

Research and Teaching Reports

A message from the Research Committee

In early 2020, Calvary Mater Newcastle established its own Research Office.

The new office is one of several exciting initiatives that will help Calvary Mater Newcastle achieve its vision of becoming a leader in translational research that will directly benefit patients and improve healthcare for the community.

Melissa Gavenlock is the new Research Governance Officer, and Kirsty Sanderson is continuing in her research support role.

Part of Melissa's role is to help researchers meet all of their governance requirements right from the start, whether they are new or existing researchers, and keep them informed of what funding and grant opportunities are available to them.

Kirsty will continue to provide support to the hospital's key research committees, including the Translational Research Advisory Committee, the Research Development and Engagement Committee, and the Clinical Trials Committee.

Calvary Mater Newcastle employs researchers in a broad range of areas to enable clinical trials, biomedical research, applied health services research and population health studies; and is a leader in medical oncology, haematology, radiation oncology, clinical toxicology, psychiatry and palliative care research.

Ensuring governance arrangements that promote accountability and responsibility and meet standards, supporting and developing research capacity at Calvary Mater Newcastle, and encouraging new researchers are part of the hospital's Translational Research Strategic Plan.

The focus will be on ensuring governance arrangements promote accountability and responsibility as well as supporting and developing research capacity and encouraging new researchers as part of hospital's vision of becoming a leader in translational research.



A message from the Research Development and Engagement Committee

The Research Development and Engagement Committee (ReDE) members include: Dr Jennette Sakoff (Chair), Helen Ellis, Dr Anoop Enjeti, Zoe Feighan, Dr Shyam Gangadaran, Melissa Gavenlock, Dr Peter Greer, Catherine Johnson, Dr Lisa Lincz, April MacNeill, and Dr Aoife McGarvey.

The Committee would like to thank Dr Anoop Enjeti and April MacNeill for their contribution as they stepped down from the committee in 2019-2020.

In what has been a challenging year the committee has continued to work in alignment with the Calvary Mater Newcastle Translational Research Strategic Plan.

Areas of focus include:

- Current awareness communication for researchers
- Health economics in the research environment
- Consumer involvement in research

Research Grants awarded

The ReDE Committee was delighted to be able to offer grant opportunities in 2019 through the Jane Reid Harle Grant, Coalfields Cancer Support Group Equipment Funding, James Lawrie Grant and the Hunter Cancer Research Alliance (HCRA) Clinical Cancer Research Infrastructure.

The funding recipients in 2019 were:

Jane Reid Harle Grant

- Dr Lisa Lincz, Katheryn Skelding, Anoop Enjeti, Haematology – Does alpha-enolase modulate the bone marrow microenvironment to promote leukaemia relapse, \$30,000.

Coalfields Cancer Support Group Equipment Funding

- Dr Jayne Gilbert, Dr Jennette Sakoff, Medical Oncology – Single Mode Microplate Reader for Colourimetric Cell Growth Assays in the Experimental Therapeutics Drugs Development Program, \$23,372.
- Dr Jonathon Goodwin, Radiation Oncology – MRI CEST Imaging Phantom Fabrication System, \$2,110.
- Shu Ren, Pharmacy – Clinical Trials Fridge for Pharmacy Clinical Trials Department, \$5,918.

James Lawrie Grant

- Dr Jennette Sakoff, Medical Oncology – Targeting the Aryl Hydrocarbon Receptor pathway and PD-L1 expression in cell models of head and neck cancer, \$49,420.

HCRA Clinical Cancer Research Infrastructure

- Dr Lisa Lincz, Haematology – Computer and software upgrade for CMN Fluroskan FL fluorimeter, \$5,240.

The ReDE Committee would like to acknowledge and thank the assessors and review panel members for their time and commitment to providing expert scientific reviews and invaluable advice for funding distribution.

