiety in Children and Adolescents with Epilepsy. [Review] *Behavioural Neurology*. 2019:2571368.
12. [Plevin D](#), [Waite S](#). Use of ultrabrief pulse width electroconvulsive therapy to induce therapeutic seizures in an elderly patient with a high seizure threshold: a case report. *Australasian Psychiatry*. 2019 Dec. doi:10.1177/1039856219889306.
13. Scott J, Etain B, Manchia M, Brichant-Petitjean C, Geoffroy P, Schulze T, [Clark SR](#), [Schubert KO](#), Witt S. An examination of the quality and performance of the Alda scale for classifying lithium response phenotypes. *Bipolar Disorders*. 2019 Aug 29; doi:10.1111/bdi.12829.
14. Soda T, [Clark S](#), Baune B, Sullivan P. Creating an international consortium to investigate genetic findings in severe depression and response to ect (genect-ic). *European Neuropsychopharmacology*. 2019;29,1136.
15. Soda T, McLoughlin D, [Clark S](#), Oltedal L, Kessler U, Haavik J ...Baune B. International Consortium on the Genetics of Electroconvulsive Therapy and Severe Depressive Disorders (Gen-ECT-ic). *European Archives of Psychiatry and Clinical Neuroscience*. 2019 Dec. doi:10.1007/s00406-019-01087.
16. [Tibrewal P](#), Ng T, Bastiampillai T, Dhillon R, Koh D, Kulkarni S. Why is lithium use declining? *Asian Journal of Psychiatry*. 2019 Jun;43:219-220.
17. Weiss A, Hussain S, Ng B, Sarma S, Tiller J, [Waite S](#), Loo C. Royal Australian and New Zealand College of Psychiatrists professional practice guidelines for the administration of electroconvulsive therapy. *ANZ Journal of Psychiatry*. 2019 Apr 10; doi:10.1177/0004867419839139.

UNIVERSITY OF ADELAIDE DISCIPLINE OF PSYCHIATRY AND MENTAL HEALTH SERVICES, TQEH

1. [Cearns M](#), Hahn T, [Clark S](#), Baune B. Machine learning probability calibration for high-risk clinical decision-making. *ANZ Journal of Psychiatry*. 2019 Nov; doi:10.1177/0004867419885448.
2. [Cearns M](#), Opel N, [Clark S](#), Kaehler C, Thalamuthu A, Heindel W, ...Baune B. Predicting rehospitalization within 2 years of initial patient admission for a major depressive episode: a multimodal machine learning approach. *Translational Psychiatry*. 2019 Nov;9 (1), 285.
3. [Clark SR](#), [Olagunju A](#), Baune BT. Is clozapine superior for psychosocial function in schizophrenia? *ANZ Journal of Psychiatry*. 2019, Vol. 53(S1) 3–156.
4. Janos K, Serg P, [Clark S](#), [Schubert K](#), Baune B, Schulze T. Investigating polygenic burden in age at disease onset in bipolar disorder: findings from an international multicentric study. *Bipolar Disorders*. 2019;21(1), 68-75.
5. [Clark SR](#), [Schubert KO](#), Baune B. The modeling of trajectories in psychotic illness. In B. Baune (Ed.), *Personalised Psychiatry* (1st ed).2019. Academic Press.
6. Elangovan S, Bastiampillai T, [Kanigere M](#), [Kulkarni S](#), [Tibrewal P](#). Antipsychotic-induced brain atrophy - Is lithium the answer in bipolar disorder? *ANZ J Psychiatry*. 2019 Sep;53(9):925-926.

REHABILITATION MEDICINE, TQEH

1. [Datta Gupta A](#), [Visvanathan R](#), Cameron ID, [Koblar S](#), [Howell S](#), Wilson D. Efficacy of Botulinum Toxin A in Modifying Spasticity to Improve Walking and Quality of Life in Post-Stroke Lower Limb Spasticity - a Randomized Double-blind Placebo Controlled Study. *BMC Neurology*. 2019 May 11;19(1):96.
2. [Datta Gupta A](#), [Wilson D](#). Use of Botulinum Toxin to heal atypical pressure ulcers in the palm. *Medical Journal of Australia*. 2019 Dec; doi:10.5694/mja2.50452.

RESPIRATORY MEDICINE UNIT, TQEH

1. Carson-Chahhoud K, Kopsaftis Z, Sharrad K, Esterman A. Evidence for smoking quitlines: an Evidence Check rapid review brokered by the Sax Institute (www.saxinstitute.org.au) for the Cancer Council Victoria, 2019.

RHEUMATOLOGY UNIT, TQEH

1. Andersen KM, Cheah JTL, March L, Bartlett SJ, Beaton D, Bingham CO 3rd, Brooks PM, Christensen R, Conaghan PG, D'Agostino MA, de Wit M, Dueck A, Goodman SM, Grosskleg S, Hill CL, Howell M, Mackie SL, Richards B, Shea B, Singh JA, Strand V, Tugwell P, Wells GA, Simon LS. Improving Benefit-harm Assessment of Therapies from the Patient Perspective: OMERACT Premeeting Toward Consensus on Core Sets for Randomized Controlled Trials. *J Rheumatol*. 2019 Aug;46(8):1053-1058.
2. Aydin SZ, Robson JC, Sreih AG, Hill C, Alibaz-Oner F, Mackie S, Beard S, Gul A, Hatemi G, Kermani TA, Mahr A, Meara A, Milman N, Shea B, Tomasson G, Tugwell P, Direskeneli H, Merkel PA. Update on Outcome Measure Development in Large-vessel Vasculitis: Report from OMERACT 2018. *J Rheumatol*. 2019;46:1198-201.
3. Black RJ, Richards B, Lester S, Buchbinder R, Barrett C, Lassere M, March L, Hill CL. Factors associated with commencing and ceasing opioid therapy in patients with rheumatoid arthritis. *Semin Arthritis Rheum*. 2019;49:351-7.
4. Blacketer C, Gill T, Taylor A, Hill C. Prevalence and Health Care Usage of Knee Pain in South Australia (SA): A Population Based Study. *Intern Med J*. 2019 Sept;49(9) 1105-1110. doi:10.1111/imj.14237.
5. Brito-Zeron P, Acar-Denizli N, Ng W, ... Rischmueller M, et al. Epidemiological profile and north-south gradient driving baseline systemic involvement of primary Sjögren's syndrome. *Rheumatology*. 2019 Dec. doi:10.1093/rheumatology/kez578.
6. Butler EA, Baron M, Fogo AB, Frech T, Ghossein C, Hachulla E, Hoa S, Johnson SR, Khanna D, Mouthon L, Nikpour M, Proudman S, Steen V, Stern E, Varga J, Denton C, Hudson M; including Rischmueller M, Scleroderma Clinical Trials Consortium Scleroderma Renal Crisis Working Group. Generation of a Core Set of Items to Develop Classification Criteria for Scleroderma Renal Crisis Using Consensus Methodology. *Arthritis Rheumatol*. 2019 June;71(6):964-971.
7. Cai G, Laslett LL, Aitken D, Cicuttini F, March L, Hill C, Winzenberg T, Jones G. Zoledronic acid plus methylprednisolone versus zoledronic acid or placebo in symptomatic knee osteoarthritis: a randomized controlled trial. *Ther Adv Musculoskelet Dis*. 2019 Oct;11:1759720X19880054.
8. Cai K, Whittle SL, Richards BL, Ramiro S, Falzon L, Buchbinder R. Marine oil supplements for rheumatoid arthritis. *Cochrane Database of Systematic Reviews* 2019, Issue 12. Art. No.: CD010250.
9. Chan FLY, Lester S, Whittle S, Hill C. The utility of ESR, CRP and platelets in the diagnosis of GCA. *BMC Rheumatology*. 2019 April;3:14.
10. Cheah JTL, Black RJ, Robson JC, Navarro-Millán IY, Young SR, Richards P, Beard S, Simon LS, Goodman SM, Mackie SL, Hill CL. Toward a Core Domain Set for Glucocorticoid Impact in Inflammatory Rheumatic Diseases: The OMERACT 2018 Glucocorticoid Impact Working Group. *J Rheumatol*. 2019 Sept; 46 (9), 1179-1182.
11. Craig E, Orbai A, Mackie S, Bartlett S, Bingham C, Goodman S, Hill C, Holt R, Leong A, Karyekar C, Leung Y, Richards P, Halls S. Advancing stiffness measurement in rheumatic disease: report from the Stiffness Special Interest group at OMERACT 2018. *The Journal of Rheumatology*. 2019 Oct; 46:1374-8.
12. Gates L, Arden N, Hannan M, Roddy E, Gill T, Hill C, Dufour A, Rathod-Mistry T, Thomas M, Menz H, Bowen C, Golightly Y. Prevalence of foot pain across an international consortium of population-based cohorts. *Arthritis Care & Research*. 2019 May;71(5):661-670.
13. Hoon E, Ruediger C, Gill TK, Black RJ, Hill CL. A qualitative study of patient perspectives related to glucocorticoid therapy in polymyalgia rheumatica and giant cell arteritis. *Open Access Rheumatol*. 2019;11:189-98.
14. Lopez-Isac E, Acosta-Herrera M, Kerick M, ... Proudman S... Rischmueller M, Lester S et al. GWAS for systemic sclerosis identifies multiple risk loci and highlights fibrotic and vasculopathy pathways. *Nature Communications*. 2019 Oct; 10(1): Article Number: 4955.
15. Melaku YA, Gill TK, Appleton SL, Hill C, Boyd MA, Adams RJ. Sociodemographic, lifestyle and metabolic predictors of all-cause mortality in a cohort of community-dwelling population: an 18-year follow-up of the North West Adelaide Health Study. *BMJ Open*. 2019;9:e030079.
16. Metwally M, Thabet K, Bayoumi A, Nikpour M, Stevens W, Sahhar J, Zochling J, Roddy J, Tymms K, Strickland G, Lester S, Rischmueller M, Ngian GS, Walker J, Hissaria P, Shaker O, Liddle C, Manolios N, Beretta L, Proudman S, George J, Eslam M. IFNL3 genotype is associated with pulmonary fibrosis in patients with systemic sclerosis. *Sci Rep*. 2019;9:14834.
17. Morrisroe K, Hansen D, Huq M, Stevens W, Sahhar J, Ngian GS, Ferdowsi N, Hill C, Roddy J, Walker J, Proudman S, Nikpour M. Incidence, risk factors and outcomes of cancer in systemic sclerosis. *Arthritis Care Res (Hoboken)*. 2019 Sept. doi:10.1002/acr.24076.
18. Morrisroe K, Stevens W, Sahhar J, Ngian GS, Ferdowsi N, Hansen D, Patel S, Hill CL, Roddy J, Walker J, Proudman S, Nikpour M. The clinical and economic burden of systemic sclerosis related interstitial lung disease. *Rheumatology (Oxford)*. 2019. doi:10.1093/rheumatology/kez532.
19. Ng J, Little CB, Woods S, Whittle S, Lee FY, Gronthos S, Mukherjee S, Hunter DJ, Worthley DL. Stem Cell Directed Therapies for Osteoarthritis: the promise and the practice: Concise Review. *Stem Cells*. 2019 dec. doi:10.1002/stem.3139.
20. Nguyen AD, Crowhurst T, Lester S, Dobson R, Bartholomeusz D, Hill C. The utility of fluorine-18-fluorodeoxyglucose positron emission tomography in the diagnosis and monitoring of large vessel vasculitis: A South Australian retrospective audit. *Int J Rheum Dis*. 2019 Aug;22:1378-82.
21. Ninan J, Lester S, Hill C. Diagnosis and management of giant cell arteritis: an Asia-Pacific perspective. *International Journal of Rheumatic Diseases*. 2019 Jan; 22 Suppl 1:28-40.
22. Owen CE, Yates M, Twohig H, Muller S, Neill LM, Harrison E, Shea B, Simon LS, Hill CL, Mackie SL. Toward a Core Outcome Measurement Set for Polymyalgia Rheumatica: Report from the OMERACT 2018 Special Interest Group. *J Rheumatol*. 2019 Oct;46(10) 1360-1364.
23. Page MJ, O'Connor DA, Malek M, Haas R, Beaton D, Huang H, Ramiro S, Richards P, Voshaar MJH, Shea B, Verhagen AP, Whittle SL, van der Windt DA, Gagnier JJ, Buchbinder R, Group

OSCSW. Patients' experience of shoulder disorders: a systematic review of qualitative studies for the OMERACT Shoulder Core Domain Set. *Rheumatology (Oxford)*. 2019 Mar. doi:10.1093/rheumatology/kez046.

24. Proudman C, Lester S, Gonzalez-Chica D, Gill T, Dalbeth N, Hill C. Gout, flares, and allopurinol use: a population-based study. *Arthritis Research & Therapy*. 2019 May;21(1):132.
25. Ramiro S, Page MJ, Whittle SL, Huang H, Verhagen AP, Beaton DE, Richards P, Voshaar M, Shea B, van der Windt D, Kopkow C, Lenza M, Jain NB, Richards B, Hill C, Gill TK, Koes B, Foster NE, Conaghan PG, Smith T, Malliaras P, Roe Y, Gagnier JJ, Buchbinder R. The OMERACT Core Domain Set for Clinical Trials of Shoulder Disorders. *J Rheumatol*. 2019 Aug 46:969-75.
26. Retamozo S, Acar-Denizli N, Rasmussen A, Horvath IF, Baldini C, Priori R, Sandhya P, Hernandez-Molina G, Armagan B, Praprotnik S, Kvarnstrom M, Gerli R, Sebastian A, Solans R, Rischmueller M et al, Sjögren Big Data C. Systemic manifestations of primary Sjögren's syndrome out of the ESSDAI classification: prevalence and clinical relevance in a large international, multi-ethnic cohort of patients. *Clin Exp Rheumatol*. 2019;37 Suppl 118:97-106.
27. Rischmueller M, Spurrier A. Can Sjögren's syndrome diagnosis and evaluation be stretched by elastography? *International Journal of Rheumatic Diseases*. 2019 Feb;22(2):172-174.
28. Sinnathurai P, Bartlett SJ, Halls S, Hewlett S, Orbai AM, Buchbinder R, Henderson L, Hill CL, Lassere M, March L. Investigating Dimensions of Stiffness in Rheumatoid and Psoriatic Arthritis: The Australian Rheumatology Association Database Registry and OMERACT Collaboration. *J Rheumatol*. 2019 Nov; 46:1462-9.
29. Staples MP, March L, Hill C, Lassere M, Buchbinder R. Malignancy risk in Australian rheumatoid arthritis patients treated with anti-tumour necrosis factor therapy: an update from the Australian Rheumatology Association Database (ARAD) prospective cohort study. *BMC Rheumatol*. 2019 Jan;3:1.
30. Tam LS, Wei JC, Aggarwal A, Baek HJ, Cheung PP, Chiowchanwisawakit P, Dans L, Gu J, Hagino N, Kishimoto M, Reyes HM, Soroosh S, Stebbings S, Whittle S, Yeap SS, Lau CS. 2018 APLAR axial spondyloarthritis treatment recommendations. *Int J Rheum Dis*. 2019 Mar;22:340-56.
31. Vincent FB, Bubicich M, Downie-Doyle S, Mackay F, Morand EF, Rischmueller M. Serum soluble Fas and Fas ligand (FasL) in primary Sjögren's syndrome. *Clin Exp Rheumatol*. 2019 May-Jun;37 Suppl 118:254-6. <https://www.ncbi.nlm.nih.gov/pubmed/30789150>.
32. Vincent FB, Lang T, Kandane-Rathnayake R, Downie-Doyle S, Morand EF, Rischmueller M. Serum and urinary macrophage migration inhibitory factor (MIF) in primary Sjögren's syndrome. *Joint Bone Spine*. 2019 May;86:393-5.
33. Whittle S, Johnston R, McDonald S, Worthley D, Campbell T, Buchbinder R. Stem cell injections for osteoarthritis of the knee. *Cochrane Database of Systematic Reviews*. (5) Article Number: CD013342. 2019 May doi:10.1002/14651858.CD013342.
34. Whittle S, Johnston R, McDonald S, Paterson K.L, Buchbinder R. Autologous blood product injections including platelet-rich plasma for osteoarthritis of the knee. *Cochrane Database of Systematic Reviews*. 2019;24:166.
35. Wilsdon T, Whittle S, Thynne T, Mangoni A. Methotrexate for psoriatic arthritis. *Cochrane Database of Systematic Reviews*. 2019 Jan 18;1:CD012722. doi:10.1002/14651858.CD012722.pub2. Review.