Department Research

DEPARTMENT OF CONSULTATION-LIAISON PSYCHIATRY

JOURNAL ARTICLES/PUBLICATIONS

1. Katie McGill, Sarah A. Hiles, Tonelle E. Handley, Andrew Page, Terry J. Lewin, Ian Whyte, Gregory L. Carter.
Is the reported increase in young female hospital-treated intentional self-harm real or artefactual?
ANZJP Volume: 53 issue: 7, page(s): 663-672.; July 1, 2019
2. Yin Wu, Brooke Levis, Kira E Riehm, Nazanin Saadat, Alexander W Levis, Marleine Azar, Danielle B Rice, Jill Boruff, Pim Cuijpers, Simon Gilbody, John P.A. Ioannidis, Lorie A Kloda, Dean McMillan, Scott B Patten, Ian Shrier, Roy C Ziegelstein, Dickens H Akena, Bruce Arroll, Liat Ayalon, Hamid R Baradaran, Murray Baron, Charles H Bombardier, Peter Butterworth, Gregory Carter, Marcos H Chagas, Juliana C. N. Chan, Rushina Cholera, Yeates Conwell, Janneke M de Man-van Ginkel, Jesse R Fann, Felix H Fischer, Daniel Fung, Bizu Gelaye, Felicity Goodyear-Smith, Catherine G Greeno, Brian J Hall, Patricia A Harrison, Martin Harter, Ulrich Hegerl, Leanne Hides, Stevan E Hobfoll, Marie Hudson, Thomas Hyphantis, MD, Masatoshi Inagaki, Nathalie Jetté, Mohammad E Khamseh, Kim M Kiely, Yunxin Kwan, Femke Lamers, Shen-Ing Liu, Manote Lotrakul, Sonia R Loureiro, Bernd Löwe, Anthony McGuire, Sherina Mohd-Sidik, Tiago N Munhoz, Kumiko Muramatsu, Flávia L Osório, Vikram Patel, Brian W Pence, Philippe Persoons, Angelo Picardi, Katrin Reuter, Alasdair G Rooney, Juwita Shaaban, Abbey Sidebottom, Lesley Stafford, Sharon C Sung, Pei Lin Lynnette Tan, Alyna Turner, Henk C van Weert, Jennifer White, Mary A Whooley, Kirsty Winkley, Mitsuhiko Yamada, Andrea Benedetti, Brett Thombs.
Evaluation of the Equivalency of the PHQ-8 and PHQ-9: A systematic review and individual participant data meta-analysis.
Psychological Medicine 2020 Jun;50(8):1368-1380. doi: 10.1017/S0033291719001314. Epub 2019 Jul 12.
3. Elizabeth A. Fradgley, Emma Byrnes, Kristen McCarter, Nicole Rankin, Ben Britton, Kerrie Clover, Gregory Carter, Douglas Bellamy, Chris L. Paul.
A cross-sectional audit of current practices and areas for improvement of distress screening and management in Australian cancer services: is there a will and a way to improve?
Supportive Care in Cancer. 2020 Jan;28(1):249-259. doi: 10.1007/s00520-019-04801-5. Epub 2019 Apr 27
4. Alison Kate Beck, Erin Forbes, Amanda L. Baker, Ben Britton, Chris Oldmeadow, Gregory Carter.
Treatment Fidelity in Real World Evaluations of Behaviour Change Counselling: Protocol for a Systematic Review and Meta-Analysis
BMJ Open. 2019 Jul 30;9(7):e028417. doi: 10.1136/bmjopen-2018-028417
5. Prevalence and characteristics associated with chronic non-cancer pain in suicide decedents: a national study
Campbell, Gabrielle; Darke, Shane; Degenhardt, Louisa; Townsend, Harriet; Carter, Gregory; Draper, Brian; Duflou, Johan; Lappin, Julia.
Suicide and Life-Threatening Behavior, Aug 50(4) 2020, 778-791.online first March 2020 doi: 10.1111/sltb.12627
6. Brooke Levis, Andrea Benedetti, Brett D Thombs, on behalf of the DEPRESSion Screening Data (DEPRESSD) Collaboration (DEPRESSD) Collaboration members: Dickens H Akena, Bruce Arroll, Liat Ayalon, Marleine Azar, Hamid R Baradaran, Murray Baron, Andrea Benedetti, Charles H Bombardier, Jill Boruff, Peter Butterworth, Gregory Carter, Marcos H Chagas, Juliana C N Chan, Matthew J Chiovitti, Kerrie Clover, Yeates Conwell, Pim Cuijpers, Janneke M de Man-van Ginkel, Jaime Delgado, Jesse R Fann, Felix H Fischer, Daniel Fung, Bizu Gelaye, Simon Gilbody, Felicity Goodyear-Smith, Catherine G Greeno, Brian J Hall, John Hambridge, Patricia A Harrison, Martin Härter, Ulrich Hegerl, Leanne Hides, Stevan E Hobfoll, Marie Hudson, Masatoshi Inagaki, John P A Ioannidis, Khalida Ismail, Nathalie Jetté, Mohammad E Khamseh, Kim M Kiely, Lorie A Kloda, Yunxin Kwan, Alexander W Levis, Brooke Levis, Shen-Ing Liu, Manote Lotrakul, Sonia R Loureiro, Bernd Löwe, Laura Marsh, Anthony McGuire, Dean McMillan, Sherina Mohd Sidik, Tiago N Munhoz, Kumiko Muramatsu, Flávia L Osório, Vikram Patel, Scott B Patten, Brian W Pence, Philippe Persoons, Angelo Picardi, Danielle B Rice, Kira E Riehm, Katrin Reuter, Alasdair G. Rooney, Nazanin Saadat, Tatiana A Sanchez, Iná S Santos, Juwita Shaaban, Abbey Sidebottom, Adam Simning, Ian Shrier, Lesley Stafford, Sharon C Sung, Pei Lin Lynnette Tan, Brett D Thombs, Alyna Turner, Christina M van der Feltz-Cornelis, Henk C van Weert, Paul A Vöhringer, Jennifer White, Mary A Whooley, Kirsty Winkley, Mitsuhiko Yamada, Roy C Ziegelstein, Yuying Zhang
Accuracy of Patient Health Questionnaire-9 (PHQ-9) for screening to detect major depression: individual participant data meta-analysis
BMJ 2019;365:l1476. doi: https://doi.org/10.1136/bmj.l1476 (Published 09 April 2019)
7. Mariann Jackson, Katie McGill, Terry J. Lewin, Jenifer Bryant, Ian Whyte, Gregory Carter.
Hospital-treated deliberate self-poisoning in the older adult: Identifying specific clinical assessment needs
ANZJP Jun 2020 54(6): 591-601
Online First 20 Jan 2020.https://doi.org/10.1177/0004867419897818
8. Yin Wu, Brooke Levis, Ying Sun, Ankur Krishnan, Chen He, Kira E. Riehm, Danielle B. Rice, Marleine Azar, Xin Wei Yan, Dipika Neupane, Parash Mani Bhandari, Mahrugh Imran, Matthew J. Chiovitti, Nazanin Saadat, Jill T. Boruff, Pim Cuijpers, Simon Gilbody, Dean McMillan, John P.A. Ioannidis, Lorie A. Kloda, Scott B. Patten, Ian Shrier, Roy C. Ziegelstein, Melissa Henry, Zahinoor Ismail, Carmen G. Loiselle, Nicholas D. Mitchell, Marcello Tonelli, Samir Al-Adawi, Anna Beraldi, Anna P.B.M. Braeken, Natalie Büel-Drabe, Adomas Bunevicius, Gregory Carter, Chih-Ken Chen, Gary Cheung, Kerrie Clover, Ronán M. Conroy, Daniel Cukor, Carlos E. da Rocha e Silva, Eli Dabscheck, Federico M. Daray, Elles Douven, Marina G. Downing, Anthony Feinstein, Panagiotis P. Ferentinos, Felix H. Fischer, Alastair J. Flint, Maiko Fujimori, Pamela Gallagher, Milena Gandy, Simone Goebel, Luigi Grassi, Martin Härter, Josef Jenewein, Nathalie Jetté, Miguel Julião, Jae-Min Kim, Sung-Wan Kim, Marie Kjærgaard, Sebastian Köhler, Wim L. Loosman, Bernd Löwe, Rocio Martin-Santos, Loreto Massardo, Yutaka Matsuoka, Anja Mehnert, Ioannis Michopoulos, Laurent Misery, Ricard Navines, Meaghan L. O'Donnell, Ahmet Öztürk, Jurate Peceliuniene, Luis Pintor, Jennie L. Ponsford, Terence J. Quinn, Silje E. Reme, Katrin Reuter, Alasdair G. Rooney, Roberto Sánchez-González, Marcelo L. Schwarzbold, Vesile Senturk Cankorur, Juwita Shaaban, Louise Sharpe, Michael Sharpe, Sébastien Simard, Susanne Singer, Lesley Stafford, Jon Stone, Serge Sultan, Antonio L. Teixeira, Istvan Tiringier, Alyna Turner, Jane Walker, Mark Walterfang, Liang-Jen Wang, Jennifer White, Dana K. Wong, Andrea Benedetti, Brett D. Thombs,
Probability of major depression diagnostic classification based on the SCID, CIDI and MINI diagnostic interviews controlling for Hospital Anxiety and Depression Scale – Depression subscale scores: An individual participant data meta-analysis of 73 primary studies.
Journal of Psychosomatic Research, 129, 2020, 109892, https://doi.org/10.1016/j.jpsychores.2019.109892
9. Levis B, Benedetti A, Ioannidis JPA, Sun Y, Negeri Z, He C, Wu Y, Krishnan A, Bhandari PM, Neupane D, Imran M, Rice DB, Riehm KE, Saadat N, Azar M, Boruff J, Cuijpers P, Gilbody S, Kloda LA, McMillan D, Patten SB, Shrier I, Ziegelstein RC, Alamri SH, Amtmann D, Ayalon L, Baradaran HR, Beraldi A, Bernstein CN, Bhana A, Bombardier CH, Carter G, Chagas MH, Chibanda D, Clover K, Conwell Y, Diez-Quevedo C, Fann JR, Fischer FH, Gholizadeh L, Gibson LJ, Green EP, Greeno CG, Hall BJ, Haroz EE, Ismail K, Jetté N, Khamseh ME, Kwan Y, Lara MA, Liu SI, Loureiro SR, Löwe B, Marrie RA, Marsh

L, McGuire A, Muramatsu K, Navarrete L, Osório FL, Petersen I, Picardi A, Pugh SL, Quinn TJ, Rooney AG, Shinn EH, Sidebottom A, Spangenberg L, Tan PLL, Taylor-Rowan M, Turner A, van Weert HC, Vöhringer PA, Wagner LI, White J, Winkley K, Thombs BD.