UNIVERSITY OF ADELAIDE DISCIPLINE OF SURGERY ENT

1. Albayaty Y, Thomas N, Jambhrunkar M, Al-Hawwas M, Kral A, Thorn C, Prestidge C. Enzyme responsive copolymer micelles enhance the anti-biofilm efficacy of the antiseptic chlorhexidine. *International Journal of Pharmaceutics*. 2019 July; 566:329-341.
2. Ao J, Singh S, Curragh D, Valentine R, Selva D. Recurrent pituitary adenoma presenting as an isolated sino-orbital mass. *Clinical & Experimental Ophthalmology*. 2019 May;47(4):542-543. doi:10.1111/ceo.13432.
3. Bennett C, Ramezanpour M, Cooksley C, Vreugde S, Psaltis AJ. Kappa-carrageenan sinus rinses reduce inflammation and intracellular *Staphylococcus aureus* infection in airway epithelial cells. *Int Forum Allergy Rhinol*. 2019 Aug;9(8):918-925.
4. Cherian LM, Cooksley C, Richter K, Ramezanpour M, Paramasivan S, Wormald PJ, Vreugde S, Psaltis AJ. Effect of commercial nasal steroid preparation on bacterial growth. *Int Forum Allergy Rhinol*. 2019;9(7):766-775.
5. Curragh D, Valentine R, Selva D. Cerebrospinal fluid leak from the orbital roof during orbital exenteration. *Ophthalmic Plastic & Reconstructive Surgery*. 2019 Aug. doi:10.1097/IOP.0000000000001455.
6. Curragh D, Valentine R, Selva D. Optic Strut Terminology. *Ophthalmic Plast Reconstr Surg*. 2019 Jul/Aug;35 (4), 407-408.
7. Curragh DS, Psaltis AJ, Tan NC, Selva D. Prelacrimal approach for nasolacrimal duct excision in the management of lacrimal system tumours. *Orbit (London)* 2019;38(4):308-312.
8. Dong D, Thomas N, Ramezanpour M, Psaltis A, Huang S, Zhao Y, Thierry B, Wormald PJ, Prestidge CA, Vreugde S. Inhibition of *Staphylococcus Aureus* and *Pseudomonas Aeruginosa* Biofilms by Quatsomes in Low Concentrations. *Experimental Biology and Medicine*. 2019; 245(1):34-41. doi:10.1177/1535370219896779.
9. Douglas R, Psaltis A, Rimmer J, Kuruvilla T, Cervin A, Kuang Y. Phase 1 clinical study to assess the safety of a novel drug delivery system providing long-term topical steroid therapy for chronic rhinosinusitis. *International Forum of Allergy and Rhinology*. 2019;1-10.
10. Fong SA, Drilling AJ, Ooi ML, Paramasivan S, Finnie JW, Morales S, Psaltis AJ, Vreugde S, Wormald PJ. Safety and efficacy of a bacteriophage cocktail in an in vivo model of *Pseudomonas aeruginosa* sinusitis. *Transl Res*. 2019 Apr;206:41-56.
11. Goggin R, Bennett C, Bialasiewicz S, VEDIAPPAN R, Vreugde S, Wormald PJ, Psaltis A. The presence of virus significantly associates with chronic rhinosinusitis disease severity. *Allergy*. 2019 Aug;74 (8), 1569-1572.
12. Govindaraju R, Cherian L, Macias-Valle L, Murphy J, Gouzos M, Vreugde S, Wormald PJ, Bassiouni A, Psaltis A. Extent of maxillary sinus surgery and its effect on instrument access, irrigation penetration, and disease clearance. *International Forum of Allergy and Rhinology*. 2019 Oct;9(10): 1097-1104.
13. Harley B, Wickremesekera A, Tan N, Davies E, Robinson S, Baguley C, Wormald PJ. Endoscopic transnasal repair of two cases of spontaneous cerebrospinal fluid fistula in the foramen rotundum. *J Clin Neurosci*. 2019 Jan;59:350-352.

14. Hart ZP, Nishio N, Krishnan G, Lu G, Zhou Q, Fakurnejad S, Wormald PJ, van den Berg NS, Rosenthal EL, Baik FM. Endoscopic Fluorescence-Guided Surgery for Sinonasal Cancer Using an Antibody-Dye Conjugate. *Laryngoscope*. 2019 Dec 19. doi:10.1002/lary.28483.
15. Hu H, Ramezani-pour M, Hayes A, Liu S, Psaltis A, Wormald PJ, Vreugde S. Sub-inhibitory clindamycin and azithromycin reduce *S. aureus* exoprotein induced toxicity, inflammation, barrier disruption and invasion. *Journal of Clinical Medicine*. 2019 Oct;8(10).
16. Jervis-Bardy J, Leong LEX, Papanicolas LE, Ivey KL, Chawla S, Woods CM, Frauenfelder C, Ooi EH, Rogers GB. Examining the Evidence for an Adult Healthy Middle Ear Microbiome. *mSphere*. 2019 Sep 4;4(5).
17. Li J, Ramezani-pour M, Fong S, Cooksley C, Murphy J, Suzuki M, Psaltis AJ, Wormald PJ, Vreugde S. Pseudomonas aeruginosa Exoprotein-Induced Barrier Disruption Correlates With Elastase Activity and Marks Chronic Rhinosinusitis Severity. *Front Cell Infect Microbiol*. 2019;9:38.
18. Kao SS, Ramezani-pour M, Bassiouni A, Wormald PJ, Psaltis AJ, Vreugde S. The effect of neutrophil serine proteases on human nasal epithelial cell barrier function. *Int Forum Allergy Rhinol*. 2019;9(10):1220-1226.
19. Kao SS, Ramezani-pour M, Bassiouni A, Finnie J, Wormald PJ, Vreugde S, Psaltis AJ. Barrier disruptive effects of mucus isolated from chronic rhinosinusitis patients. *Allergy*. 2019 Jun 28. doi:10.1111/all.13964.
20. Li J, Ramezani-pour M, Fong SA, Cooksley C, Murphy J, Suzuki M, Psaltis AJ, Wormald PJ, Vreugde S. Pseudomonas aeruginosa Exoprotein-Induced Barrier Disruption Correlates With Elastase Activity and Marks Chronic Rhinosinusitis Severity. *Front Cell Infect Microbiol*. 2019 Feb 27;9:38.
21. Murphy J, Ramezani-pour M, Drilling A, Roscioli E, Psaltis A, Wormald PJ, Vreugde S. In vitro characteristics of an airway barrier-disrupting factor secreted by *Staphylococcus aureus*. *International Forum of Allergy & Rhinology*. 2019 Feb;9(2):187-196.
22. Ooi M, Drilling A, Morales S, Fong S, Moraitis S, Macias-Valle L, Vreugde S, Psaltis A, Wormald PJ. Safety and tolerability of bacteriophage therapy for chronic rhinosinusitis due to staphylococcus aureus. *JAMA Otolaryngology- Head & Neck Surgery*. 2019 Jun 20. doi:10.1001/jamaoto.2019.1191.
23. Ooi M, Jothin A, Bennett C, Ooi E, Vreugde S, Psaltis A, Wormald PJ. Manuka honey sinus irrigations in recalcitrant chronic rhinosinusitis: phase 1 randomized, single-blinded, placebo-controlled trial. *International Forum of Allergy & Rhinology*. 2019 Dec;9(12):1470-1477.
24. Rajak S, Psaltis A. Anatomical considerations in endoscopic lacrimal surgery. *Annals of Anatomy*. 2019 Jul;224:28-32.
25. Ramezani-pour M, Smith J, Ooi M, Gouzou M, Psaltis A, Wormald PJ, Vreugde S. Deferiprone has anti-inflammatory properties and reduces fibroblast migration in vitro. *Scientific Reports*. 2019 Feb 20;9(1):2378.
26. Ramezani-pour M, Bolt H, Psaltis A, Wormald PJ, Vreugde S. Inducing a Mucosal Barrier-Sparing Inflammatory Response in Laboratory-Grown Primary Human Nasal Epithelial Cells. *Curr Protoc Toxicol*. 2019;80(1).
27. Rimmer J, Hellings P, Lund VJ, Alobid I, Beale T, Dassi C... including Psaltis A et al. European position paper on diagnostic tools in rhinology. *Rhinology*. 2019;57:1-41.
28. Rom D, Bassiouni A, Eykman E, Liu Z, Paramasivan S, Alvarado R, et al. The association between disease severity and microbiome in Chronic Rhinosinusitis. *Laryngoscope*. 2019;129(6):1265-1273.
29. Salna I, Jervis-Bardy J, Wabnitz D, Rees G, Psaltis A, Johnson A. Partial adenoidectomy in patients with palatal abnormalities. *Journal of Craniofacial Surgery*. 2019 Jul;30(5):e454-e460.
30. Singh S, Selva D, Nayak A, Psaltis A, Ali MJ. Outcomes of primary powered endoscopic dacryocystorhinostomy in syndromic congenital nasolacrimal duct obstruction. *Orbit (London)*. 2019. doi:10.1080/01676830.2019.1582072.
31. Subramaniam S, Thomas N, Gustafsson H, Jambhrunkar M, Kidd S, Prestidge C. Rifampicin-loaded mesoporous silica nanoparticles for the treatment of intracellular infections. *Antibiotics*. 2019 Apr; 8(2), doi:10.3390/antibiotics8020039.
32. Thorn C, Clulow A, Boyd B, Prestidge C, Thomas N. Bacterial lipase triggers the release of antibiotics from digestible liquid crystal nanoparticles. *Journal of Controlled Release*. 2019 Dec;319, 168-182.
33. Tran LV, Ngo NH, Psaltis AJ. A Radiological Study Assessing the Prevalence of Frontal Recess Cells and the Most Common Frontal Sinus Drainage Pathways. *American Journal of Rhinology and Allergy*. 2019;33(3):323-330.
34. Wang EW, Zanation AM, Gardner PA, Schwartz TH, Eloy JA, Adappa ND, et al, inc Wormald PJ. ICAR: endoscopic skull-base surgery. *International Forum of Allergy and Rhinology*. 2019;9(S3):S145-S365.
35. Wang YP, Shen PH, Hsieh LC, Wormald PJ. Free mucosal grafts and anterior pedicled flaps to prevent ostium restenosis after endoscopic modified Lothrop (frontal drillout) procedure: a randomized, controlled study. *International Forum of Allergy and Rhinology*. 2019;9(11):1387-1394.

UNIVERSITY OF ADELAIDE DISCIPLINE OF SURGERY, TQEH

1. Beckmann K, O'Callaghan M, Vincent A, Cohen P, Borg M, Roder D, Evans S, Millar J, Moretti K. Extent and Predictors of Grade Upgrading and Downgrading in an Australian Cohort According to the New Prostate Cancer Grade Groupings. *Asian J Urol*. Oct 2019;6(4):321-329.
2. Bunjo Z, Koh Y, Leopardi L, Reid J, Maddern G, Hewett P. Surveillance colonoscopies frequently booked earlier than the National Health and Medical Research Council guidelines: findings of a single centre audit. *ANZ Journal of Surgery*. 2019 Mar; 89 (3), E61-E65.
3. Chan J, Gupta A, Babidge W, Worthington M, Maddern G. Technical factors affecting cardiac surgical mortality in Australia. *Asian Cardiovascular & Thoracic Annals*. 2019 Jun; 218492319854888.
4. Chan J, Gupta A, Stewart S, McCulloch G, Babidge W, Worthington M, Maddern G. Mortality in Australian cardiothoracic surgery: Findings from a national audit. *Annals of Thoracic Surgery*. 2019 Nov. doi:10.1016/j.athoracsur.2019.09.060.
5. Chan J, Gupta A, Stewart S, Babidge W, McCulloch G, Worthington M, Maddern G. "Nobody told me": Communication issues affecting Australian cardiothoracic surgery patients. *Annals of Thoracic Surgery*. 2019 Dec; 108 (6), 1801-1806.

6. [Chehade L](#), [Hissaria P](#), [Simon S](#). Calciphylaxis: when a bird is not a duck. *Canadian Journal of Ophthalmology*. 2019 Nov doi:10.1016/j.cjco.2019.08.003.
7. [Christiansen D](#), [Earnest-Silveira L](#), [Grubor-Bauk B](#), [Wijesundara DK](#), [Boo I](#), [Ramsland PA](#), [Vincan E](#), [Drummer HE](#), [Gowans EJ](#), [Torresi J](#). Pre-clinical evaluation of a quadrivalent HCV VLP vaccine in pigs following microneedle delivery. *Sci Rep*. 2019 Jun 25;9(1):9251. doi:10.1038/s41598-019-45461-z.
8. [Curtis N](#), [Dennison G](#), [Brown C](#), [Hewett P](#), [Hanna G](#), [Stevenson A](#), [Francis N](#). Clinical evaluation of intraoperative near misses in laparoscopic rectal cancer surgery. *Annals of Surgery*. 2019 Jul. doi:10.1097/SLA.0000000000003452.
9. [Conte M](#), [Bradbury A](#), [Kolh P](#), [White J](#), [Dick F](#), [Fitridge R](#), [Dawson J](#) et al. Global vascular guidelines on the management of chronic limb-threatening ischemia. *Journal of Vascular Surgery*. 2019;69(6 Supplement):3S-125S.e40.
10. [Conte MS](#), [Bradbury AW](#), [Kolh P](#), [White JV](#), [Dick F](#), [Fitridge R](#), [Dawson J](#) et al. GVG Writing Group for the Joint Guidelines of the Society for Vascular Surgery (SVS), European Society for Vascular Surgery (ESVS), and World Federation of Vascular Societies (WFVS). Global Vascular Guidelines on the Management of Chronic Limb-Threatening Ischemia. *Eur J Vasc Endovasc Surg*. 2019 Jul;58(1S):S1-S109.e33.
11. [Daniels S](#), [Robson D](#), [Palacz M](#), [Howell S](#), [Nguyen T](#), [Behnia-Willison F](#). Success rates and outcomes of laparoscopic mesh sacrohysteropexy. *Australian & New Zealand Journal of Obstetrics & Gynaecology*. 2019 Dec. doi:10.1002/alr.22360.
12. [Davis S](#), [Babidge W](#), [McCulloch G](#), [Maddern G](#). Fatal flaws in clinical decision making. *ANZ Journal of Surgery*. 2019 Jun; 89(6):764-768.
13. [Davis S](#), [Babidge W](#), [Kiermeier A](#), [Maddern G](#). Regional versus metropolitan pancreaticoduodenectomy mortality in Australia. *ANZ Journal of Surgery*. 2019 Jul doi:10.1111/ans.15336.
14. [Dudhwala Z](#), [Drew P](#), [Howarth G](#), [Moore D](#), [Cummins A](#). Active beta-catenin signaling in the small intestine of humans during infancy. *Digestive Diseases & Sciences*. 2019 01;64(1):76-83.
15. [Fitridge R](#), [Pena G](#), [Mills JL](#). The patient presenting with chronic limb-threatening ischaemia. Does diabetes influence presentation, limb outcomes and survival? *Diabetes Metab Res Rev*. 2019 Dec;22:e3242. doi:10.1002/dmrr.3242.
16. [Forgione M](#), [Sara S](#), [Vincent AD](#), [Borg M](#), [Moretti K](#), [O'Callaghan ME](#). Satisfaction with care in men with prostate cancer. *Eur J Cancer Care (Engl)*. 2019 Jul;28(4), e13028.
17. [Frankel A](#), [Gillespie C](#), [Lu CT](#), [Hewett P](#), [Wattchow D](#). Subcutaneous neostigmine appears safe and effective for acute colonic pseudo-obstruction (Ogilvie's syndrome). *ANZ J Surg*. 2019 Jun;89 (6), 700-705.
18. [Gan S](#), [Rosli R](#), [Kiroff G](#), [Rana A](#), [Tonkin D](#). Gas in gallbladder-gallstone ileus? *Journal of Surgical Case Reports*. 2019 Aug;(8):rjz243.
19. [Gostlow H](#), [Vega CV](#), [Marlow N](#), [Babidge W](#), [Maddern G](#). Participant perceptions of the Laparoscopic Simulation Skills Program. *ANZ Journal of Surgery*. 2019 Nov ;89(11):1365-1367.
20. [Grant K](#), [Vo T](#), [Tiong L](#). The painful truth: work-related musculoskeletal disorders in Australian surgeons. *Occupational Medicine*. 2019 Dec. doi:10.1093/occmed/kqz155.
21. [Gricks B](#), [Woo H](#), [Lai C](#). Tweeting the meeting: an analysis of Twitter activity at the Royal Australasian College of Surgeons Annual Scientific Congress from 2015 to 2018. *ANZ Journal of Surgery*. 2019 Oct. doi:10.1111/ans.15474.
22. [Grubor-Bauk B](#), [Wijesundara D](#), [Masavuli M](#), [Abbink P](#), [Peterson R](#), [Prow N](#), [Larocca R](#), [Mekonnen Z](#), [Shrestha A](#), [Eyre N](#), [Beard M](#), [Gummow J](#), [Carr J](#), [Robertson S](#), [Hayball J](#), [Barouch D](#), [Gowans E](#). NS1 DNA vaccination protects against Zika infection through T cell-mediated immunity in immunocompetent mice. *Science Advances*. 2019 Dec; 5(12):eaax2388.
23. [Gupta A](#), [Kanhare H](#), [Maddern G](#), [Trochsler M](#). Response to Re: Liver resection in octogenarians: are the outcomes worth the risk? *ANZ Journal of Surgery*. 2019 Jan;89(1-2):132.
24. [Heijkoop B](#), [Gillespie H](#), [Kiroff G](#). Emergency management of massive haemoptysis. *BMJ Case Reports*. 2019 Jan; 12(1): e225620.
25. [Heijkoop B](#), [Parker N](#), [Kiroff G](#), [Spernat D](#). Effectiveness and safety of inpatient versus extended venous thromboembolism (VTE) prophylaxis with heparin following major pelvic surgery for malignancy: protocol for a systematic review. *Syst Rev*. 2019 Oct 30;8(1):249.
26. [Hewitt J](#), [Gupta A](#), [Maddern G](#), [Trochsler M](#). Adrenaline in local anaesthetics: do students and junior doctors still believe the myth? A survey. *ANZ Journal of Surgery*. 2019 Nov; 89(11):1367-1368.
27. [Hummel R](#), [Ha N](#), [Lord A](#), [Trochsler M](#), [Maddern G](#), [Kanhare H](#). Centralisation of oesophagectomy in Australia: is only caseload critical? *Australian Health Review*. 2019 Feb; 43(1):15-20.
28. [Ingman WV](#). The gut microbiome: a new player in breast cancer metastasis. *Cancer Research*. 2019; 79(14):3539-3541.
29. [Jacombs A](#), [Karatassas A](#), [Klosterhalfen B](#), [Richter K](#), [Patinott P](#), [Hensman C](#). Biofilms and effective porosity of hernia mesh: are they silent assassins? *Hernia*. 2019 Oct. doi:10.1007/s10029-019-02063-y.
30. [Johan MZ](#), [Ingman WV](#), [Robertson SA](#), [Hull ML](#). Macrophages infiltrating endometriosis-like lesions exhibit progressive phenotype changes in a heterologous mouse model. *J Reprod Immunol*. 2019 132:1-8.
31. [John A](#), [O'Callaghan M](#), [Catterwell R](#), [Selth L](#). Does Gleason score of positive surgical margin after radical prostatectomy affect biochemical recurrence and oncological outcomes? A systematic review protocol. *Prospero* 2019 CRD42019131800 Available from: www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42019131800.
32. [Kinnear N](#), [Hua L](#), [Heijkoop B](#), [Hennessey D](#), [Spernat D](#). The impact of intra-operative cell salvage during radical prostatectomy. *European Journal of Surgical Oncology*. 2019 Nov;45(11):2215-2215.
33. [Kirana C](#), [Peng L](#), [Miller R](#), [Keating J](#), [Glenn C](#), [Shi H](#), [Jordan T](#), [Maddern G](#), [Stubbs R](#). Combination of laser microdissection, 2D-DIGE and MALDI-TOF MS to identify protein biomarkers to predict colorectal cancer spread. *Clinical Proteomics*. 2019 Jan 22;16:3.
34. [Kozman M](#), [Tonkin D](#), [Eteuati J](#), [Karatassas A](#), [McDonald C](#). Robotic-assisted ventral hernia repair with surgical mesh: how I do it and case series of early experience. *ANZ Journal of Surgery*. 2019 Mar; 89(3):248-254.

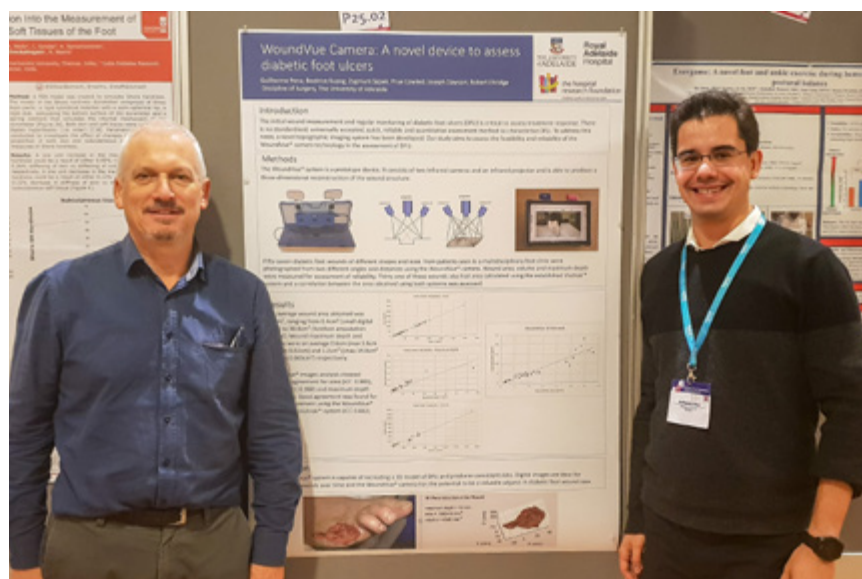
35. Lazzarini PA, [Fitridge R](#). Regional variations in amputation rates: are regional diabetic foot services the reason? *ANZ J Surg*. 2019 Jul;89(7-8):796-797. doi:10.1111/ans.15161.
36. Liu E, Estevez J, Kaidonis G, Hassall M, Phillips R, Raymond G, Saha N, [Wong G](#), [Gilhotra J](#), Burdon K, Landers J, Henderson T, Newland H, Lake S, Craig E. Long-term survival rates of patients undergoing vitrectomy for diabetic retinopathy in an Australian population: a population-based audit. *Clinical & Experimental Ophthalmology*. 2019 Jul; 47(5):598-604.
37. Liu J, [Reid J](#), [Leopardi L](#), Edwards S, [Trochler M](#), [Maddern G](#). Progress towards near-zero 90-day mortality: 388 consecutive hepatectomies over a 16-year period. *ANZ Journal of Surgery*. 2019 Sept;89 (9), 1144-1147.
38. Lojanapiwat Bet al, including [Moretti K](#). Report of the third Asian Prostate Cancer Study Meeting. *Prostate International*. 2019 June; 7 (2), 60-67.
39. Lurvink R, Villeneuve L, Govaerts K ... [Hewett P et al](#). The Delphi and GRADE methodology used in the PSOGI 2018 consensus statement on Pseudomyxoma Peritonei and Peritoneal Mesothelioma. *European Journal of Surgical Oncology*. 2019 Mar 23. pii: S0748-7983(19)30337-3.
40. [Maddern G](#). Introduction of new surgical techniques and technologies. *ANZ Journal of Surgery*. 2019 Jun; 89(6):625-626.
41. Marron C, [Fitridge R](#). Endovascular interventions are increasing to meet the clinical demands of modern peripheral arterial disease patients. *ANZ Journal of Surgery*. 2019 Apr; 89(4): 277-278.
42. [Masavuli MG](#), [Wijesundara DK](#), Underwood A, Christiansen D, Earnest-Silveira L, Bull R, Torresi J, [Gowans EJ](#), [Grubor-Bauk G](#). A hepatitis C virus DNA vaccine encoding a secreted, oligomerized form of envelope proteins is highly immunogenic and elicits neutralizing antibodies in vaccinated mice. *Frontiers in Immunology*. 2019;10: 1145.
43. [Mekonnen ZA](#), [Grubor-Bauk B](#), English K, Leung P, [Masavuli MG](#), [Shrestha AC](#), Bertolino P, Bowen DG, Lloyd AR, [Gowans EJ](#), [Wijesundara DK](#). Single dose vaccination with a hepatotropic Adeno-associated virus (AAV) efficiently localises T cell immunity in the liver with the potential to confer rapid protection against hepatitis C virus (HCV). *J Virol*. 2019 Sep;93(19).
44. [Mekonnen ZA](#), [Grubor-Bauk B](#), [Masavuli MG](#), [Shrestha AC](#), [Ranasinghe C](#), Bull RA, Lloyd AR, [Gowans EJ](#), [Wijesundara DK](#). Toward DNA-based T-cell mediated vaccines to target HIV-1 and hepatitis C virus: approaches to elicit localized immunity for protection. *Front Cell Infect Microbiol*. 2019 April;9:91.
45. [Myers JC](#), Jamieson GG, Szczesniak MM, Estremera-Arévalo F, Dent J. Asymmetrical elevation of esophagogastric junction pressure suggests hiatal repair contributes to antireflux surgery dysphagia. *Dis Esophagus*. 2019 Nov 29. pii: doz085. doi:10.1093/dote/doz085.
46. Mukherjee P, Clark J, Wallace G, Cheng K, Solomon M, Richardson A, [Maddern G](#). Discussion paper on proposed new regulatory changes on 3D technology: a surgical perspective. *ANZ Journal of Surgery*. 2019 Jan; 89(1-2):117-121.
47. Nadi S, Vreugdenburg T, Atukorale Y, Ma N, [Maddern G](#), Rovers M. Safety and effectiveness of aspirin and enoxaparin for venous thromboembolism prophylaxis after total hip and knee arthroplasty: a systematic review. *ANZ Journal of Surgery*. 2019 Apr. doi:10.1111/ans.15122.
48. Opperman K, Vandyke K, Clark K, Coulter E, Hewett D, Mrozik K, Schwarz N, [Evdokiou A](#), Croucher P, Psaltis P, Noll J, Zannettino A. Clodronate-liposome mediated macrophage depletion abrogates multiple myeloma tumor establishment in vivo. *Neoplasia*. 2019 Aug; 21(8):777-787.
49. [Pena G](#), [Kuang B](#), [Cowled P](#), [Howell S](#), [Dawson J](#), [Philpot R](#), [Fitridge R](#). Micronutrient Status in Diabetic Patients with Foot Ulcers. *Advances in Wound Care*. Published Online:24 May 2019 doi:10.1089/wound.2019.0973.
50. [Pena G](#), [Kuang B](#), Szpak Z, [Cowled P](#), [Dawson J](#), [Fitridge R](#). Evaluation of a Novel Three-Dimensional Wound Measurement Device for Assessment of Diabetic Foot Ulcers. *Advances in Wound Care*. Published Online:23 Oct 2019 doi:10.1089/wound.2019.0965.
51. [Pham C](#), [Lizarondo L](#), [Karnon J](#), [Aromataris E](#), [Munn Z](#), [Gibb C](#), [Fitridge R](#), [Maddern G](#). Strategies for implementing shared decision making in elective surgery by health care practitioners: A systematic review. *J Eval Clin Pract*. 2019 Sep 6. doi:10.1111/jep.13282. Review.
52. [Rana A](#), [Hewett P](#). Multiple small bowel perforations secondary to tumor lysis - a complication of pseudomyxoma peritonei in a patient undergoing intraperitoneal chemotherapy. *Journal of Gastrointestinal Cancer*. 2019 Feb. doi:10.1007/s12029-019-00216-x Still EPUB.
53. [Rao Kadam V](#), [Ludbrook G](#), [van Wijk RM](#), [Hewett PJ](#), [Moran JL](#), [Thiruvengatarajan V](#), [Williams PJ](#). Comparison of ultrasound-guided transmuscular quadratus lumborum block catheter technique with surgical pre-peritoneal catheter for postoperative analgesia in abdominal surgery: a randomised controlled trial. *Anaesthesia*. 2019 Nov;74(11):1381-1388.
54. [Richter K](#). Tackling superbugs in their slime castles: Innovative approaches against antimicrobial-resistant biofilm infections. *Microbiology Australia*. 2019 Nov; 40(4):165-168.
55. [Roy S](#), [Jaeson MI](#), [Li Z](#), [Mahboob S](#), [Jackson RJ](#), [Grubor-Bauk B](#), [Wijesundara DK](#), [Gowans EJ](#), [Ranasinghe C](#). Viral vector and route of administration determine the ILC and DC profiles responsible for downstream vaccine-specific immune outcomes. *Vaccine*. 2019;37: 1266-76.
56. [Roediger W](#). Causation of human ulcerative colitis: A lead from an animal model that mirrors human disease. *JGH Open*. 2019 Aug; 3(4):277-280.
57. [Shrestha AC](#), [Wijesundara DK](#), [Masavuli MG](#), [Mekonnen ZA](#), [Gowans EJ](#), [Grubor-Bauk B](#). Cytolytic perforin as an adjuvant to enhance the immunogenicity of DNA vaccines. *Vaccines*. 2019 Apr;30;7(2).
58. [Stevens C](#), [Reid J](#), [Babidge W](#), [Maddern G](#). Peer review of mortality after pancreaticoduodenectomy in Australia. *HPB*. 2019 Nov;21(11):1470-1477.
59. [Stevens C](#), [Watters D](#). Short-term outcomes of pancreaticoduodenectomy in the state of Victoria: Hospital resources are more important than volume. *ANZ Journal of Surgery*. 2019 Dec; 89(12):1577-1581.
60. [Stevenson A](#), [Solomon M](#), [Brown C](#), [Lumley J](#), [Hewett P](#), [Clouston A](#), [Gebbski V](#), [Wilson K](#), [Hague W](#), [Simes J](#). Disease-free survival and local recurrence after laparoscopic-assisted resection or open resection for rectal cancer: The Australasian Laparoscopic Cancer of the Rectum Randomized Clinical Trial. *Annals of Surgery*. 2019 Apr;269(4):596-602.