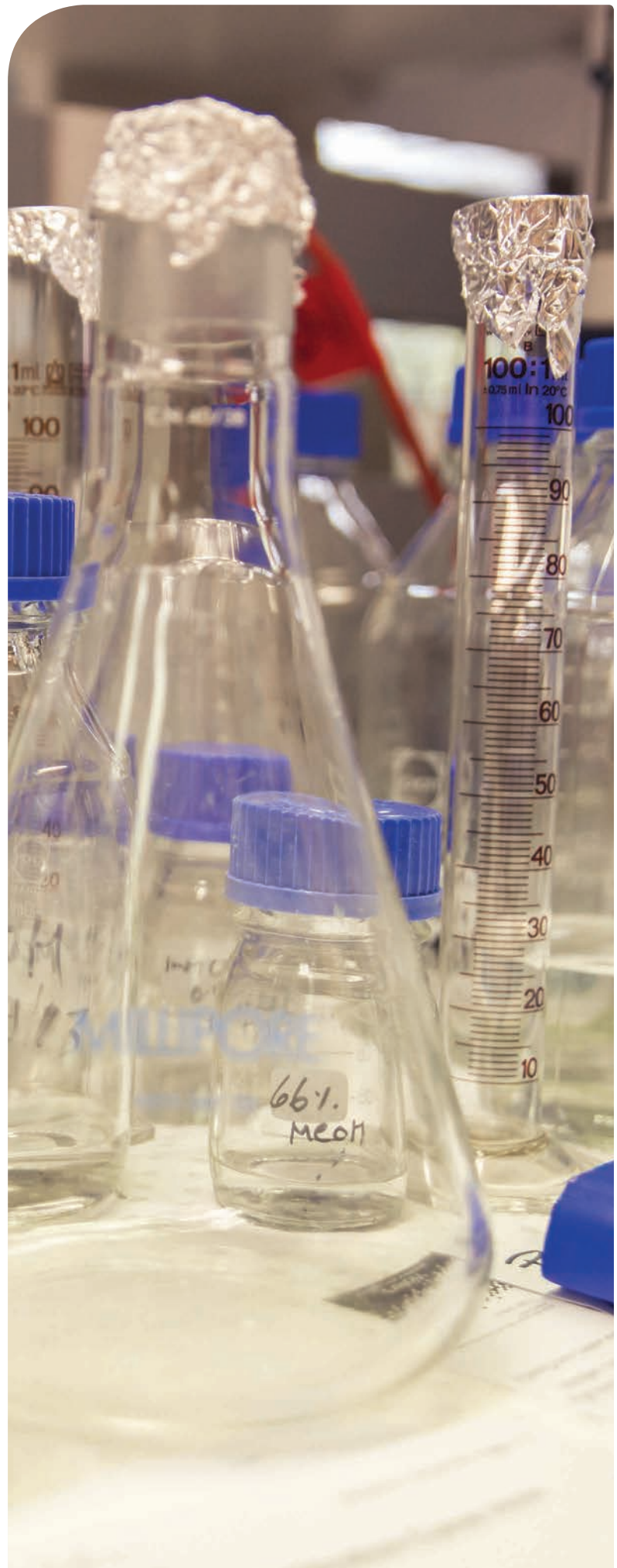
Patient Health Questionnaire-9 scores do not accurately estimate depression prevalence: individual participant data meta-analysis.

J Clin Epidemiol. 2020 Jun;122:115-128.e1. doi: 10.1016/j.jclinepi.2020.02.002. Epub 2020 Feb 24. PMID: 32105798.

10. Chitty K M, Schumann J, Schaffer A, Cairns R, Gonzaga N.J, Raubenheimer J.E, Carter G, Page A, Pearson SA, Buckley N.A, Australian Suicide Prevention using Health-Linked Data (ASHLi): The study protocol
BMJ Open 2020;10:e038181. doi:10.1136/bmjopen-2020-038181. Online First May 2020
11. Clover, K., Lambert, S.D., Oldmeadow, C., Britton, B., King, M.T., Mitchell, A.J., Carter, G.L.
Apples to apples? Comparison of the measurement properties of hospital anxiety and depression-anxiety subscale (HADS-A), depression, anxiety and stress scale-anxiety subscale (DASS-A), and generalised anxiety disorder (GAD-7) scale in an oncology setting using Rasch analysis and diagnostic accuracy statistics.
Current Psychology (2020). <https://doi.org/10.1007/s12144-020-00906-x>
12. Walton C J, Bendit N, Baker A L, Carter G L, Lewin T J.
A randomised trial of Dialectical Behaviour Therapy and the Conversational Model for the treatment of Borderline Personality Disorder with recent suicidal and/or non-suicidal self-injury: An effectiveness study in an Australian public mental health service.
ANZJP online first June 2020 <https://doi.org/10.1177/0004867420931164>

CONFERENCE PRESENTATIONS

1. Katie McGill, Danielle Adams, Dr Lisa Sawyer, Katrina Delamothe & Prof Greg Carter
Effectiveness of the Way Back Support Service (Hunter) program- a brief, non-clinical support program for people who have attempted suicide. (Oral presentation)
30th World Congress of the International Association for Suicide Prevention “Breaking Down Walls & Building Bridges”, Londonderry-Derry, Northern Ireland. UK. September 2019.
2. Jane Pearson (Chair), Greg Carter, Michael Schoenbaum, Sofian Berrouguet.
Caring Communications and Brief Contact Interventions in Suicide Prevention: Potential Impact, Implementation Successes and Remaining Challenges (Symposium)
30th World Congress of the International Association for Suicide Prevention “Breaking Down Walls & Building Bridges”, Londonderry-Derry, Northern Ireland. UK. September 2019.
3. Melissa Stieler, Cassidy Campbell, Peter Pockney, Kalpesh Shah, Vaisnavi Thirugnanasundralingam, Lachlan Gan, Matthew Spittal, Gregory Carter
Somatic Symptom Disorder and Undifferentiated Abdominal Pain: Prevalence, Diagnostic Accuracy and Co-Morbidity (Oral presentation. Awarded Best Presentation of the session)
Annual Scientific Conference by Royal Australasian College of Surgeons (RACS), Melbourne, Australia – November 2019
4. Vaisnavi Thirugnanasundralingam, Melissa Stieler, Cassidy Campbell, Peter Pockney, Kalpesh Shah, Lachlan Gan, Matthew Spittal, Gregory Carter, Lachlan Gan, Matthew Spittal, Gregory Carter



Somatic symptom disorder in surgical inpatients: increased healthcare utilisation. (Oral presentation)

European and the Austrian Society for Surgical Research 55th Congress 2020 (Austria, December 2019)

5. Cassidy Campbell, Melissa Stieler, Peter Pockney, Kalpesh Shah, Vaisnavi Thirugnanasundralingam, Lachlan Gan, Matthew Spittal, Gregory Carter

Somatic Symptom Disorder and Undifferentiated Abdominal Pain: Prevalence, Diagnostic Accuracy and Co-Morbidity (Oral presentation)

16th Annual Academic Surgical Congress (ASC), Florida, USA – February 2020

6. Vaisnavi Thirugnanasundralingam, Melissa Stieler, Cassidy Campbell, Peter Pockney, Kalpesh Shah, Lachlan Gan, Matthew Spittal, Gregory Carter, Lachlan Gan, Matthew Spittal, Gregory Carter (Poster)

Somatic Symptom Disorder (SSD) and Abdominal Pain; Prevalence, Diagnostic Accuracy, Co-Morbidity and Relationship to Opioid Prescribing (Oral presentation)

New Zealand Association of General Surgeons 2020 Annual Scientific Meeting (March 2020)

CONFERENCE POSTERS

1. Forbes, E., Clover, K., Carter, G., Wratten, C., Britton, B., Tieu, M., Kumar, M., Oultram, S., Baker, A. L., McCarter, K.

Rates Of Procedural Anxiety During Radiotherapy Using A Mask In Patients With Head And Neck Cancer.

Poster Presentation: Hunter Cancer Research Symposium, Newcastle, Australia, 2019

2. Melissa Stieler, Cassidy Campbell, Peter Pockney, Kalpesh Shah, Vaisnavi Thirugnanasundralingam, Lachlan Gan, Matthew Spittal, Gregory Carter (Poster)

Somatic Symptom Disorder (SSD) and Abdominal Pain; Increased Opioid Prescribing in Surgical Inpatients

The Association of Surgeons in Training (ASiT) Conference, Birmingham, UK- March 2020

3. Cassidy Campbell, Melissa Stieler, Peter Pockney, Kalpesh Shah, Vaisnavi Thirugnanasundralingam, Lachlan Gan, Matthew Spittal, Gregory Carter (Poster)

Somatic Symptom Disorder (SSD) and Abdominal Pain; Increased Opioid Prescribing in Surgical Inpatients

Surgical Research Society (SRS) Conference by Royal College of Surgeons, Ireland – March 2020

RESEARCH FUNDING/GRANTS

1. 2019 Australian Government Department of Health

National Leadership in Suicide Prevention Research Project

Pirkis J, Robinson J, Reifels L, Bassilios B, Spittal M, Reavley N, Gunn J, Carter G, Lubman D, Milner A, Kolves K, Kryszinska K, Phelps A, Sutherland G, Grant L, Minas H. \$1.2M over three years (2019-2021).

2. 2020 Australian Government Department of Health, MRFF Million Minds Mission Suicide Prevention- APP1200195

Developing a Comprehensive Care Pathway For those at Risk of Suicide But Not in Care: The Under the Radar Project

CIs: Helen Christensen, Samuel Harvey, Gregory Carter, Svetha Venkatesh, Katherine Boydell, Henry Cutler, Ian Kneebone, Toby Newton-John, Jin Han, Kit Huckvale. \$3.7M over 5 years (2020-2024)

CLINICAL TRIALS

1. Effectiveness of the Way Back Support Service (Hunter) program- a brief, non-clinical support program for people who have attempted suicide.
2. Somatic Symptom Disorder (SSD) and Abdominal Pain

ANY OTHER RELEVANT MATERIAL (MILESTONES, ACHIEVEMENTS, ETC.)

PhD Students

1. Alison Beck, PhD Candidate, School of Medicine and Public Health, Faculty of Health and Medicine. Translating Motivational Interviewing and Behaviour Change Techniques into Dietetic Interventions (2018-2022) Primary Supervisor Professor Amanda Baker, Co-supervisor Ben Britton and G Carter.

2. Dr Melissa Stieler, Master of Philosophy (Surgical Science) Candidate, School of Medicine and Public Health, Faculty of Health and Medicine, University of Newcastle.

Somatic Symptom Disorder and Undifferentiated Abdominal Pain; Prevalence, Diagnostic Accuracy and Comorbidity

Principal Supervisor: Dr Peter Pockney, Co-Supervisor: Gregory Carter (15 July 2019) 2 years (full-time or part-time equivalent)

3. Dr Katherine McGill PhD, Candidate, School of Medicine and Public Health, Faculty of Health and Medicine, University of Newcastle.

Using Sentinel Unit Data to Inform Clinical Practice for Hospital-Presenting Deliberate Self-Harm

Principal Supervisor: Professor Frances Kay-Lambkin Co-Supervisors: Gregory Carter, Jo Robinson

RANZCP ADVANCED TRAINING – SCHOLARLY PROJECTS

1. Dr Lindsay Gale – 2016-2020. Which Drugs Cause Drug Induced Delirium in Self-Poisoning Patients
Principal Supervisor: Gregory Carter
2. Dr Anitha Dani and Srilaxmi Balachandran – 2020-2021. Clinical characteristics and Outcomes for Adolescent and Young Adults with Deliberate Self-Poisoning
Principal Supervisor: Gregory Carter
3. Professor Gregory Carter
2019: Member RANZCP President’s Advisory Group on suicide: understanding, risk and prevention.
2020: Member Expert Advisory Group (EAG) to the Prime Minister’s National Suicide Prevention Adviser

HAEMATOLOGY

OVERVIEW

The Haematology Unit engages in both clinical and laboratory based research. Clinicians and nurses are actively involved in research directed at improving patient care, while the department also supports dedicated laboratory and clinical trials teams. The staff specialists are committed to providing quality training to haematology registrars. Many of the staff hold conjoint appointments with the University of Newcastle and engage in teaching undergraduate medical students and supervising higher research degrees. The Unit is fortunate to have strong community support and is grateful for all the generous donations received in 2019-2020.

HAEMATOLOGY CLINICAL TRIALS

- Clinical Trial Coordinators: Michele Gambrell, Tara Novak, Marguerite Hughes, Nick Stankovich, Cheryl Cairney, Klara Jakimovski and Leanne DeGroot.
- Data Managers: Katie Oleksyn and Alesia Ogrodnik
- Administrative/Finance Officers: Patricia Rozanski and Karen Kincaid
- Laboratory Technical Officer: Carolina Mariga Green

Over the past year the Haematology Clinical Trials Office has:

- Activated six new clinical trials across a range of haematology malignancies
- Pre-screened 200 new potential participants for those newly activated and ongoing clinical trials,
- Formally screened 38 of those potential participants and
- Enrolled 25 of those screened participants onto a clinical trial.
- Currently 125 patients are being cared for by trials staff (either on treatment or in active follow up).

The Trials Office Manager has also developed and fully implemented electronic Site Files for studies which has now been accepted by all sponsors. The filing system has been presented at National Cooperative group meetings with other sites showing interest in the system. The new electronic filing system has reduced the storage required for bulky hard copy folders and greatly reduces the paper used and archived by the trials office.

Of all the open trials/registries (including those open to recruitment and those closed to recruitment but with participants either on treatment or in follow up) being managed in 2019-20, all are either administered by the Australasian Leukaemia and Lymphoma Group (ALLG), the Australasian Myeloma Research Consortium (AMaRC), sponsored by pharmaceutical companies/industry partners and/or investigator initiated.

Participation in complex early phase trials, the administration required to successfully manage them, and increased number of trials being awarded to the site due to Covid-19 has warranted additional staff to the Haematology Trials Office this year (and into next year). The department welcomed Alesia Ogronnik, and Maree Jarrett, to the Haematology Clinical Trials Office team. With additional trials in the pipeline for activation in late 2020 the team is currently planning recruitment of a new Clinical Trial Coordinator and Data Manager.

BONE MARROW STEM CELL TRANSPLANT RESEARCH

Philip Rowlings, Sam Yuen, Louisa Brown, Hong Zhang, Linda Welschinger, Geordie Zaunders

Patient transplant data are reported to the Australian Bone Marrow Transplant Recipients Registry (ABMTRR) as part of Australian Bone Marrow Transplant (BMT) research and development. This data is also part of the Asia Pacific Bone Marrow Transplant (APBMT) research group. The CMN Unit is the lead site on the ethics application for data collection of the NSW BMT Network, a subgroup of the Agency for Clinical Innovation (ACI) of the Ministry of Health. Professor Rowlings is a member of the Scientific Advisory Committee of Asia Pacific BMT Group (APBMT), and is a member of the board of Worldwide Blood and Marrow Transplant network (WBMT).

VENOUS THROMBOEMBOLISM AND TRANSFUSION RESEARCH

Dr Bryony Ross, Dr Ritam Prasad, Dr Kate Melville, Dr Jillian De Malmanche, and Dr A Enjeti

Practise changing audits and interventions have been important contributions in these areas with Dr Bryony Ross as chair of Area Transfusion Committee and Dr Melville as chair of the Area Venous Thromboembolism (VTE) Committee. Dr Ross, Dr De Malmanche and Dr Melville are also involved in Obstetric Haematology.

LABORATORY RESEARCH - THE HUNTER HAEMATOLOGY RESEARCH GROUP

Lisa Lincz, Fiona Scorgie, Anoop Enjeti, Ritam Prasad and Philip Rowlings

The Haematology Research Laboratory conducts studies into haematological cancers and disorders of coagulation, with a primary interest in circulating microvesicles. The laboratory is linked to the University of Newcastle and offers training to encourage students to enter this area of research.