61. White J, Conte M, Bradbury A, Kolh P, Dick F, Fitridge R, Mills J, Ricco J, Suresh K. Building a global alliance in vascular surgery. *Journal of Vascular Surgery*. 2019 Sep; 70(3): 663-664.
62. Vega Vega C, Gostlow H, Marlow N, Babidge W, Maddern G. Characteristics of participants who withdraw from surgical simulation-based education research. *BMJ Simulation and Technology Enhanced Learning*. 2019; 5:34-38.
63. Watson M, Maddern G, Mudalige V, Pradhan C, Wichmann M. Rural emergency laparotomy audit. *ANZ Journal of Surgery*. 2019 Jun; 89(6):666-671.
64. White J, Conte M, Bradbury A, Kolh P, Dick F, Fitridge R, Mills J, Ricco J, Suresh K. Building a global alliance in vascular surgery. *Journal of Vascular Surgery*. 2019 Sep; 70(3): 663-664.
65. White J, Conte M, Bradbury A, Kolh P, Dick F, Fitridge R, Mills J, Ricco JB, Suresh K. Building a Global Alliance in Vascular Surgery. *Eur J Vasc Endovasc Surg*. 2019 Sep;58(3):318-319.
66. Wilcox A, Trooboff S, Lai C, Turner P, Wong S. Trends in gender representation at the American College of Surgeons Clinical Congress and the Academic Surgical Congress: A mixed picture of progress. *Journal of the American College of Surgeons*. 2019;229(4): 397-403.
67. Yamaguchi H, Pantarat N, Suzuki T, Evdokiou A. Near-infrared photoimmunotherapy using a small protein mimetic for HER2-overexpressing breast cancer. *International Journal of Molecular Sciences*. 2019 Nov; 20(23):Article Number: 58352019.
68. Young E, Stewart S, McCulloch G, Maddern G. Appendectomy mortality: an Australian national audit. *ANZ Journal of Surgery*. 2019 Nov;89 (11), 1441-1445.
7. Mohammed YH, Holmes A, Haridass IN, Sanchez WY, Studier H, Grice JE, Benson HAE, Roberts MS. Support for the Safe Use of Zinc Oxide Nanoparticle Sunscreens: Lack of Skin Penetration or Cellular Toxicity after Repeated Application in Volunteers. *J Invest Dermatol*. 2019 Feb;139(2):308-315.
8. Nastiti C, Mohammed Y, Telaprolu K, Liang X, Grice J, Roberts M, Benson H. Evaluation of quantum dot skin penetration in porcine skin: Effect of age and anatomical site of topical application. *Skin Pharmacology & Physiology*. 2019 May; 1-10.
9. Rainsford K, Roberts M, Nencioni A, Jones C. Rationale and evidence for the incorporation of heparin into the diclofenac epolamine medicated plaster. *Current Medical Research and Opinion*. 2019 Jun;35(6):989-1002.
10. Sandiford L, Holmes A, Mangion S, Mohammed Y, Zvyagin A, Roberts M. Optical characterization of zinc pyrithione. *Photochemistry & Photobiology*. 2019 Sep; 95(5):1142-1150.
11. Schultz HB, Vasani RB, Holmes AM, Roberts MS, Voelcker NH. Stimulus-Responsive Antibiotic Releasing Systems for the Treatment of Wound Infections. *Applied Bio Materials*. 2019; 2 (2), 704-716.
12. Vieira CO, Grice JE, Roberts MS, Haridass IN, Duque MD, Lopes PS, Leite-Silva VR, Martins TS. ZnO:SBA-15 Nanocomposites for Potential Use in Sunscreen: Preparation, Properties, Human Skin Penetration and Toxicity. *Skin Pharmacol Physiol*. 2019;32(1):32-42.
13. Wang H, Lu H, Yang H, Zhang X, Thompson E, Roberts M, Hu Z, Liang X, Li X. Impact of age on risk of lymph node positivity in patients with colon cancer. *Journal of Cancer*. 2019;10(9):2102-2108.
14. Xiao W, Green TIP, Liang X, Delint RC, Perry G, Roberts MS, Le Vay K, Back CR, Ascione R, Wang H, Race PR, Perriman AW. Designer artificial membrane binding proteins to direct stem cells to the myocardium. *Chemical Science*. 2019;10 (32), 7610-7618.
15. Yousef SA, Mohammed YH, Namjoshi S, Grice JE, Benson HAE, Sakran W, Roberts MS. Mechanistic evaluation of enhanced curcumin delivery through human skin *in vitro* from optimised nanoemulsion formulations fabricated with different penetration enhancers. *Pharmaceutics*. 2019 Dec 1;11(12).

THERAPEUTICS RESEARCH CENTRE, UNIVERSITY OF SOUTH AUSTRALIA

1. Abd E, Benson HAE, Mohammed YH, Roberts MS, Grice JE. Permeation Mechanism of Caffeine and Naproxen through in vitro Human Epidermis: Effect of Vehicles and Penetration Enhancers. *Skin Pharmacol Physiol*. 2019 Mar 25;32(3):132-141.
2. Abraham J, Sinnollareddy M, Roberts M, Williams P, Peake S, Lipman J, Roberts J. Plasma and interstitial fluid population pharmacokinetics of vancomycin in critically ill patients with sepsis. *International Journal of Antimicrobial Agents*. 2019 Feb;53(2):137-142.
3. Benson H, Grice J, Mohammed Y, Namjoshi S, Roberts M. Topical and transdermal drug delivery: From simple potions to smart technologies. *Current Drug Delivery*. 2019; 16(5):444-460.
4. Benson H, Roberts MS, Leite V and Walters KA. K23046: Cosmetic Formulation: Principles and Practice, CRC Press (Taylor & Francis Group), April 19, 2019 pp479.
5. Haridass I, Wei J, Mohammed Y, Crichton M, Anderson C, Henricson J, Sanchez W, Meliga S, Grice J, Benson H, Kendall M, Roberts M. Cellular metabolism and pore lifetime of human skin following microprojection array mediation. *Journal of Controlled Release*. 2019 May;306:59-68.
6. Latter G, Grice JE, Mohammed Y, Roberts MS, Benson HAE. Targeted topical delivery of retinoids in the management of acne vulgaris: current formulations and novel delivery systems. *Pharmaceutics*. 2019 Sep 24;11(10).

HIGH PROFILE INTERNATIONAL TALKS 2019



CONFERENCE/MEETING	TITLE OF PRESENTATION	SIGNIFICANCE	LOCATION	DATE
RENUKA VISVANATHAN ADELAIDE G-TRAC CENTRE				
22 nd Family Medicine Scientific Conference	Frailty Syndrome: Issues and Controversies	Symposium	Kuching, Malaysia	August
GERICON 19: 17 th National Conference of the Indian Academy of Geriatrics	Frailty: Disease Burden and Screening	Venkoba Rao Oration	Vellore, India	December
ANAPAM DATTA GUPTA REHABILITATION MEDICINE				
2 nd Australasian Diagnostic Error in Medicine Conference	Rethinking diagnosis and reducing diagnostic errors in Rehabilitation Medicine	Platform Presentation	Melbourne, Australia	April
NIGEL QUADROS REHABILITATION MEDICINE				
International Society of Physical and Rehabilitation Medicine	Screening of Sarcopenia in Ageing Polio Survivors in South Australia	Platform Presentation	Melbourne, Australia	June
KIM MORETTI SA-PCCOC				
10 th Urology Residents' Course	1. SA-PCCOC Prostate Cancer Registry 2. New and Novel Minimally Invasive and Endoscopic Therapies for BPH (benign prostatic hyperplasia)	Plenary Lectures	Singapore	July
17 th Urological Association of Asia Congress in conjunction with 28 th Malaysian Urological Conference	Prostate Cancer Outcomes Registry – Australia and New Zealand (PCOR-ANZ)	Plenary Lecture	Kuala Lumpur, Malaysia	August
71 st Korean Urological Association Scientific Meeting	How quality cancer registries can lead to improved outcomes - the example of PCOR-ANZ	Invited presentation representing the Urological Association of Australia and New Zealand	Seoul, Korea	October
JOHN HOROWITZ CARDIOVASCULAR PATHOPHYSIOLOGY AND THERAPEUTICS GROUP				
Cardiology World Conference	Coronary Artery Spasm: Pathogenesis, Diagnosis and Treatment	Plenary Lecture	Tokyo, Japan	October

L: **Professor Rob Fitridge** and **Dr Guilherme Pena**, Vascular Surgery Research Group, attended the 8th International Symposium on the Diabetic Foot in The Hague, Netherlands in May 2019.

R: **Professor Benedetta Sallustio** accepted her ASCEPT Plenary Lecturer award from Dr John Thompson at the British Toxicology Society Annual Congress in Cambridge, UK.

HIGH PROFILE INTERNATIONAL TALKS 2019

CONFERENCE/MEETING	TITLE OF PRESENTATION	SIGNIFICANCE	LOCATION	DATE
BENEDETTA SALLUSTIO CLINICAL PHARMACOLOGY RESEARCH GROUP				
British Toxicology Society Annual Congress	Transplantation: transporters, genetics and immunosuppressant nephrotoxicity	ASCEPT Invitation Lecture (Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists)	Cambridge, UK	April
JOHN BELTRAME TRANSLATIONAL VASCULAR FUNCTION RESEARCH COLLABORATIVE				
American College of Cardiology 68 th Annual Scientific Sessions	MINOCA Definition and Outcomes	Invited Speaker	New Orleans, USA	March
European Society of Cardiology Congress	State of the Art - Identifying the causes of MINOCA - How far should we go?	Invited Speaker	Paris, France	August
SIVABASKARI (THARSHY) PASUPATHY TRANSLATIONAL VASCULAR FUNCTION RESEARCH COLLABORATIVE				
European Society of Cardiology Congress	Survival after myocardial infarction with non-obstructive coronary arteries (MINOCA)-A comprehensive systematic review and meta-analysis	Invited Speaker	Paris, France	August
ROBERT FITRIDGE VASCULAR SURGERY RESEARCH GROUP				
8 th International Symposium on the Diabetic Foot		Plenary Lecture	The Hague, Netherlands	May
ANZSVS Conference 2019 (Australian and New Zealand Society for Vascular Surgery)	The Global Vascular Guidelines on Chronic Limb-threatening Ischaemia	Plenary Lecture	Adelaide, Australia	August
DFCon19 (Diabetic Foot Conference)	Global Vascular Guidelines for Chronic Limb-threatening Ischaemia: Crossing the bridge from creation to implementation	Plenary Lecture	Los Angeles, USA	October
PETER ZALEWSKI ZINC AND CARDIOVASCULAR DISEASE RESEARCH GROUP				
International Society of Zinc Biology	Dysregulation of zinc homeostasis in disease of the respiratory and cardiovascular systems	Invited Speaker	Kyoto, Japan	September
SANDRA PEAKE INTENSIVE CARE MEDICINE RESEARCH GROUP				
48 th Critical Care Congress	1. ANZICS Critical Care Trials Group 2. Are the results of clinical trials generalizable? Comparison of different clinical trial designs	Invited Speaker	San Diego, USA	February
39 th International Symposium on Intensive Care and Emergency Medicine	1. How to feed obese critically ill patients 2. What is the TARGET?	Invited Speaker	Brussels, Belgium	March
Brazilian Congress of Intensive Care Medicine	1. Fluids versus vasoressors in early phase of resuscitation in sepsis 2. Clinical trials in the critically ill: why are they so difficult? 3. Calorie delivery in the critically ill 4. How should we feed the obese critically ill? 5. TARGET trial - functional outcomes after 6 months	Invited Speaker	Fortaleza, Brazil	November
CATHERINE HILL RHEUMATOLOGY RESEARCH GROUP				
21 st Asia Pacific League of Associations for Rheumatology Congress	Giant Cell Arteritis (GCA) Pathogenesis and Treatment	Plenary Lecture	Brisbane, Australia	April
Indian Rheumatology Association Conference	Glucocorticoid Therapy in Rheumatic Disease: Big data to patient perspectives	Plenary Lecture	Pondicherry, India	December

HIGH PROFILE INTERNATIONAL TALKS 2019



CONFERENCE/MEETING	TITLE OF PRESENTATION	SIGNIFICANCE	LOCATION	DATE
MAUREEN RISCHMUELLER RHEUMATOLOGY RESEARCH GROUP				
21 st Asia Pacific League of Associations for Rheumatology Congress	Sjögren's Syndrome	Plenary Lecture	Brisbane, Australia	April
Ruttonjee Hospital	Case challenges: the evolving role of IL-17 inhibitors in psoriatic arthritis	Grand Round	Hong Kong, China	July
Hong Kong Society of Rheumatology PsA symposium	The evolving treatment landscape for psoriatic arthritis	Plenary Lecture	Hong Kong, China	July
MICHAEL ROBERTS THERAPEUTICS RESEARCH CENTRE				
American Society for Clinical Pharmacology and Therapeutics pre-conference: dermal drug delivery	Physiologically based Pharmacokinetic (PBPK) Models of the skin (Considering Dosage Form Properties)	Invited Talk	Washington DC, USA	March
PETER-JOHN WORMALD ENT SURGERY				
University of Hokkaido	FESS Course	Lecture	Sapporo, Japan	January
Taiwan Society of Otorhinolaryngology Head and Neck Surgery	Sinus Academy Dissection Course	Lecture	Taipei, Taiwan	February
Masterclass of Endoscopic Sinus Surgery		Lecture	Mexico City, Mexico	March
Cedars-Sinai Otolaryngology Conference		Lecture	Los Angeles, USA	March
Advanced Endoscopic Sinus Surgery Course & Vascular Injury Workshop		Lecture	Vienna, Austria	June

L: **Professor Catherine Hill**, Rheumatology Research Group.

R: **Professor PJ Wormald**, **Associate Professor Sarah Vreugde**, **Associate Professor Alkis Psaltis**, ENT Surgery.

HIGH PROFILE INTERNATIONAL TALKS 2019

CONFERENCE/MEETING	TITLE OF PRESENTATION	SIGNIFICANCE	LOCATION	DATE
PETER-JOHN WORMALD ENT SURGERY cont.				
13 th Wessex Advanced FESS Course	Frontal Sinus 3D Masterclass	Lecture	Winchester, UK	June
American Rhinological Society (ARS)	North American Masterclass in Endoscopic Sinus Surgery	Lecture	New Orleans, USA	September
NICKY THOMAS ENT SURGERY				
Controlled Release Society Annual Meeting	Science communication	Invited workshop presenter	Valencia, Spain	July
ALKIS PSALTIS ENT SURGERY				
University of Southern California Advanced sinus course	Optimizing outcomes in DCR surgery. The microbiome and the paranasal sinuses. Improving maxillary sinus surgical outcomes. Optimizing the surgical field in sinus surgery.	Lecture	Los Angeles, USA	March
Masterclass Cirugia Endoscopia Espanol University Mexico City	Revision Sinus Surgery – improving outcomes. DCR outcomes and Revision DCR. International microbiome collaboration. Endoscopic repair of CSF leaks.	Lecture	Mexico City, Mexico	March
Rhinoworld Chicago	1. The role of the microbiome in chronic rhinosinusitis 2. Animal models of chronic rhinosinusitis 3. Management of carotid artery bleeding 4. Haemostasis and endoscopic sinus surgery 5. Extended approaches to the maxillary and sphenoid sinus	Lecture	Chicago, USA	June
1 st Viennese Endoscopic Sinus Surgery Workshop	Optimizing the surgical field in sinus surgery Interpretation of sinus imaging pre-operatively	Lecture	Vienna, Austria	June
Vascular Injury workshop	Evidence based management of carotid artery injuries	Lecture	Vienna, Austria	June
Association of Southeast Asian Nations, Singapore Annual Scientific Meeting	Updates on the pathogenesis of Chronic Rhinosinusitis	Plenary Lecture and Pre-satellite FESS course	Singapore	August
Brazilian Otolaryngology Foundation Congress	New Insights into the poathogenesis of Chronic Rhinosinusitis. A structured approach to the maxillary sinus. Frontal Sinus Surgery. The role of the microbiome in CRS.	Plenary Lecture	Sao Paulo, Brazil	August
American Academy of Otolaryngology Head and Neck Surgery, Instructional Workshop	3D anatomy of the paranasal sinuses and skull base surgery	Lecture	New Orleans, USA	September
Australian and New Zealand Rhinologic Society	Minimal Sinus Disease Panel	Panel Moderator	Melbourne, Australia	September
The 72 nd Annual General and Scientific Meeting of the New Zealand Society of Otolaryngology Head and Neck Surgery	1. Update on the pathogenesis of CRS 2. The Sinonasal Microbiome 3. Treatment of Recalcitrant Nasal Polyposis	Plenary Lecture	Dunedin, New Zealand	October
SAM COSTELLO INFLAMMATORY BOWEL DISEASE RESEARCH GROUP				
Probiota Asia	The evolution of faecal microbiota transplantation	Invited Lecture	Singapore	October

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**IN 2019, THE COMMITTEE
WAS DELIGHTED TO
RECEIVE 43 ABSTRACTS
WHICH IS A RECORD
NUMBER FOR THIS EVENT!**



The 28th TQEH Research Expo was held on Thursday 10th and Friday 11th October 2019 and presented the valuable research being conducted by students and trainees here at the BHI, TQEH. TQEH Research Expo is a major event in our research calendar and plays an important role in the professional development of the next generation of researchers. In 2019, the Committee was delighted to receive 43 Abstracts which is a record number for this event! Twenty three students took part in the mini-oral/poster competition on Thursday morning and twenty students gave oral presentations on the Friday.

In addition to student/trainee presentations on Thursday morning, donors of The Hospital Research Foundation (THRF) were invited to join BHI, TQEH researchers for “TQEH Researcher Showcase” in the afternoon. An introduction by THRF CEO Mr Paul Flynn was followed by short talks from two BHI students who were Faculty of Health and Medical Sciences finalists in The University of Adelaide’s three minute thesis (3MT) competition. Amita Ghadge (Breast Biology and Cancer Unit) and Dr Tom Eldredge (Oesophageal Physiology Group) gave their 3 minute talks on “Why Alex Dunphy won’t get breast cancer” and “Can we win the war on obesity?” respectively. These talks were followed by a panel discussion chaired by Director of Research BHI, TQEH, Professor Guy Maddern, titled “Challenges and Solutions to Medical Research”. Panellists included Professor John Beltrame (CALHN Director of Research and academic cardiologist), Professor Catherine Hill (Director of TQEH Rheumatology Unit) and Fiona Smithson (THRF Director Strategy and Partnerships, and Executive Director of the Centre for Creative Health). Afternoon tea, generously provided by THRF, was then enjoyed by donors and researchers alike.