The group maintains strong collaborations with researchers internationally through the International Society on Thrombosis and Haemostasis; Berlin-Bernhard-Münster Paediatric Acute Lymphoblastic Leukaemia (BFM-ALL) group; Kingston University and Ontario Institute for Cancer Research, Canada (Dr A Enjeti, travelling fellowship); nationally with researchers at the Universities of Tasmania and Melbourne, as well as the Royal Hobart Hospital and Austin Health; Children's Cancer Institute, Randwick; and locally with the departments of Neurology (JHH), Molecular Medicine (NSW Health Pathology–North), Clinical Toxicology and Pharmacology (CMN), Medical Oncology (CMN), Radiation Oncology (CMN), Hunter Medical Research Institute, and the School of Biomedical Sciences and Pharmacy (University of Newcastle).

The group is working towards the establishment of a Hunter based translational research program in the area of Myelodysplasia and Acute Myeloid Leukemia. This endeavour involves strong collaboration between haematology clinicians, researchers, and clinical trials teams together with researchers at the University of Newcastle and Hunter Medical Research Institute. The team is driven by: Dr Enjeti (clinical translational/Genomics/ drug development), Dr Jon Sillar (Trainee and PhD student), Dr Asma Asharf (Clinical Epid), Michele Gambrill (Haematology Clinical Trials Manager), Dr Nikki Verrills (Molecular Biology), Dr Kathryn Skelding (Molecular Biology), Dr Matt Dun (Proteomics), Dr Lisa Lincz (Molecular Biology), Dr Heather Lee (Epigenetics), Prof R Scott (Genomics), L/Prof Rob Sanson-Fisher (Behaviour Research Collaborative). Dr A Enjeti has led the development of a Next Generation Sequencing (NGS) panel based testing for Acute Myeloid Leukaemia/Myelodysplastic Syndrome (AML/MDS) with the Hunter as a lead site for testing in NSW.

RESEARCH HIGHER DEGREE COMPLETIONS

PhD. Nadine Berry. Clinical use of SNP-microarrays for the detection of genome-wide changes in haematological malignancies with a focus on B-cell neoplasms. Supervisors: A Enjeti, R Scott

BSc (Honours) Class I. Lachlan Schoefield. The Potential Role of Alpha-Enolase in Acute Myeloid Leukaemia. Supervisors: K Skelding, L Lincz

FELLOWSHIPS/AWARDS

- **2020-2023. Clinical Research Fellowship.** Nadine Berry. Supervisors: A Enjeti, P Rowlings, R Scott
- **2020-2023. University of Newcastle Research Training Program Scholarship.** Lachlan Schoefield. Investigation of DNA repair pathways for precision medicine in

acute myeloid leukaemia. Supervisors: Nikki Verrills, Kathryn Skelding, Matt Dun, Heather Murray, Anoop Enjeti, Lisa Lincz

- **2019. Hunter Cancer Research Alliance (HCRA) Best Paper (engagement category).** **Anoop Enjeti,** for: Wei, A.H., S.A.S. Jr, J.-Z. Hou, W. Fiedler, T.L. Lin, R.B. Walter, A. Enjeti, I.S. Tiong, M. Savona, S. Lee, B. Chyla, R. Popovic, A.H. Salem, S. Agarwal, T. Xu, K.M. Fakouhi, R. Humerickhouse, W.-J. Hong, J. Hayslip, and G.J. Roboz, Venetoclax Combined With Low-Dose Cytarabine for Previously Untreated Patients With Acute Myeloid Leukemia: Results From a Phase Ib/II Study. *Journal of Clinical Oncology*, 2019. 37(15): p. 1277-84.

RESEARCH FUNDING

- 2020. HCRA New Strategic Initiatives Funding. Salary funding for a Haematology Clinical Liaison Coordinator. A Enjeti, N Verrills, M Dun, H Lee, K Skelding, L Lincz, M Gambrill, R Sanson-Fisher \$66,700
- 2020 University of Newcastle Strategic Research Pilot Grant Characterising a novel mechanism for leukaemia relapse. K Skelding, L Lincz \$4550.
- 2020. CMN Jane Reid Harle Memorial Grant Scheme. Does alpha-enolase modulate the bone marrow microenvironment to promote leukaemia relapse? L Lincz, K Skelding, E Enjeti \$30,000.
- 2020. HCRA Biomarkers and Targeted Therapies Flagship Program Project Funding. Investigating a novel treatment combination that targets the tumour micro-environment in Myelodysplastic Syndrome (MDS) and Low Blast Count Acute Myeloid Leukemia (LBC-AML). Danielle Bond, Anoop Enjeti, Nikki Verrills, Heather Lee, Lisa Lincz, Jonathan Sillar. \$36,100
- 2017-20. Pathology North/HNELHD/CMN Clinical Research Fellowship. Locoregional differences, biomarkers and novel therapy in Acute Myeloid Leukaemia. Anoop Enjeti. \$360,000
- 2015-19. NHMRC project grant APP1085550. Helping stroke physicians choose who to thrombolysse- the "Targeting Optimal Thrombolysis Outcomes" (TOTO) study. CIA:Elizabeth Holliday, CIG: L Lincz \$1,031,671
- 2020. NHMRC project grant. Targeting DNA-PK in acute myeloid leukaemia. Nikki Verrills and Anoop Enjeti \$741,610
- 2019. HMRI Multiple Myeloma Equipment Grant. A Enjeti. \$55,000
- 2019. HMRI. An A(r)Ray of hope for paediatric acute lymphoblastic leukaemia. A Enjeti \$20,000
- 2019-2020. HCRA Bloody Seminars. A Enjeti. \$2500
- 2019-2020. FHAEM Overseas collaboration fellowship. A Enjeti. \$6000

- 2020 NHMRC Ideas grant. Probing Epigenetic Clonal Evolution in Acute Myeloid Leukaemia. CI: Heather Lee, AI: A Enjeti. \$554,455

CONFERENCE AND MEETING PROCEEDINGS

International Society for Laboratory Hematology 2020 Virtual Meeting Anoop Enjeti.

Genomic investigation of inherited thrombotic microangiopathy—aHUS and TTP. (Invited speaker)

Makhija, K., K. Attalla, F. Scorgie, L. Lincz, A. Enjeti, and R. Prasad, Pilot Evaluation of an Artificial Intelligence (AI) Software for White Blood Cell Differentials. (eposter)

American Society of Hematology 61st Meeting, Orlando, Florida, USA Tam, C.S., T. Robak, P. Ghia, B.S. Kahl, P. Walker, **W. Janowski**, D. Simpson, M. Shadman, P.S. Ganly, L. Laurenti, S. Opat, M. Tani, H. Ciepluch, E. Verner, M. Simkovic, A. Österborg, M. Trněný, A. Tedeschi, J. Paik, C. Marimpietri, S. Feng, J. Huang, P. Hillmen, and J.R. Brown, Efficacy and Safety of Zanubrutinib in Patients with Treatment-Naive Chronic Lymphocytic Leukemia (CLL) or Small Lymphocytic Lymphoma (SLL) with Del(17p): Initial Results from Arm C of the Sequoia (BGB-3111-304) Trial. *Blood*, 2019. 134 (Suppl_1): p. 499. (oral presentation)

Unnikrishnan, A., X.Y. Lim, S. Joshi, A.C. Nunez, L. Vaughan, R. Pickford, S. Hough, S. Davidson, C. Fong, **A.K. Enjeti**, and M. Kenealy, In Vivo Assessment of Intracellular Dynamics Comparing Injection Versus Oral Azacitidine in a Phase IIb Investigator Initiated Clinical Trial. *Blood* 2019. 134 (Suppl_1): 4247.

Verner, E., A. Johnston, N. Pati, E.A. Hawkes, H.-P. Lee, T. Cochrane, C.Y. Cheah, D. Purtill, **A.K. Enjeti**, and C. Brown, Response Rates and Quality of Life Outcomes in Australasian Leukaemia & Lymphoma Group NHL29: A Phase II Study of Ibrutinib, Rituximab and Mini-CHOP in Very Elderly Patients with Newly Diagnosed Diffuse Large B Cell Lymphoma. *Blood* (2019) 134 (Suppl_1): 4094.