On Friday 11th October there were 5 sessions of oral presentations from students and clinical trainees based at the BHI, TQEH. In the middle of the day an engaging Plenary Lecture was delivered by Professor John Rasko AO, who is Professor of Medicine at the Centenary Institute in Sydney. The title of his talk was “Cell and Gene Therapy: great power brings great responsibility”, the latter part of the quote borrowed from the original Spiderman comic! The day concluded with the presentation of awards by the Honourable

Stephen Wade MLC, SA Minister for Health and Wellbeing. We thank all our generous sponsors for making this two day highlight of TQEH research possible: The Hospital Research Foundation, The University of Adelaide (Faculty of Health and Medical Sciences), University of South Australia (School of Pharmacy and Medical Sciences), plus industry sponsors Abacus dx, AGRF, Beckman Coulter, Bio-Strategy, Chem-Supply, Eppendorf and Southern Cross Science.

DR PRUE COWLED

Interim Chair

TQEH Research Expo Committee

BASIL HETZEL INSTITUTE

TQEH RESEARCH EXPO 2019

AWARD WINNERS



AWARD CATEGORY	VALUE AWARD SPONSOR	WINNER	BHI RESEARCH GROUP
Best Oral Presentation: Honours and Summer Vacation Students	\$1,000 The University of Adelaide & The Hospital Research Foundation	Ahad Sabab	ENT Surgery
Best Oral Presentation: Junior Laboratory PhD Students	\$1,000 University of South Australia	Laurine Kaul	Surgical Science Research Group
Best Oral Presentation: Senior Laboratory PhD Students	\$1,000 University of South Australia & Southern Cross Science	Amita Ghadge	Breast Biology and Cancer Unit
Best Oral Presentation: Clinical Trainees	\$1,000 The Hospital Research Foundation	Oscar Russell	Rheumatology Research Group
Best Oral Presentation: Clinical Higher Degree Students	\$1,000 The University of Adelaide	Mark Thompson	Adelaide G-TRAC Centre
Best Poster and Mini-Oral Presentation (Laboratory)	\$500 The Hospital Research Foundation	Maryam Nakhjavani	Solid Tumour Group
Best Poster and Mini-Oral Presentation (Clinical)	\$500 The Hospital Research Foundation	Tom Eldredge	Oesophageal Physiology Group
Best Lay Description	\$350 Chem-Supply	Unyime Jasper	Adelaide G-TRAC Centre

L-R: **Professor John Beltrame** (CALHN Director of Research), **Paul Flynn** (CEO THRF), **Ahad Sabab**, **Mark Thompson**, **Laurine Kaul**, **Maryam Nakhjavani**, **Dr Oscar Russell**, **Dr Tom Eldredge**, The Honourable **Stephen Wade MLC** (Minister for Health and Wellbeing), **Professor Guy Maddern** (Director of Research, BHI, TQEH).

AWARDS 2019



RECIPIENT	AWARD	SPONSOR	VALUE
ADELAIDE G-TRAC CENTRE			
Agathe Jadcak April	Robert Penhall Early Career Researcher Award	Australian Association of Gerontology - South Australia Division	\$1,000
Agathe Jadcak May	Faculty of Health and Medical Sciences Research Travel Award	Faculty of Health and Medical Sciences, The University of Adelaide	\$2,755
Joanne Dollard September	Faculty of Health and Medical Sciences Research Travel Award	Faculty of Health and Medical Sciences, The University of Adelaide	\$3,000
Mark Thompson November	Rising Star Best Publication Award	Australian and New Zealand Society for Sarcopenia and Frailty Research	\$500
Renuka Visvanathan November	Fellowship	Australian Association of Gerontology	-
BREAST BIOLOGY AND CANCER UNIT			
Sarah Bernhardt June	Ross Wishart People's Choice Award	ASMR: Australian Society for Medical Research	-
Amita Ghadge August	3MT Finalist	Faculty of Health and Medical Sciences, The University of Adelaide	-
Sarah Bernhardt September	Florey Medical Research Foundation Prize, John Barker Prize & Adelaide Medical School Prize	Faculty of Health and Medical Sciences, The University of Adelaide	total \$800
Sarah Bernhardt November	Best PhD student poster	Robinson Research Institute symposium, The University of Adelaide	-

L: **Sarah Bernhardt**, Breast Biology and Cancer Unit.
R: **Dr Mark McGregor** and **Professor Tim Price**, Solid Tumour Group.



RECIPIENT	AWARD	SPONSOR	VALUE
SOLID TUMOUR GROUP			
Mark McGregor August	Best New Concept Award	AGITG: Australasian Gastrointestinal Trials Group	\$3,500
Maryam Nakhjavani October	Doctor Chun Chung Wong and Madam So Sau Lam Memorial Postgraduate Cancer Research Top-Up Scholarship	Faculty of Health and Medical Sciences, The University of Adelaide	\$7,000
CARDIOVASCULAR PATHOPHYSIOLOGY AND THERAPEUTICS GROUP			
Sven Surikow August	Ralph Reader Prize Finalist (Basic Science)	CSANZ: Cardiac Society of Australia and New Zealand	\$500
TRANSLATIONAL VASCULAR FUNCTION RESEARCH COLLABORATIVE			
Sivabaskari (Tharshy) Pasupathy Throughout 2019	Invited Invitation - Early Career Blogging Program	American Heart Association	-
John Beltrame January	Member of the Order of Australia (AM) in the general division "For significant service to cardiovascular medicine, and to medical research and education"		-
Clementine Labroschiano September	Adelaide Graduate Award	The University of Adelaide	-

Leonard Kritharides, President of the Cardiac Society of Australia and New Zealand, presenting **Dr Sven Surikow** with his 2019 Ralph Reader Prize (Basic Science) Finalist certificate.



RECIPIENT	AWARD	SPONSOR	VALUE
STROKE RESEARCH PROGRAMME			
Chelsea Graham September	Hans-Jürgen & Marianne Ohff Research Grant	The University of Adelaide	\$4,700
Maria Gancheva October	PhD Researcher Prize	SAHMRI	\$500
HEALTH PERFORMANCE AND POLICY RESEARCH UNIT			
Linh Ngo August	Heart Rhythm Prize finalist	CSANZ: Cardiac Society of Australia and New Zealand	-
OESOPHAGEAL PHYSIOLOGY GROUP			
Tom Eldredge August	3MT Finalist	Faculty of Health and Medical Sciences, The University of Adelaide	-
SURGICAL SCIENCE RESEARCH GROUP			
Katharina Richter October	Winnovation Award, science category	Women in Innovation, Australia	-
Katharina Richter October	BLISS Adelaide Symposium (for early and mid career researchers) Engagement Prize	BLISS Adelaide	-
Katharina Richter October	New Zealand Microbiology Society Travel Award	Australian Microbiology Society	-

Dr Katharina Richter receiving her Winnovation Award (photo courtesy of Heidi Wolff).

AWARDS 2019



RECIPIENT	AWARD	SPONSOR	VALUE
VIROLOGY GROUP			
Makutiro Masavuli May	Roche Young Achiever Award	Roche. At ACH ² : Australian Centre for HIV and Hepatitis Virology Research	\$500
Zelalem Mekonnen May	Chris Burrell HCV Travel Award	ACH ²	\$4,000
Ashish Shrestha May	BD Biosciences Travel Grant	ACH ²	\$500
Branka Grubor-Bauk October	Women's Research Excellence Award	The University of Adelaide	\$5,000
Makutiro Masavuli October	Bright Sparks in Vaccinology Award for best oral presentation by Early Career Researcher	International Society for Vaccines Annual Congress, Ghent, Belgium	-
ENT SURGERY			
Alistair Jukes March	Doctoral Research Award	The University of Adelaide	-
Chelsea Thorn April	Gould Experimental Science Encouragement Award	University of South Australia	\$5,000
Chelsea Thorn May	Health Research Award	BUPA/University of South Australia	\$2,500
Chelsea Thorn May	Maurice de Rohan International Scholarship	University of South Australia	\$7,500

L: Dr Makutiro Masavuli, Zelalem Mekonnen and Dr Ashish Shrestha were all awarded prizes at the ACH² conference.

R: Dr Makutiro Masavuli received the Bright Sparks in Vaccinology Award for the best oral presentation by an early career researcher.

AWARDS 2019

RECIPIENT	AWARD	SPONSOR	VALUE
ENT SURGERY cont.			
Chelsea Thorn May	Endeavour Postgraduate Leadership Award	Australian Government	\$36,000
Santhni Subramaniam May	Conference attendance award	University of South Australia	\$550
Santhni Subramaniam June	3MT Poster Presentation Award	ACS Applied Nanomaterials	\$300
Santhni Subramaniam June	Travel Award	The Australian Nanotechnology Network	\$313
Santhni Subramaniam June	Patrick Couvreur Travel Award	Controlled Release Society	\$500 USD
Santhni Subramaniam June	CRS Young Scientist Travel Grant	Controlled Release Society	\$295 USD
Stephanie Fong November	Gristwood medal (for research by SA ENT trainees)	ASOHNS - Australian Society of Otolaryngology - Head and Neck Surgery	-

COMMUNITY ENGAGEMENT



TEST YOUR SURGICAL SKILLS

Laparoscopic or key-hole surgery is used to diagnose and treat different medical conditions in the abdomen and pelvis

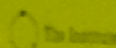
PROCEDURE

- 1 Patient anaesthetised
- 2 Small incisions (less than 1.5cm) made in abdominal wall
- 3 Abdomen inflated with CO₂ (to provide a clear view and room to move)
- 4 Laparoscope (small tube with camera and light source) used to send images to monitor and other surgical instruments inserted through small incisions
- 5 Gas removed, incisions closed with stitches and dressing applied

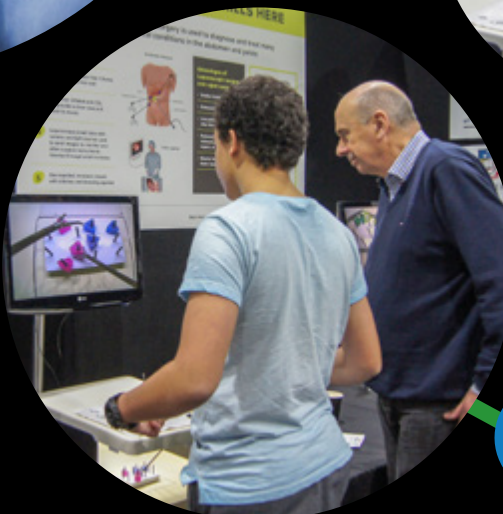


Advantages of Laparoscopic surgery over open surgery

- Smaller incisions
- Reduced blood loss
- Less pain and discomfort after the operation
- Reduced infection risk (as reduced exposure of internal organs, and smaller scars)
- Shorter hospital stays and faster recovery times



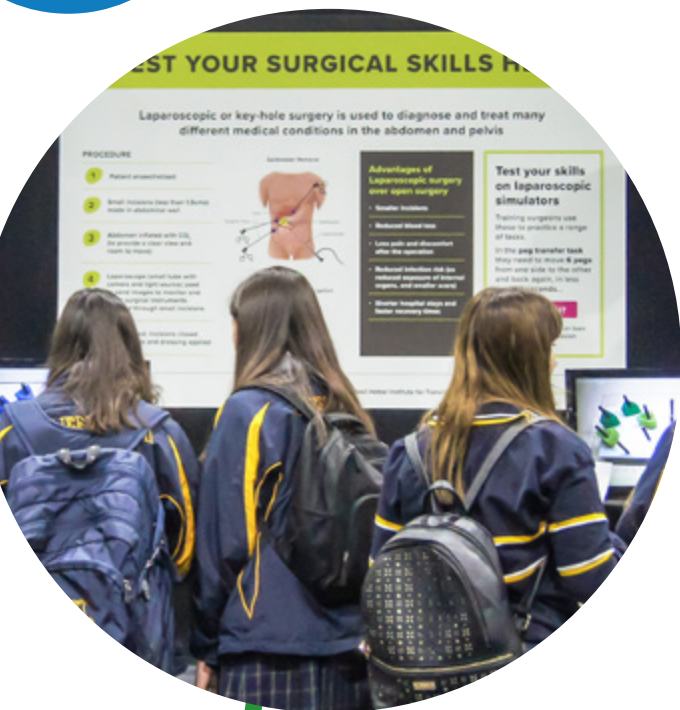
Basil Hetzel Institute for Translational Research in Health





Each August **Science Alive!** is a highlight of National Science Week in Adelaide, and is attended by an estimated 20,000 people over 3 days. The event aims to celebrate science and technology in a fun, interactive, dynamic and educational way. It is held at the Adelaide Showground in Wayville. The BHI participated in this event for the 6th consecutive year.

The 2019 BHI display was visited by large numbers of year 7-12 school students on Friday, and by people of all ages on Saturday and Sunday. A new hands-on activity was introduced in 2019, providing hand-held dynamometers that allowed people to measure their grip strength. Grip strength is a screening tool used by many clinicians as a good indicator of overall muscle strength and general health. Our other interactive activity was the ever popular laparoscopic (key hole) surgery simulators that were kindly loaned to us by the Royal Australasian College of Surgeons for the 6th time.

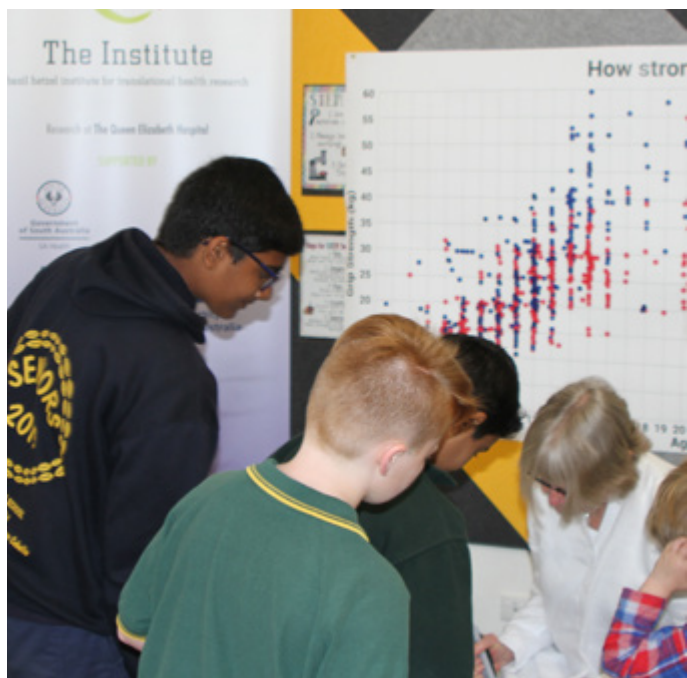


BHI RESEARCHERS

TQEH SURGEONS

Adrian Abdo	Martin Bruening
Mirabel Alonge	Guy Maddern
Rebecca Anderson	Adam Schofield
Sarah Bernhardt	Markus Trochsler
Prue Cowled	
Bimala Dhakal	
Joanne Dollard	
Sholeh Feizi	
Kathryn Hudson	
Unyime Jasper	
Laurine Kaul	
Chandra Kirana	
Clementine Labroschiano	
Saifei Liu	
Beatriz Martins	
Linh Ngo	
Beula Panchatcharam	
Katharina Richter	
Nicky Thomas	
Jannatul Ferdoush Tuli	
Rajan VEDIAPPAN	





WORK EXPERIENCE HIGH SCHOOL STUDENTS

During 2019, 14 year 10-12 students from the following schools participated in one week long work experience placements at the Basil Hetzel Institute: St Aloysius College, University Senior College, Pembroke School, The Heights School, Adelaide High School, St Johns Grammar, Henley High School, Pulteney Grammar School, Portside Christian College, Tyndale Christian School and Minlaton Area School.

WE, AS PARENTS AND RESEARCHERS, WERE QUITE THRILLED TO SEE HOW A WELL CHANNELLED IMAGINATION AND ENTHUSIASM OF A YOUNG CHILD'S MIND KIND CAN BLOSSOM INTO A MILLION NEW WAYS.