American Society of Clinical Oncology 2020 Virtual Scientific Program

Usmani, S.Z. DREAMM-9: Phase III study of belantamab mafodotin plus VRd versus VRd alone in transplant-ineligible newly diagnosed multiple myeloma (TI NDMM). (eposter)

Blood 2019 - The combined meeting of Haematology Society of Australia and New Zealand, Australian and New Zealand Society of Blood Transfusion and Thrombosis and Haemostasis society of Australia and New Zealand, Perth, WA **Welschinger, L., G. Zaunders, J. Virtue, and S. Yuen,** Platelet recovery after autologous stem cell transplant in the older patient (poster)

The 25th European Hematology Association (Virtual) Congress 2020. **Yuen, S.,** C. Arthur, T. Phillips, R. Bannerji, I. Isufi, G. Gritti, J.F. Seymour, P. Corradini, P. Marilton, A. Johnston, V. Karur, D. Persky, M. Tani, J. Hirata, Y. Chang, L. Musick, and C. Flowers, Polatuzumab Vedotin (Pola) + Obinutuzumab (G) + Venetoclax (Ven) in Patients with Relapsed/Refractory (R/R) Follicular Lymphoma (FL): Interim Analysis of a Phase Ib/II Trial, (eposter)

David Kipp Steven Lane Emily Blyth **Anoop Enjeti** Ashish Bajel Anne-Marie Watson Sally Mapp John Reynolds Andrew Wei. A Phase-Ib/II Clinical Evaluation Of Ponatinib in Combination with Azacitidine in Flt3-ITD Positive Acute Myeloid Leukaemia (ALLG AML M21). EHA Library. Kipp D. 06/12/20; 294494; EP576 (eposter)

2019 Hunter Cancer Research Symposium, November 8, Newcastle City Hall

Fodeades, A.A., **N.K. Berry**, J. Chamberlain, P. Maley, **A.K. Enjeti**, and R.J. Scott. Detection of an IKZF1 (Plus) Paediatric B-ALL and the Impact on Clinical Management: A Case Study. in *Asia-Pacific Journal Of Clinical Oncology*. 2019

Murray, H.C., **A.K. Enjeti**, R.G. Kahl, H.M. Flanagan, M.D. Dun, and N.M. Verrills. Phosphoproteomic Characterisation of Acute Myeloid Leukaemia (AML). in *Asia-Pacific Journal Of Clinical Oncology*. 2019.

ADVISORY/BOARD MEMBERSHIP

Sam Yuen

- Executive Committee, NSW BMT Network of the Agency for Clinical Innovation, NSW Health

Philip Rowlings

- Editorial Board of the Journal Blood Cell Therapy
- Board of Directors, Australia Leukaemia and Lymphoma Group
- Scientific Advisory Board of the Asia Pacific Bone Marrow Transplant Group (APBMT)
- Member, Hunter Cancer Research Alliance, Implementation Science Committee



Anoop Enjeti

- Co-chair, Acute Leukaemia Working Party, ALLG
- Chair, MDS Working Group, ALLG
- President and Executive council member Thrombosis and Haemostasis Society of Australia and New Zealand (THANZ)
- Chief Examiner Haematology Royal College of Pathologists of Australasia (RCPA) and on the Board of Examination and Assessment (RCPA)
- Executive member RACP/RCPA Combined Joint College Training Program
- Member, Biomarkers and Targeted Therapy Committee of HCRA
- Member, Evidence based Guidelines (EviQ) Committee, NSW Cancer Institute (NSW CI)
- Member, NSW Haematology Teaching Committee

Ritam Prasad

- Member, Australian Haemophilia Centre Directors Organisation Executive Committee

Wojt Janowski

- Member, ALLG Myeloma Subcommittee
- Deputy Chair, CCRN Steering Committee
- Member, HCRA Clinical Trials Strategic Planning Committee
- Member, Australasian Myeloma Research Consortium Steering Committee
- Member, eVIQ Haematology Reference Group

Bryony Ross

- Chair, District Patient Blood Management Committee HNEAH
- Member, NSW Blood and Blood Products Clinical Advisory Committee, CEC
- Member, NSW Red Cross Clinicians' Consultative Committee, Lifeblood
- Reviewer for Haematology Research, Journal of Paediatrics and Child Health Journal
- Member, Hunter Cancer Research Alliance, Implementation Science Committee

Lisa Lincz

- Member of Council, Thrombosis and Haemostasis Society of Australia and New Zealand (THANZ) Scientific and Education Trust
- Member, CMN Translational Research Advisory Committee
- Member, CMN Research Development and Engagement Committee

Cathie Milton

- CMN, Collection Facility Director Apheresis
- Member, ACI BMT Network Nurses Group
- Member, District Patient Blood Management Committee HNELHD
- Member, NSW eHealth, Blood and Blood Products Design Focus Group