Dr Beula Panchatcharam

STEM PROFESSIONALS IN SCHOOLS PARTNERSHIP

A STEM Professionals in Schools Partnership between BHI Facility Manager Kathryn Hudson and Woodville Primary School STEM teacher Mark Feetham flourished during 2019 thanks to Mark's enthusiasm and the willingness of BHI researchers to make themselves available to speak with small groups of primary school students. During school terms 2 and 3 BHI Researchers Catherine Bennett (ENT Surgery), Dr Eric Smith (Solid Tumour Group), Dr Pallave Dasari (Breast Biology and Cancer Unit), Drs Zelalem Mekonnen and Ashish Shrestha (Virology Group) as well as Drs Beula Panchatcharam and Rajan VEDIAPPAN (ENT Surgery) led students through hands-on activities in the lab and spoke to them about their research.

Catherine said of her involvement with the students, "We diagnosed a 'patient' with sinusitis by taking swabs of their green 'snot' and plating it out onto agar. We looked at nasal cells under the microscope. We discussed *Staphylococcus aureus* using play-doh models and how it can cause infection. The students were excited to be able to take a swab, a face mask and our patient's snot back to class!"

In addition to the school and lab visits, Woodville Primary School held a STEM Program at their school in September. At this event students Ashish and Anugrah (sons of Beula and Rajan from ENT Surgery) ran a hands-on display using a hand-held dynamometer to measure grip strength (as was used at Science Alive!). After a successful day Beula wrote "We, as parents and researchers, were quite thrilled to see how a well channelled imagination and enthusiasm of a young child's mind kind can blossom into a million new ways. The families - parents, grandparents and kids - participated in getting their grip strength tested and had great fun while learning at the same time."



COMMUNITY ENGAGEMENT ACTIVITIES 2019

NAME OF INDIVIDUAL	DELIVERED TO	ACTIVITY
ADELAIDE G-TRAC CENTRE		
Agathe Jadczyk January	International student guests	Public G-TRAC talk "Preventing Frailty"
Danielle Taylor 1 April	University of the Third Age (U3A), Prospect	THRF talk "Geographic information for ageing well"
Agathe Jadczyk April	Campbelltown Council	Public talk "Healthy Ageing and Exercise"
Renuka Visvanathan 28 October 2019	General Public	University of Adelaide Promotional Research Video ► https://www.youtube.com/watch?v=yeSz5TCaUG0
Joanne Dollard, Anupam Datta Gupta, Unyime Jasper, Kareeann Khaw, Beatriz Martins, James Smyth, Danielle Taylor, Kandiah Umaphysivam, Renuka Visvanathan, David Yu 12 September	General Public, invited guests	CRE Frailty and Healthy Ageing Research Showcase: Healthy Ageing: Every Step Matters
REHABILITATION MEDICINE		
Anupam Datta Gupta 16 June	Brain Injury South Australia (BINSa)	Public talk "Gait disorders in neurological disorders"
Anupam Datta Gupta 16 September	ABC Radio	Radio interview related to extension of PBS scheme for botulinum toxin A ► https://insightplus.mja.com.au/2019/36/botulinum-pbs-listing-extended-for-lower-limb-spasticity/
Nigel Quadros 30 October	Rotary Club of Strathalbyn	Public talk "Journey of the Australian Polio survivor"

L-R: Dr Cher-Rin Chong, Dr Amy Holmes, Dr Makutiro Masavuli, Dr Kevin Fenix, Associate Professor Wendy Ingman, Dr Branka Grubor-Bauk and Dr Kati Richter hosted tables at the Basil Hetzel Society Luncheon in September 2019.



NAME OF INDIVIDUAL	DELIVERED TO	ACTIVITY
BREAST BIOLOGY AND CANCER UNIT		
Wendy Ingman 21 February	General Public	Live Q&A session following Adelaide Fringe show which raised money for Australian Breast Cancer Research
Wendy Ingman 24 February	The Advertiser	Newspaper/online article about Fringe Show and related research
Sarah Bernhardt 7 March	Coast FM Radio	Radio Interview ► www.basilhetzelinstitute.com.au/profile/sarah-bernhardt/#community-engagement
Amita Ghadge 6 June	Coast FM Radio	Radio Interview ► www.basilhetzelinstitute.com.au/profile/amita-g-ghadge/
Wendy Ingman 13 August	General Public	Raising the Bar community event, Norwood
Wendy Ingman 19 September	Invited guests	THRF's Basil Hetzel Society Luncheon table host
Pallave Dasari 3 October	Coast FM Radio	Radio interview ► www.basilhetzelinstitute.com.au/profile/pallave-dasari/

Top-left: **Amita Ghadge** at Coast FM Radio.
 Bottom-left: **Dr Pallave Dasari** at Coast FM Radio.
 Right: **Sarah Bernhardt** with Coast FM presenter David Hearn.

COMMUNITY ENGAGEMENT 2019



NAME OF INDIVIDUAL	DELIVERED TO	ACTIVITY
BREAST CANCER RESEARCH UNIT		
Andreas Evdokiou 10 March	5AA Radio	Radio Interview
Namfon Pantarat 4 April	Coast FM Radio	Radio Interview ► www.basilhetzelinstitute.com.au/profile/namfon-bee-pantarat/
SOLID TUMOUR GROUP		
Helen Palethorpe June	General Public	Video messages/photos ► www.hospitalresearch.com.au/togetherfight
Yoko Tomita 4 July	Coast FM Radio	Radio Interview ► www.basilhetzelinstitute.com.au/profile/yoko-tomita/#community-engagement
Yoko Tomita 18 July	Lockleys Combined Probus Club	THRF Talk
Joanne Young 22 August	City of Charles Sturt Council Longest Table Breakfast	Interview
Joanne Young, Meghan Horsnell 23 September	SAYO patient support group (South Australian Young Onset Colorectal Cancer Study)	Informal talks, Q&A with medical professionals
Tim Price 31 October	General Public	The Advertiser article
Tim Price 14 November	Unicorn Foundation, NET Patient Information Forum	Talk on NET Research (NET = neuroendocrine tumours) ► www.unicornfoundation.org.au/news/310/adelaide-patient-forum-november
SA-PCCOC		
Michael O'Callaghan 4 November	General Public	THRF online article ► www.hospitalresearch.com.au/news/latest-stories/15000th-patient-helps-improve-prostate-health

L: **Professor Andreas Evdokiou** on 5AA Radio with Rilka Warbanoff.
R: **Namfon Pantarat** with Coast FM presenters David and Bruce.



NAME OF INDIVIDUAL	DELIVERED TO	ACTIVITY
SURGICAL SCIENCE RESEARCH GROUP		
Katharina Richter 13 May	High School Students	Arranged by the Goethe Institut
Katharina Richter, Laurine Kaul 20-22 May	General Public	Festival, Channel 9 TV news interview, The Advertiser article
Kevin Fenix 6 June	University of the Third Age (U3A), Flinders University	THRF talk
Katharina Richter 8 August	Flaxmill Primary School, Morphett Vale	SA Tall Poppy visit
Kevin Fenix, Katharina Richter 19 September	Invited guests	THRF's Basil Hetzel Society Luncheon table hosts
Katharina Richter 15 October	Woodend Primary School, Sheidow Park	SA Tall Poppy visit
CARDIOVASCULAR PATHOPHYSIOLOGY AND THERAPEUTICS GROUP		
John Horowitz, Yuliy Chirkov, Ha Nguyen, Saifei Liu, Gao Ong, Irene Stafford 9 May	Invited patients	Patient information session on Takotsubo Syndrome, Coronary Artery Spasm and Chemotherapy induced heart damage, followed by a laboratory tour
Cher-Rin Chong 17 September	General Public	The University of Adelaide promotional research videos ▶ www.youtube.com/watch?v=pkQwqeLBIk ▶ www.youtube.com/watch?v=bzUo9RK036A
Cher-Rin Chong 19 September	Invited guests	THRF's Basil Hetzel Society Luncheon table host

Cardiovascular Pathophysiology and Therapeutics researchers discussed their results with patients of **Emeritus Professor John Horowitz** at the BHI in May.

COMMUNITY ENGAGEMENT 2019

NAME OF INDIVIDUAL	DELIVERED TO	ACTIVITY
TRANSLATIONAL VASCULAR FUNCTION RESEARCH COLLABORATIVE		
John Beltrame 10 February	5AA Radio	Interview
Rosanna Tavella 17 February	5AA Radio	Interview about The Coronary Angiogram Database of South Australia ► www.basilhetzelinstitute.com.au/profile/rosanna-tavella/#community-engagement
Clementine Labroschiano 15 May	Probus Tea Tree Gully Group	THRF talk on 'Returning to Hospital after a Heart Attack', followed by tour of labs with BHI Facility Manager Kathryn Hudson
Sivabaskari (Tharshy) Pasupathy All year	General Public via American Heart Association	Invited Early Career Blogger, providing monthly articles
ZINC AND CARDIOVASCULAR RESEARCH GROUP		
Adrian Abdo 1 April	University of the Third Age (U3A), Prospect	THRF tour of laboratories
STROKE RESEARCH PROGRAMME		
Chelsea Graham 13 August	General Public	The University of Adelaide's "Research Tuesday" talk
Maria Gancheva 23 September	General Public	Presentation at Stroke SA Annual General Meeting
Austin Milton 8 October	General Public	RAHsearch talk
Maria Gancheva 13 November	General Public	Stroke SA Newsletter article
THE HEALTH OBSERVATORY		
Sarah Appleton 15-23 October	General Public - media interest following Australasian Sleep Association conference presentation on "Technology use at night and associations with daytime consequences"	Radio interviews (5 national, 1 international), Television, Print and Online articles including CapeTalk 567AM, Seven News Australia and the Sydney Morning Herald CapeTalk 567AM ► www.capetalk.co.za/articles/364444/is-your-phone-ruining-your-sleep-you-could-be-at-higher-risk-of-a-car-crash Seven News Australia ► https://twitter.com/7NewsAustralia/status/1184716211294072833 Sydney Morning Herald ► www.smh.com.au/national/the-frightening-effects-of-the-phone-messages-waking-us-at-night-20191016-p5314z.html
HEALTH PERFORMANCE AND POLICY RESEARCH UNIT		
Isuru Ranasinghe 3 August	General Public	The Advertiser article
RHEUMATOLOGY RESEARCH GROUP		
Maureen Rischmueller 20 March	The Bunyip, Gawler	Newspaper article about patient
Maureen Rischmueller 30 April	The Conversation	Online article: Explainer: What is Sjögren's Syndrome? ► https://theconversation.com/explainer-what-is-Sjögrens-syndrome-the-condition-venus-williams-lives-with-111250
Sue Lester 25 July	Campbelltown Probus Group	THRF Talk and laboratory tour
Catherine Hill 15 November	General Public	Channel 7 news and website ► https://bit.ly/2NWxklp

COMMUNITY ENGAGEMENT 2019

NAME OF INDIVIDUAL	DELIVERED TO	ACTIVITY
SURGICAL SCIENCE RESEARCH GROUP		
Katharina Richter January	Singapore general public	938 Now Singapore radio interview
Katharina Richter March	German speaking public	SBS German radio interview
Katharina Richter 13 May	High school students	Arranged by the Goethe Institut
Katharina Richter (city coordinator/team leader), Laurine Kaul 20-22 May	General Public	Pint of Science Festival, Channel 9 TV news interview, The Advertiser article
Kevin Fenix 6 June	University of the Third Age (U3A), Flinders University	THRF talk
Kevin Fenix 27 July	Longest Table luncheon	Spoke to guests about research at Longest Table lunch
Katharina Richter 8 August	Flaxmill Primary School, Morphett Vale	SA Tall Poppy visit
Kevin Fenix, Katharina Richter 19 September	Invited guests	THRF's Basil Hetzel Society Luncheon table host
Katharina Richter October	General Public	ABC Radio Adelaide interview
Katharina Richter 15 October	Woodend Primary School, Sheidow Park	SA Tall Poppy visit
Katharina Richter 7 November	STEM Sista	Invited speaker and mentor for female high school students
THERAPEUTICS RESEARCH CENTRE		
Amy Holmes	Invited guests	THRF's Basil Hetzel Society Luncheon table host
VIROLOGY GROUP		
Branka Grubor-Bauk 26 March	THRF Home Lottery Launch	Guest speaker
Dan Wijesundara June	General Public	Video messages/photos
Branka Grubor-Bauk June	Invited guests	THRF Morning Tea to accept Drakes Supermarkets Charity Showbags donation
Makutiro Masavuli, Branka Grubor-Bauk 19 September	Invited guests	THRF's Basil Hetzel Society Luncheon table hosts
Eric Gowans, Branka Grubor-Bauk 13-14 December	The Advertiser/Daily Telegraph/ Channel 9 news	Newspaper/online articles on research advancements of Zika virus vaccine ► www.facebook.com/9NewsAdelaide/videos/1743592199105772/ zpfSTE1ODI0NTg3Mzg2NTU5MDE6MjU2ODEyMzU3MzQyMjc0MQ/

COMMUNITY ENGAGEMENT 2019



NAME OF INDIVIDUAL	DELIVERED TO	ACTIVITY
ENT SURGERY		
Sarah Vreugde 20 January	5AA Radio	Radio Interview
Nicky Thomas 2 May	University of the Third Age (U3A), Flinders University	THRF talk: Antibiotic resistance
Chelsea Thorn 5 September	Coast FM Radio	Radio interview on Antibiotic Resistance
Nicky Thomas 25 October	Sacred Heart College students	Interview on Antibiotic resistance
Peter-John Wormald November	Channel 10	Australia by Design Innovations: Top 10: Sinus Surgical Training Device (series 3 episode 8) ► www.australiabydesign.com.au/abd-innovations-2019/
INFLAMMATORY BOWEL DISEASE RESEARCH GROUP		
Sam Costello 16 January	The Advertiser/ABC Radio 891/ The Lead	Newspaper article, radio interview, online article ► http://theleadsouthaustralia.com.au/industries/health-and-medical/transplanted-stools-successfully-treat-bowel-disease/
Sam Costello and Rob Bryant 24 March	The Guardian	Newspaper article on Faecal microbiota transplantation and BiomeBank ► www.theguardian.com/australia-news/2019/mar/25/i-thought-i-was-going-to-die-why-patients-are-no-longer-poo-h-pooing-faecal-transplants
Sam Costello 7 April	Purple Pen Podcast	Interview: Episode 73: Faecal Microbiota Transplants ► www.purplepenpodcast.com/home/2019/3/28/ppp073-faecal-microbiota-transplants-with-dr-sam-costello
Sam Costello July	ABC Radio	Radio interview on Faecal microbiota transplantation and risks

L: Associate Professor Sarah Vreugde at 5AA Radio with Rilk Warbanoff.

R: Dr Nicky Thomas spoke to participants of the University of the Third Age (U3A), Flinders University.



The Hospital Research Foundation was involved in coordinating many of the media releases that resulted in television, newspaper and online coverage of research undertaken at the Basil Hetzel Institute, TQEH. They also arranged all of the radio interviews on both Coast FM and FIVEaa.



Professor Guy Maddern holds the key role of Director of Research BHI, TQEH. This leadership position has been critical to furthering the aims of research excellence at TQEH. An administrative team, comprising the BHI Facility Manager, the BHI Communications Officer, the TQEH Research Secretariat and the BHI Scientific Director, assists the Director of Research in supporting, fostering and administering quality research activity across the BHI, TQEH.

The Basil Hetzel Institute (BHI) Policy Committee provides strategic advice to the Director of Research for the running of the BHI and optimises the available support for research programs across TQEH. The Committee comprises BHI, TQEH research leaders, senior representatives from the universities with whom the hospital has strong affiliations (The University of Adelaide and the University of South Australia), The Hospital Research Foundation Group (THRF) and the Central Adelaide Local Health Network (CALHN), as well as members of the BHI administrative team and BHI, TQEH research community.

MEMBERS OF THE BHI POLICY COMMITTEE,
AS AT DECEMBER 2019

- Dr Rebecca Anderson
- Professor John Beltrame
- Dr Prue Cowled
- Mr Paul Flynn (proxy Camille Morliere)
- Associate Professor Anne Hamilton-Bruce
- Ms Kathryn Hudson
- Professor Ben Kile
- Professor Guy Maddern
- Professor Sandra Orgeig
- Ms Irene Stafford
- Dr Rosanna Tavella
- Associate Professor Sarah Vreugde
- Associate Professor Joy Rathjen (Ex-officio)
- Ms Bernadette Swart (Ex-officio)
- Ms Gwenda Graves (Executive Support)

SUPPORT STRUCTURES 2019

Sub-committees assist the BHI Policy Committee as required, notably:

- The Institute Research Management Committee, chaired by Dr Rosanna Tavella, which provides strategic advice on the management of operations at the BHI.
- The BHI Strategic Research Directions Group, chaired by Professor Eric Gowans, which provides strategic advice and input on all issues pertaining to research within the BHI, TQEH. Professor Gowans retired in December 2019 with Associate Professor Sarah Vreugde replacing him as Chair of this sub-committee.
- The TQEH Research Expo Organising Committee, chaired by Dr Prue Cowled, which plans and runs the 2 day TQEH Research Expo, a key component of CALHN Research Week, held during October 2019. Dr Prue Cowled retired as Chair of this committee in November 2019 and was replaced by Associate Professor Joy Rathjen.
- The BHI Scholarship Selection Committee, chaired by Professor Guy Maddern, which selects scholarship recipients from a field of nominations for a range of scholarships funded by THRF.

Thanks are extended to the Chairs and members of all BHI committees for their commitment to the continued work of the BHI.

RESEARCH SEMINARS

A number of regular seminar programs were held in 2019:

- Postgraduate seminars, chaired by Professor Betty Sallustio, provided all BHI-based higher degree by research (HDR) students with an opportunity to present the results of their research to staff and students.
- Invited external speaker seminars were held monthly between April and November 2019, and were chaired by senior BHI researchers.
- Staff seminars, coordinated by Associate Professor Joanne Young, provided new and existing BHI researchers with an opportunity to present their research interests.

Thanks are extended to the Chairs, coordinators and the staff and students for supporting these important activities at the BHI.

RESEARCH TRAINING

The BHI Policy Committee supports basic and clinical research through the provision vacation, honours and postgraduate scholarships. Research training opportunities and scholarship support were actively promoted through the BHI website with links to university research training sites.

Vacation Scholarships

Over the 2019-2020 summer vacation, 4 undergraduate placements provided scholars with valuable research experience in a clinical/laboratory environment. These placements were jointly funded by individual TQEH departments and THRF.

Honours Scholarships

Eight Honours Scholarships were offered to support Honours students working at BHI, TQEH in 2019. These scholarships were funded by THRF.

Postgraduate Scholarships

Over eighty five scholars undertook research towards Higher Degrees at the BHI, TQEH, in 2019. Seven of these scholars were supported by THRF-funded 12 month or Top Up Scholarships.

Selection and award of THRF Honours and Postgraduate Scholarships was primarily the responsibility of the BHI Scholarship Selection Committee. The Committee membership includes clinical and basic medical science researchers and representatives of The University of Adelaide and the University of South Australia. Scholarships provide stipends that match the Research Training Program (RTP) stipend. Other HDR students at BHI, TQEH received scholarship support from the NHMRC, The University of Adelaide, the University of South Australia and schemes supported by international agencies.

RESEARCH SUPPORT SERVICES

Statistical Support Service, TQEH

The Statistical Support Service, jointly funded by BHI and the Faculty of Health and Medical Sciences at The University of Adelaide, provided 7.5 hours per week on site of statistical assistance to staff and students at the BHI, TQEH. In 2019 this service was provided by Dr Suzanne Edwards of the Data, Design and Statistics Service, Adelaide Health Technology Assessment (AHTA), School of Public Health at The University of Adelaide.

TQEH Librarians

Librarians from the SA Health Library Service, TQEH, provided assistance to research staff and students in the construction of suitable literature and database searches and helped them to obtain relevant material. Librarians Anna Holasek and Rachel Davey, one of whom spends each Wednesday at the BHI, also provided training in the use of online resources (one-on-one or groups sessions), assistance with resource access such as problems with logins and technical issues, as well as assistance and training with EndNote.

TQEH Institutional Biosafety Committee

TQEH Institutional Biosafety Committee, chaired by Dr Jennifer Hardingham, ensures the PC2 laboratory spaces of the BHI comply with the Office of the Gene Technology Regulator PC2 licence requirements through regular laboratory inspections, and advises the BHI Facility Manager of any licence issues.

Operational Support

The BHI receives support from many people including Mr Serge Stebellini, Faculty Health, Safety and Wellbeing (HSW) Coordinator, Faculty of Health and Medical Sciences, The University of Adelaide; Mr Richard Bennett, Manager Technical Services, School of Pharmacy and Medical Sciences, University of South Australia and Dr Tony Cambareri, Research Development Manager, Faculty of Health and Medical Sciences, The University of Adelaide, and his team. Additional technical support is provided by Ms Helen Lineage and the TQEH Biomedical Engineering team, as well as Mr Matthew Smith, Mrs Bronwyn Hutchens and Mrs Michelle Slawinski from TQEH Experimental Surgical Suite. Our thanks are extended to all of these people for their assistance in ensuring the BHI reaches high standards of procedural compliance.

CALHN HREC AND RESEARCH OFFICE REPORT 2019

IN 2020, CALHN RESEARCH SERVICES WILL WORK TO STREAMLINE RESEARCH REVIEW AND APPROVAL PROCESSES FOR RESEARCH STUDIES THAT REQUIRE ETHICAL REVIEW BY THE FULL COMMITTEE OF A HREC.



In 2019 the CALHN Human Research Ethics Committee (HREC) continued to undertake reviews of human research conducted by and with CALHN and NALHN. A total of 140 new studies were reviewed at HREC meetings in 2019. Scheduling two meetings and submission deadlines each month has enabled the HREC to manage this significant load, and has given researchers greater flexibility in managing their submissions. The scheduling of two meetings per month will continue in 2020.

The HREC has welcomed new legal, pastoral care, pharmacy and statistician members in 2019 and we thank all members for their contribution to the HREC this year.

The Investigational Drug Sub-Committee (IDSC) has continued in 2019 with Chair Dr Rami Tadros. The IDSC provides valuable support for the HREC through its thorough scientific and pharmacological review of studies involving investigative drug administration. Our thanks to Executive Officer Peter Slobodian and Ada Lam for their work in supporting the running of the IDSC.

The creation of a new Research Ethics Support Officer role in 2019 has assisted the CALHN HREC in managing post-approval monitoring of annual reporting and project amendments. In 2020, to facilitate compliance with hospital clinical trial accreditation, this role will expand further to support the CALHN HREC Chair in conducting active study monitoring visits.

Late 2019 saw the development and implementation of a combined ethics and governance expedited review of low risk submissions. Combining the two components of review has led to greater efficiency and faster approval for simple research studies.

In 2020, CALHN Research Services will work to streamline research review and approval processes for research studies that require ethical review by the full committee of a HREC. A combined ethics and governance form for investigator initiated research is being developed, and a simplified Site Specific Assessment Checklist Checklist will be trialled for sponsored clinical trials.

To prepare for hospital clinical trial accreditation and the Therapeutic Goods Administration's incoming Good Clinical Practice Inspection program, CALHN Research Services will be coordinating the provision of Good Clinical Practice training for researchers, in particular those involved in conducting clinical trials. Communication regarding the provision of this training and how researchers can participate will be disseminated regularly from mid-2020.

IAN TINDALL

CALHN HREC Chair (pictured)

BERNADETTE SWART

CALHN Research Office Manager

CEO REPORT

SCIENTIFIC DIRECTOR

THRF FELLOWSHIPS AND GRANTS

BHI RESEARCH EQUIPMENT

ADDITIONAL SPONSORSHIP

COMMUNITY ENGAGEMENT



THE HOSPITAL RESEARCH FOUNDATION

—

THROUGH OUR TOGETHER.FIGHT. CAMPAIGN, WE HAVE BEEN CALLING ON EVERYONE TO JOIN WITH US TO FIGHT FOR BETTER TREATMENTS AND IMPROVED CARE IN HOSPITALS.



In 2019, The Hospital Research Foundation (THRF) Group embarked on a new crusade in the fight against deadly disease and illnesses.

Through our **Together.Fight.** campaign, we have been calling on everyone to join with us to fight for better treatments and improved care in hospitals.

We are proud to support the valued researchers and doctors at the BHI and TQEH who are working tirelessly in this fight!

Their research covers such a large number of healthcare areas affecting the whole community, including breast cancer, prostate cancer, bowel cancer, rare cancers such as neuroendocrine cancer, heart disease, gut health, arthritis, ENT, virology, superbugs, frailty, palliative care and more.

The calibre of researchers and the opportunity for 'bench to bedside' research, with strong collaboration between the labs at the BHI and clinicians

at TQEH, is what makes this a leading research centre that brings real outcomes for patient health.

I know this translational nature of research has really impressed our latest team member, A/Prof Joy Rathjen.

We are excited to have appointed Joy as Scientific Director to mentor BHI researchers and further their impact in the community. Joy comes to us with a wealth of science and research experience from across Australia and has been a welcome addition to the team.

It is also fantastic to see a strong contingent of BHI researchers successful in our 2019 state-wide grant round for Early and Mid-Career Fellowships. This was a highly competitive round with only 16 recipients from across the state, and three of these were Dr Branka Grubor-Bauk, Dr Mak Masavuli and Dr Amy Holmes.

There are countless examples outlined in this report which demonstrate the incredible impact the BHI is having on

patients' lives. We thank our donors, supporters, partners and researchers for making this possible.

We are looking forward to 2020 when we can fight for ever greater impacts on the health and wellbeing on our community and look forward to having you join us.

We are stronger together.

PAUL FLYNN
CEO

THE HOSPITAL RESEARCH FOUNDATION

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THE BHI IS AN EXCITING PLACE TO WORK AND I AM LOOKING FORWARD TO CONTRIBUTING TO THE MISSION OF THE INSTITUTE INTO THE FUTURE.



It was with very great pleasure that I accepted the position of Scientific Director, BHI in August 2019. I have found a warm and welcoming community of researchers at The Institute and a focus on clinical research that is quite unique. The BHI is an exciting place to work and I am looking forward to contributing to the mission of The Institute into the future.

My position has been made possible through the generosity of The Hospital Research Foundation (THRF), and when I took the role at the BHI I became a Scientific Director of THRF Group. Working with THRF has given me a new understanding of the importance of community support in the ongoing success of Australia's research mission, and an enormous respect for the role that local charity continues to play in ensuring a strong and vibrant clinical research culture at the BHI and TQEH.

With my colleagues at the BHI, TQEH I will be looking for ways to build on past research strength, so clearly illustrated

in this and past Annual Research Reports, to ensure the success of the research effort into the future.

ASSOCIATE PROFESSOR JOY RATHJEN
SCIENTIFIC DIRECTOR

**BASIL HETZEL INSTITUTE FOR
TRANSLATIONAL HEALTH RESEARCH**

Fellowships

Each year THRF proudly provides financial support to medical and clinical research teams and personnel who are working hard in the fight for a cure and improved care. In addition to the many ongoing projects we fund, the research grants awarded to BHI researchers in 2019 were as follows (this excludes additional support for higher degree research and scholarships):



Development of novel prevention and treatment strategies for postpartum vaginal and perineal infections

Dr Amy Holmes

2019 Early Career Fellow
Therapeutics Research Centre

More than 85 per cent of women who have a vaginal birth will suffer from a vaginal/perineal tear. Subsequent infections cause 11 per cent of maternal deaths globally yet there are limited options for management with sitz baths the first line of defence.

This project will investigate the use of novel antiseptic and probiotic creams to reduce infections and promote wound healing.

Examining the protective efficacy of a Hepatitis C virus vaccine

Dr Makutiro Masavuli

2019 Early Career Fellow
Virology Group

Hepatitis C (HCV) is a virus that causes inflammation and damage to the liver. There are 3-4 million new infections of HCV each year, including about 10,000 in Australia.

This project will examine the protective efficacy of a novel HCV vaccine in pre-clinical models. Demonstration of efficacy will lead to human clinical trials and the opportunity develop the vaccine to prevent HCV infection in the community.

Neutralizing the menace of Zika virus

Dr Branka Grubor-Bauk

2019 Mid Career Fellow
Virology Group

The Zika virus causes severe birth defects and neurological disabilities in infants born to infected mothers. An effective vaccine against Zika will prevent infection of pregnant women and congenital deformities in the unborn child, and consequently eliminate Zika infection.

This project aims to advance Dr Grubor-Bauk's novel vaccine to be ready for Phase I human clinical trial, and will involve pre-clinical studies vitally important for further commercialisation.

L-R: Dr Amy Holmes, Dr Makutiro Masavuli, Dr Branka Grubor-Bauk.

Grants

Continuation of the pre-clinical investigation of the efficacy of novel aquaporin 1 inhibitors in preventing growth and metastasis of breast cancer

Dr Amanda Townsend

Solid Tumour Group

New therapies are needed to treat advanced breast cancer as many patients develop resistance to currently used drugs. Dr Townsend's team has novel inhibitors, purified from medicinal plants, that reduce breast tumour growth and the capacity of the tumour to invade and spread.

This study will progress investigations of drug safety and efficacy prior to clinical trials in metastatic breast cancer patients.



A novel treatment for non-Tuberculous Mycobacteria lung infections in cystic fibrosis patients

Associate Professor Sarah Vreugde *(pictured)*

ENT Surgery Group

Non-Tuberculous Mycobacteria (NTM) lung infections are devastating for cystic fibrosis patients. Unfortunately NTM are naturally resistant to antibiotics and challenging to treat. This project addresses an urgent unmet medical need for new effective treatments for NTM infections in the cystic fibrosis population.

Personal and family history of Type 2 diabetes and colorectal cancer risk in young adults

Associate Professor Joanne Young

Solid Tumour Group

Colorectal cancer (CRC) is increasingly seen in younger adults. Recent findings have linked CRC in young adults with having a

personal history of, or a close relative with Type 2 diabetes. This project will explore a larger population to determine the magnitude of the association between the onset of CRC in a subset of young adults and Type 2 diabetes

Construction of the South Australian Liver Tissue Biobank (SALT) for discovery and development of prognostic biomarkers of colorectal cancer liver metastasis

Dr Kevin Fenix

Surgical Science Research Group

This project will create a facility for a liver tissue biobank containing tissue derived from metastatic bowel cancer patients admitted at the RAH and TQEH.

This valuable resource will allow evaluation of novel tissue biomarkers discovered to identify patients likely to relapse from metastatic bowel cancer.

A novel formulation to treat skin and soft tissue infections

Professor Guy Maddern

Surgical Science Research Group

This project addresses an urgent medical need for new effective treatments for skin and soft tissue infections (SSTIs) with antibiotic resistance.

A comprehensive video-based coaching program for continuing surgical improvement

Professor Guy Maddern

Surgical Science Research Group

This project explores the design, efficacy assessment and clinical implementation of a video-based coaching program for continuing surgical improvement.

Associate Professor Sarah Vreugde, ENT Surgery

Travel Grants

In 2019, THRF gave funding for 13 BHI researchers to attend national and international conferences throughout the year, providing the opportunity to share their research, connect with other researchers and expand ideas and knowledge.



Dr Nelson Granchi

Surgical Science Research Group
Royal Australasian College of Surgeons
(RACS) 88th Annual Scientific Congress,
Melbourne, Australia
May 2019

Dr Siang Wei Gan

Oesophageal Physiology Group
RACS 88th Annual Scientific Congress,
Melbourne, Australia
May 2019

Dr Guilherme Pena

Vascular Surgery Research Group
8th International Symposium on the Diabetic
Foot, The Hague, Netherlands
May 2019

Dr Azadeh Alinaghi

Therapeutics Research Centre
Controlled Release Society Annual Meeting
and Exposition, Valencia, Spain
July 2019

Dr Chandra Kirana

Surgical Science Research Group
ISSMART (International Seminar on
Smart Molecule of Natural Resources),
Malang, Indonesia
July 2019

Dr Stephen Kao

ENT Surgery
American Rhinology Society Annual
Meeting, New Orleans, USA
September 2019

L-R: ENT Surgery researchers **Catherine Bennett**, **Dr Rachel Goggin**, **Dr Stephen Kao**, **Associate Professor Alkis Psaltis** and **Professor PJ Wormald** with Dr Luis Fernando Macias (a 2016-2017 TQEH ENT Fellow now working in Mexico) at the American Rhinologic Society (ARS) meeting in New Orleans in September 2019.