Louisa Brown

- Member, ACI BMT network long term follow up working group

Fiona Scorgie

- Member, CMN OH&S Committee Member,
- CMN Mission and Values Committee

PUBLICATIONS

1. Arthur, C., A. Jeffrey, E. Yip, V. Katsioulas, A. Nalpantidis, I. Kerridge, M. Greenwood, L. Coyle, N. Mackinlay, K. Fay, **A. Enjeti**, J. Shortt, and W. Stevenson, Prolonged administration of low-dose cytarabine and thioguanine in elderly patients with acute myeloid leukaemia (AML) achieves high complete remission rates and prolonged survival. *Leuk Lymphoma*, 2020. 61(4): p. 831-9.
2. Attal, M., P.G. Richardson, S.V. Rajkumar, J. San-Miguel, M. Beksac, I. Spicka, X. Leleu, F. Schjesvold, P. Moreau, M.A. Dimopoulos, J.S.-Y. Huang, J. Minarik, M. Cavo, H.M. Prince, S. Macé, K.P. Corzo, F. Campana, S. Le-Guennec, F. Dubin, K.C. Anderson, M. Attal, P.G. Richardson, V. Rajkumar, J. San-Miguel, M. Beksac, I. Spicka, X. Leleu, F. Schjesvold, P. Moreau, M.A. Dimopoulos, J.S.-Y. Huang, J. Minarik, M. Cavo, H.M. Prince, S. Macé, K.P. Corzo, F. Campana, S. Le-Guennec, F. Dubin, K.C. Anderson, S. Harrison, **W. Janowski**, I. Kerridge, A. Spencer, M. Delforge, K. Fostier, P. Vlummens, K.L. Wu, R. Leblanc, M. Pavic, M. Sebag, R. Hajek, V. Maisnar, L. Pour, H. Gregersen, L. Benbouker, D. Caillot, M. Escoffre-Barbe, T. Facon, L. Frenzel, C. Hulin, L. Karlin, B. Kolb, B. Pegourie, A. Perrot, M. Tiab, L. Vincent, D. Niederwieser, A. Anagnostopoulos, S. Delimpasi, M.-C. Kyrtonis, A. Symeonidis, A. Illes, G. Mikala, Z. Nagy, S. Bringen, P. Corradini, C. Fabio, R. Lemoli, A. Liberati, C. Nozzoli, R. Zambello, S. Iida, T. Ikeda, S. Iyama, M. Matsumoto, C. Shimazaki, K. Sunami, K. Suzuki, M. Uchiyama, Y. Koh, K. Kim, J.H. Lee, C.-K. Min, H. Blacklock, H. Goodman, A. Neylon, D. Simpson, S. Grosicki, A. Jurczyszyn, A. Walter-Croneck, K. Warzocha, L. Araujo, C. Moreira, V. Doronin, L. Mendeleeva, V. Vorobyev, A. Vranovsky, A. Alegre, M. Gironella, M.S. Gonzalez Perez, C. Montes, E. Ocio, P. Rodriguez, M. Hardling, B. Lauri, M.-C. Wang, S.-P. Yeh, M. Arat, F. Demirkan, Z. Gulbas, S.K. Besisik, I. Karadogan, T. Tuglular, A. Unal, F. Vural, J. Sive, M. Streetly, K. Yong and J. Tache, Isatuximab plus pomalidomide and low-dose dexamethasone versus pomalidomide and low-dose dexamethasone in patients with relapsed and refractory multiple myeloma (ICARIA-MM): a randomised, multicentre, open-label, phase 3 study. *The Lancet*, 2019. 394(10214): p. 2096-107.
3. Batt, T.J., **L.F. Lincz**, **R. Prasad**, R.P. Patel, M. Shastri, N. Lioufas, A.G. Smith, and M.D. Jose, Plasma levels of enoxaparin oligosaccharides, antifactor-Xa and thrombin generation in patients undergoing haemodialysis. *Blood Coagul Fibrinolysis*, 2020. 31(2): p. 152-9.
4. Berry, N.K., R.J. Scott, **P. Rowlings**, and **A.K. Enjeti**, Clinical use of SNP-microarrays for the detection of genome-wide changes in haematological malignancies. *Crit Rev Oncol Hematol*, 2019. 142: p. 58-67.
5. Berry, N.K., R.J. Scott, R. Sutton, T. Law, T.N. Trahair, L. Dalla-Pozza, P. Ritchie, D. Barbaric, and **A.K. Enjeti**, Enrichment of atypical hyperdiploidy and IKZF1 deletions detected by SNP-microarray in high-risk Australian AIEOP-BFM B-cell acute lymphoblastic leukaemia cohort. *Cancer Genet*, 2020. 242: p. 8-14.
6. Bond, D.R., K. Uddipto, **A.K. Enjeti**, and H.J. Lee, Single-cell epigenomics in cancer: charting a course to clinical impact. *Epigenomics*, 2020. 12(13): p. 1139-51.
7. Borbolla Foster, A., E. Smith, and **B. Ross**, Adherence to a selective antenatal haemoglobinopathy screening policy within a tertiary level obstetric unit in Australia. *Australian and New Zealand Journal of Obstetrics and Gynaecology*, 2020. n/a(n/a).
8. Campbell, S., J. Mason, **R. Prasad**, **H. Ambrose**, S. Hunt, and H. Tran, Acquired haemophilia and haemostatic control with recombinant porcine FVIII: case series. *Intern Med J*, 2020.
9. Dun, M.D., A. Mannan, C.J. Rigby, S. Butler, H.D. Toop, D. Beck, P. Connerty, J. Sillar, R.G.S. Kahl, R.J. Duchatel, Z. Germon, S. Faulkner, M. Chi, D. Skerrett-Byrne, H.C. Murray, H. Flanagan, J.G. Almaz, H. Hondermarck, B. Nixon, G. De Luliis, J. Chamberlain, F. Alvaro, C.E. de Beck, J.C. Morris, **A.K. Enjeti**, and N.M. Verrills, Shwachman-Bodian-Diamond syndrome (SBDS) protein is a direct inhibitor of protein phosphatase 2A (PP2A) activity and overexpressed in acute myeloid leukaemia. *Leukemia*, 2020.
10. **Enjeti, A.K., T. de Malmanche, K. Chapman, and A. Ziolkowski**, Genomic investigation of inherited thrombotic microangiopathy-aHUS and TTP. *Int J Lab Hematol*, 2020. 42 Suppl 1: p. 33-40.
11. Ezad, S., A.A. Khan, H. Cheema, **A. Ashraf**, D.T.M. Ngo, A.L. Sverdlow, and N.J. Collins, Ibrutinib-related atrial fibrillation: A single center Australian experience. *Asia Pac J Clin Oncol*, 2019. 15(5): p. e187-e90.
12. Flores, C.J., A. Lakkundi, J. McIntosh, P. Freeman, A. Thomson, B. Saxon, J. Parsons, T. Spigiel, S. Milton, and **B. Ross**, Embedding best transfusion practice and blood management in neonatal intensive care. *BMJ Open Quality*, 2020. 9(1): p. e000694.
13. Holliday, E., T. Lillicrap, T. Kleinig, P.M.C. Choi, J. Maguire, A. Bivard, **L.F. Lincz**, M.A. Hamilton-Bruce, S.R. Rao, M.F. Snel, P.J. Trim, L. Lin, M.W. Parsons, B.B. Worrall, S. Koblar, J.

Attia, and C. Levi, Developing a multivariable prediction model for functional outcome after reperfusion therapy for acute ischaemic stroke: study protocol for the Targeting Optimal Thrombolysis Outcomes (TOTO) multicentre cohort study. *BMJ Open*, 2020. 10(4): p. e038180.

14. **Holmes, A.**, T. Wellings, O. Walsh, and **P. Rowlings**, Progressive multifocal leukoencephalopathy associated with a lymphoproliferative disorder treated with pembrolizumab. *J Neurovirol*, 2020.
15. Joshi, M., J. Taper, C. Forsyth, **P. Rowlings**, P. Campbell, P. Crispin, M. Harvey, C. Underhill, A. Bayley, K. Byth, G. Huang, and M. Hertzberg, Outpatient rituximab, ifosfamide, etoposide (R-IE) in patients older than 60 years with relapsed or refractory diffuse large B-cell lymphoma who are not candidates for stem cell transplantation. *Leuk Lymphoma*, 2020. 61(1): p. 91-7.
16. **Lincz, L.F., F.E. Scorgie**, M.B. Garg, J. Gilbert, and J.A. Sakoff, A simplified method to calculate telomere length from Southern blot images of terminal restriction fragment lengths. *Biotechniques*, 2020. 68(1): p. 28-34.
17. Maconachie, S., M. Jansen, E. Cottle, J. Roy, **B. Ross**, J. Winearls, and S. George, Viscoelastic haemostatic assays and fibrinogen in paediatric acute traumatic coagulopathy: A comprehensive review. *Emerg Med Australas*, 2020. 32(2): p. 313-9.
18. Rawson, J.L., F.M. Fagan, G.C. Burrough, H.M. Tang, M.A. Cuncannon, K.L. Ellem, and **A.K. Enjeti**, Intensive care unit outcomes in patients with hematological malignancy. *Blood Science*, 2020. 2(1): p. 33-7.
19. Schjesvold, F., H. Goldschmidt, V. Maisnar, I. Spicka, N. Abildgaard, **P. Rowlings**, L. Cain, D. Romanus, K. Suryanarayan, V. Rajkumar, D. Odom, A. Gnanasakthy, and M. Dimopoulos, Quality of life is maintained with ixazomib maintenance in post-transplant newly diagnosed multiple myeloma: The TOURMALINE-MM3 trial. *Eur J Haematol*, 2020. 104(5): p. 443-58.
20. Schofield, L., **L.F. Lincz**, and K.A. Skelding, Unlikely role of glycolytic enzyme α -enolase in cancer metastasis and its potential as a prognostic biomarker. *Journal of Cancer Metastasis and Treatment*, 2020. 6: p. 10.
21. Shanmuganathan, S., **B. Ross**, and J. Teo, Iron deficiency anaemia in children: a practical guide for management. *MedicineToday*, 2019. 20(9): p. 28-35.
22. **Sillar, J.R. and A.K. Enjeti**, Targeting Apoptotic Pathways in Acute Myeloid Leukaemia. *Cancers (Basel)*, 2019. 11(11).
23. Stevenson, W., J. Bryant, R. Watson, R. Sanson-Fisher, C. Oldmeadow, F. Henskens, C. Brown, S. Ramanathan, C. Tiley, and **A. Enjeti**, A multi-center randomized controlled trial to reduce unmet needs, depression, and anxiety among hematological cancer

patients and their support persons. *Journal of Psychosocial Oncology*, 2020. 38(3): p. 272-92.