Catherine Bennett

ENT Surgery

American Rhinology Society Annual Meeting, New Orleans, USA, and Australian and New Zealand Rhinologic Society Meeting, Melbourne, Australia
September 2019

Dr Branka Grubor-Bauk

Virology Group

International Society for Vaccines Congress 2019, Ghent, Belgium
October 2019

Dr Makutiro Masavuli

Virology Group

International Society for Vaccines Congress 2019, Ghent, Belgium
October 2019

Dr Beula Panchatcharam

ENT Surgery

Australasian Society for Infectious Disease New Zealand Annual Meeting 2019, Auckland, New Zealand
October 2019

Dr Tom Eldredge

Oesophageal Physiology Group

Surgical Research Society of Australasia Annual Conference, Melbourne, Australia
November 2019

Dr Joanne Dollard

Adelaide G-TRAC Centre

1st World conference on Falls and Postural Stability, Kuala Lumpur, Malaysia
December 2019

Dr Zelalem Mekonnen

Virology Group

48th Annual Scientific meeting of The Australian and New Zealand Society for Immunology, Adelaide, Australia
December 2019



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THESE CONFERENCES ARE A FANTASTIC OPPORTUNITY TO MEET LIKE-MINDED PEOPLE TO BRAINSTORM RESEARCH IDEAS AND FORM NEW COLLABORATIONS. I AIM TO BRING MY NEW IDEAS FROM THE CONFERENCE BACK TO THE BHI TO IMPROVE OUR RESEARCH PRACTICES.

Catherine Bennett



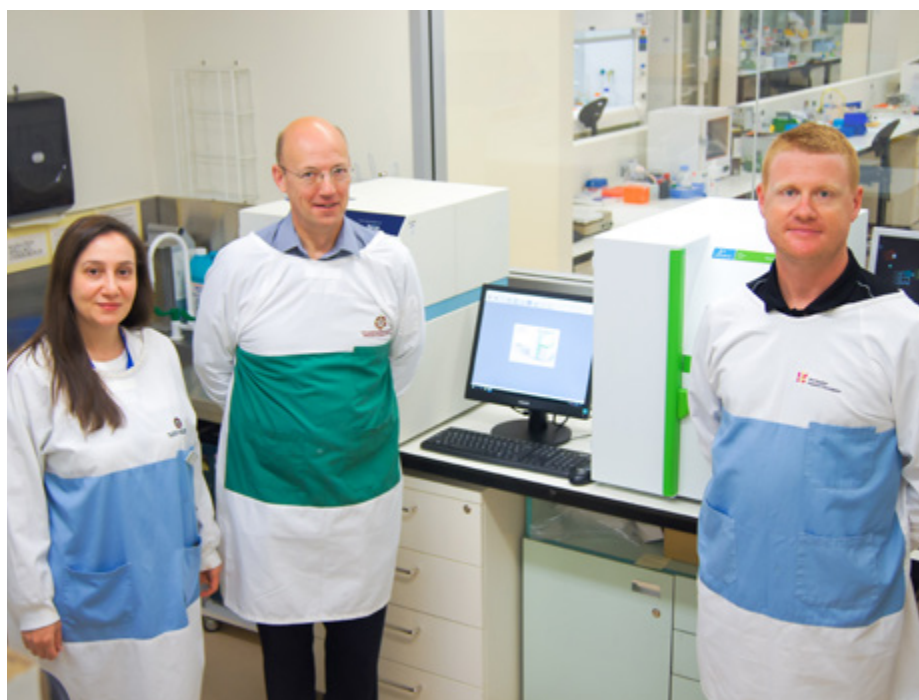
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BY PRESENTING AT RACS ASC I WAS ABLE TO SHOWCASE MY RESEARCH TO TOP SURGICAL ACADEMICS AND HAVE IT CRITIQUED. THIS WILL HELP IN THE FORMATION OF MY MASTERS THESIS AND IN THE WRITING OF FUTURE PUBLICATIONS. THIS EXPERIENCE HAS HELPED ME GROW AND DEVELOP AS A SURGICAL ACADEMIC AND I AM EXCITED AS TO HOW MY RESEARCH WILL IMPACT FUTURE STUDIES AND THUS IMPACT SURGICAL EDUCATION AND PATIENT OUTCOMES.

Dr Nelson Granchi

BHI Research Equipment

In 2019 THRF provided more than \$160,000 for advanced medical research equipment for BHI researchers, enabling them to have access to the best possible tools.



MACS Octodissociator

The octodissociator breaks down tissues into single cells, allowing researchers at the BHI to get more detailed analysis of cells relating to breast cancer.

Cell Counters

The Cell Drop Automated Cell Counter allows researchers to perform multiple cell counts, eliminating the need for disposable chamber slides. Two of these cell counters were purchased for BHI researchers.

Dr Azadeh Alinaghi (Therapeutics Research Centre) with Perkin Elmer national product specialist Nicholas Jones and service engineer Mark Hanniffy at installation/training of the microbeta microplate counter in December 2019.

Autoclave

The autoclave is a basic equipment piece used in any laboratory, enabling researchers to sterilise media, utensils, bottle and other lab equipment.

Microbeta microplate counter (pictured)

This instrument is used in research programs for various purposes including assessing compounds movement into and through the skin, measuring growth of aortic valve cells and investigating zinc and zinc transporter proteins in cardiovascular health and disease.

Olympus microscope

This type of microscope is specifically designed for use with bacterial infections models to assess toxicity of new treatments and also to assess whether treatments affect survival and bacterial infection rates.

Nikon 90i software

THRF provided funding to upgrade this software and workstation. This microscope is used in a variety of projects supporting ENT, cancer, medicine, cardiology and gastroenterology research programs. The updated software will allow more complex analysis of images by researchers, enhancing the microscope versatility and extending its lifespan.

Shaking incubator

This incubator supports and allow expansion of the ENT program and will assist the ENT group with their analysis of multi-resistant bacterial infections.

Shaking waterbath

The waterbath supports the work of multiple groups at the BHI including the liver metastasis group, the breast cancer biology group and the ENT group.

Ultracentrifuge

The ultracentrifuge will replace ageing instruments that no longer functioning and will support research programs including the ENT 'Phage bank'.

Additional Sponsorship



THRF is proud to continue supporting additional activities at the BHI or involving BHI researchers.

In 2019, THRF once again sponsored the popular 'Pint of Science' Festival in which is held over three nights in May.

For the third consecutive year, THRF sponsored two BHI researchers to attend a full day 'Science in Public' media and communications workshop. The workshop, held in June at the BHI, was attended by Dr Danielle Taylor and Dr Kevin Fenix.

Also in 2019, THRF sponsored the attendance of BHI senior and mid-career researchers at the South Australian Science Excellence Awards Gala Dinner which was held in August at the Adelaide Convention Centre.

THRF continues to be the major sponsor of the annual TQEH Research Expo which celebrated its 28th year in 2019. The two-day event held in October provided young researchers with an opportunity to present their results to their colleagues and the broader research community.

At this event TQEH Director of Research Professor Guy Maddern led a panel discussion with Professors Catherine Hill and John Beltrame and THRF's Fiona Smithson on the topic 'Challenges and Solutions to Medical Research'. THRF donors enjoyed the opportunity to attend this panel discussion and then engage with BHI researchers afterwards.

THRF continues to support other BHI researcher activities such as the monthly 'Off the Clock' informal networking sessions for staff and students.



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THE SCIENCE IN PUBLIC MEDIA AND COMMUNICATIONS WORKSHOP WAS A TERRIFIC OPPORTUNITY TO GET AN INSIGHT INTO THE OPERATION OF THE MEDIA AND THE KEY ELEMENTS, INCLUDING "THE HOOK" THAT JOURNALISTS ARE LOOKING FOR IN A STORY.

Dr Danielle Taylor

Above: South Australian Science Excellence Awards Gala Dinner.

Right Top: L-R TQEH Director of Research **Professor Guy Maddern**, **Professors Catherine Hill** and **Professor John Beltrame** with THRF's Fiona Smithson.

Right Bottom: Fiona Smithson (left) and Antonia Costa (right) with THRF donors who attended the panel discussion at TQEH Research Expo.



CHARLES STURT LONGEST TABLE

The City of Charles Sturt Council held their second Longest Table fundraiser in August at the St Clair Recreation Centre, raising an incredible \$5,100 for cancer research!

The panel featured the BHI's Associate Professor Joanne Young, who shared her research on bowel cancer and the impact it will have on the community.

L-R: THRF Board Member Rilka Warbanoff, Professor Claudine Bonder and **Associate Professor Joanne Young**.

BREAST CANCER SURVIVOR RAISES FUNDS TOWARDS LIFE-CHANGING EQUIPMENT

Breast cancer survivor Sandra Kanellos achieved her goal of being able to purchase a \$15,000 piece of equipment for TQEH to help healing for women after breast cancer treatment.

Sandra's mission was to have the piece of equipment, called a Bio-Flex laser, located at TQEH so that public patients can experience the benefits of laser therapy. The laser was installed in TQEH's Physiotherapy Unit in July 2019.

"After surgery and treatment at TQEH I saw a physiotherapist who helped me manage the painful post-operative swelling that is common after breast cancer surgery and lymph node removal. Unfortunately my symptoms continued and my breast surgeon recommended cold tip laser treatment," Sandra said.

"After only a couple of laser sessions, the swelling and discomfort in my arm and scar tissue on my breast improved dramatically."

From this experience, Sandra wanted to help others in a similar situation and give them access to the laser treatment at their local hospital.

"The weekly therapy sessions helped to promote healing, prevent swelling and restore flexibility and movement in my arm. It was an incredible turning point that I wished could have happened earlier in my journey."

Sandra held a Pink Velvet Ball to raise the funds needed to purchase the equipment and ended up raising an overwhelming \$60,000! The remaining funds will be used to support TQEH's Plastics and Reconstructive unit, which provides reconstructive surgery for women following breast cancer.

L-R: Frank Pangallo, Sandra Kanellos and THRF's Fiona Smithson at the launch of the laser equipment at TQEH.



VIETNAMESE COMMUNITY RAISES OVER \$30,000 FOR TQEH

The Vietnamese Arts and Literature Association held an incredible fundraiser once again in 2019 for TQEH, raising an amazing \$34,349!

This adds to the \$30,100 raised for TQEH and THRF in 2018.

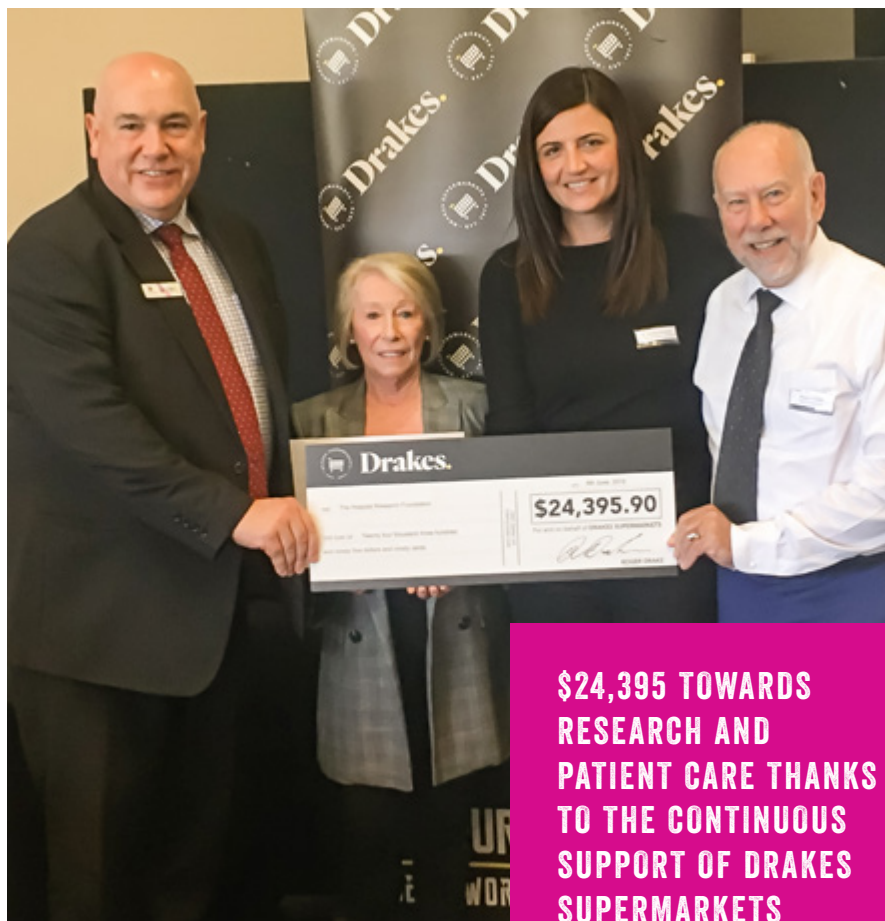
More than 630 Vietnamese community members attended the November 2019 fundraiser, which consisted of traditional Vietnamese dancing, a large live auction filled with many prizes and a seven-course traditional dinner.

Thanh Nguyen, one of the dedicated members of the community group, explained the strong significance TQEH has on the Vietnamese community.

“The Vietnamese community has a strong connection to TQEH as the staff have helped people in our community with their health and they’ve been very caring for so many years, so this is our way of giving back,” Thanh said.

THRF would like to give the Vietnamese community our sincerest thanks in supporting both THRF and TQEH. These incredible fundraising efforts will go towards better research and patient care initiatives that will help the local community.

THRF’s Kristy Wildy with Thanh Nguyen (L) and Lien Tran (R).



\$24,395 TOWARDS RESEARCH AND PATIENT CARE THANKS TO THE CONTINUOUS SUPPORT OF DRAKES SUPERMARKETS

GENEROSITY CONTINUES FROM DRAKES SUPERMARKETS

Once again, THRF received a generous donation of \$24,395 from Drakes Supermarkets in 2019. The money was raised through the Drakes Charity Showbags available during the Royal Adelaide Show.

As one of four charities which received proceeds from the Showbags, THRF CEO Paul Flynn was extremely grateful to everyone at Drakes.

“Thanks to the support of Drakes supermarkets and their generous suppliers, we can continue to invest in lifesaving medical research and patient care initiatives across all South Australian hospitals,” Paul said.

“We support more than 50 different areas of disease and illness – from paediatrics to palliative care – to improve the health and wellbeing of the community.”

The BHI’s Dr Branka Grubor-Bauk, attended the morning tea and spoke about her Zika virus vaccine research.

L-R: Paul Flynn, Wendy Drake, **Dr Branka Grubor-Bauk** and Roger Drake.



COMMUNITY AWARENESS PROGRAM

THRF's Community Awareness Program is a very important way for researchers and clinicians to connect with our donor community, sharing how their funds are supporting our researchers in the fight against deadly diseases.

In 2019, researchers from the BHI visited local community groups including the University of the 3rd Age (Flinders University, Port Adelaide and Prospect locations), Lockleys Combined Probus Club and Salisbury Rotary Club.

Once again, our donors had the opportunity to tour the BHI facility which gave researchers another chance to showcase where their ground-breaking research takes place.

The topics covered in 2019 included Antibiotic Resistance, Arthritis, Bowel Cancer, Breast Cancer, Healthy Ageing, Heart disease and Solid Tumours.

THRF would like to thank the following researchers who attended these Community Presentations to discuss their research:

- Susan Lester
- Dr Danielle Taylor
- Dr Kevin Fenix
- Dr Nicky Thomas
- Dr Sivabaskari (Tharshy) Pasupathy
- Dr Yoko Tomita
- Joe Wrin

► [See THRF Talks in the Community Engagement Activities listing](#)

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**ONCE AGAIN, OUR DONORS
HAD THE OPPORTUNITY
TO TOUR THE BHI
FACILITY WHICH GAVE
RESEARCHERS ANOTHER
CHANCE TO SHOWCASE
WHERE THEIR GROUND-
BREAKING RESEARCH
TAKES PLACE.**

Sue Lester, Chief Medical Scientist in the Rheumatology Research Group, (at the back with her hands raised!) spoke to the Campbelltown Probus Group in July 2019 before taking them on a guided tour of the BHI laboratories.



The Institute

TQEH RESEARCH EXPO 2019

**THANKS TO
OUR SPONSORS**





The Institute

basil hetzel institute for translational health research

28 Woodville Road
WOODVILLE SOUTH
South Australia 5011

T +61 8 8222 7836
F +61 8 8222 7872

basilhetzelinstitute.com.au



the hospital
research foundation

TOGETHER. FIGHT.

60 Woodville Road
WOODVILLE
South Australia 5011

T +61 8 8244 1100
F +61 8 8244 1200

hospitalresearch.com.au