MEDICAL ONCOLOGY RESEARCH (MOR)

The Medical Oncology Department has a very active research unit (MOR) in which they conduct both laboratory and clinical research. MOR is made up of clinicians, scientists, nurses, clinical trial coordinators and data managers dedicated to the improved management of patients with cancer and the advancement of cancer treatment.

MOR TRIALS:

- Clinical Trial Manager: Kim Adler
- Clinical Trial Coordinators: Sue Brew, Kirrilee Askew, Kelly Barker, Kerrie Cornall, Jennifer McFarlane, Louise Plowman, Amber Poulter, Gail Walker, Emily Munn, Kelly Healey
- Finance: Alison Leonard-England
- Ethics Specialists: Catherine Johnson and Allison Kautto
- Data Management: Jessica Aldcroft, Anthony Morrison and Rochelle Jones
- Laboratory Technician: Alison Pickup
- Clinical Trial Fellows: Dr Tin Quah and Dr Sang Kim

It has been a bumpy year for MOR Trials. The unit went from a very busy end of 2019 to pausing recruitment to 15 trials in response to COVID in March 2020. During this time the team volunteered to manage the COVID-19 Study 'ASCOT' for CMN, to ensure patients of Newcastle and the Hunter had access to potential COVID-19 treatments if needed.

With the stabilisation of COVID in NSW the team were able to re-open most of the trials in June 2020. This was a very challenging time for the team, with all learning to manage trials in a "COVID world". The team has shown their resilience and ability to think "outside the box", learning new ways that can be taken into the future.

Over the past year MOR opened 14 new clinical trials to recruitment across the Hunter New England Local Health District - covering breast, colorectal, gastroesophageal, lung, melanoma, ovarian, prostate, non-melanoma skin cancers and thyroid cancers - and as of 1 July 2020, 22 trials were actively recruiting participants, four trials remained on hold and another nine trials were pending approval to commence. These trials were a mixture of phase 1b, II & III cooperative group, pharmaceutical sponsored studies and investigator initiated studies.

Overall 176 patients were offered the opportunity to participate in a clinical trial. Of these, 126 have been enrolled into a clinical trial.

MOR Trials is now busier than ever, with 2020-2021 looking like a great year for trial opportunities for patients, with Australia being a preferred country for many new trials.

MOR EXPERIMENTS

- Director of MOR Laboratory and Chief Hospital Scientist: Dr Jennette Sakoff.
- Hospital Scientists: Dr Jayne Gilbert and Madhu Garg
- Technical Officer: Ms Alesia Ogrodnik

The MOR Laboratory encompasses the Experimental Therapeutics Group. Research focuses on improving outcomes for cancer patients undergoing chemotherapy. The main areas of research include (i) the development of new small molecules for the treatment of cancer, (ii) identifying ways to reducing clinical toxicity to chemotherapy and (iii) implementing therapeutic drug monitoring in order to optimize chemotherapy dosing. The unit's drug development program primarily targets brain, ovarian and breast cancers, while studies of clinical toxicity and drug monitoring span all tumour types.

During 2019-20 the group has continued its studies into the role of the Aryl Hydrocarbon Receptor pathway in cancer. Of note is the recent publication in *Scientific Reports* (Gilbert et al, 2020) detailing the breast cancer selectivity of novel compounds via this pathway. The group are also delighted to report that one of its discovered molecules is now commercially available from MedChemExpress and Sigma-Aldrich, allowing researchers from all over the globe access to these invaluable research tools. Research has also been boosted via funding from the James Lawrie Grant Scheme and the PRC for Drug Development at the University of Newcastle.

After receiving funding from the Hope4Cure Foundation the department now has a number of ovarian ascites cultures growing in its laboratory. These cancer cell populations were harvested from patients here at the Mater and provide an invaluable tool to test new drugs and novel drug combinations in a clinically relevant model of the disease. The team are now using this model to test for new platinum-based treatments for this disease.

The department continues to build upon its glioblastoma biobank in collaboration with Hunter Cancer Research Alliance. To date it has collected blood from 48 patients in the Hunter with this disease. During the course of their treatment the team receive up to four blood samples from each patient. Each blood sample is processed and separated into 28 samples for future biomarker analysis.

The therapeutic drug monitoring studies are popular and ever expanding. The team routinely screen blood samples for 5FU metabolism from an array of cancer patients throughout Australia. The department is now participating in a collaborative project with University of Wollongong on Phase1B study of a novel FU/LV formulation in GI Cancer. They have also joined an international collaborative project FUSAFE2 (Nice, France), in which genotyping of DPYD gene will be performed on hundreds of samples including 60 from colorectal cancer patients here in the Hunter. The MOR Laboratory is also the only

facility in Australia and the Asia Pacific providing therapeutic drug monitoring of mitotane in blood from patients with adrenocortical carcinoma.

The department is slowly progressing towards PC-2 accreditation for its laboratory, with the replacement of the ceiling, safety shower, eye wash station, flammable cabinet and shelving. Two new biological safety cabinets have also been installed. The team still have a few more items, such as replacing benchtops and installing a suitable security door, before it can request assessment and accreditation.

While the Covid-19 global pandemic has forced the closure of many research laboratories around Australia, the department was fortunate enough to keep its doors open with only minimal modifications needed to its office space. Notwithstanding this, the shift towards Covid research and the inability of community groups to raise funds for medical research has significantly stifled productivity, and the ability to engage with consumers. The team can only hope that 2021 is a better year.

PUBLICATIONS

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- Lincz L, Scorgie FE, Garg MB, Gilbert J, Sakoff JA. 2019. A simplified method to calculate telomere length from southern blot images of terminal restriction fragment lengths. *BioTechniques* Volume: 68 Issue: 1 Pages: 28-34 Published: 2020-Jan.
- Yusof ENM, Latif MAM, Tahir MIM, Sakoff JA, Veerakumarasivam A, Page AJ, Tiekink ERT and Ravooof TBSA. Homoleptic tin(IV) compounds of dinegative ONS dithiocarbazate Schiff bases: Synthesis, X-ray crystallography, DFT and cytotoxicity studies. *Journal of Molecular Structure.* Vol 1205. April 2020. DOI: 10.1016/j.molstruc.2019.127635
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25. Stenzl A, Hussain M, Fizazi K, Saad F, Shore N, Sandhu S, ... de Bono J. (2020). Central, Prospective Detection of Homologous Recombination Repair (HRR) Gene Alteration in Tumor Tissue From > 4000 Men with Metastatic Castration-Resistant Prostate Cancer (mCRPC) Screened for The Profound Study. In ONCOLOGY RESEARCH AND TREATMENT Vol. 43 (pp. 81). KARGER. Retrieved from http://gateway.webofknowledge.com/gateway/Gateway.cgi?GWVersion=2&SrcApp=PARTNER_APP&
26. Rowe CW, Dill T, Faulkner S, Gedye C, Paul JW, Tolosa JM, ... Hondermarck H (2019). The precursor for nerve growth factor (ProNGF) in thyroid cancer lymph node metastases: Correlation with primary tumour and pathological variables. *International Journal of Molecular Sciences*, 20(23), 1-13. <https://doi.org/10.3390/ijms20235924>
27. Rowe CW, Faulkner S, Paul JW, Tolosa JM, Gedye C, Bendinelli C, Hondermarck H (2019). The precursor for nerve growth factor (proNGF) is not a serum or biopsy-rinse biomarker for thyroid cancer diagnosis. *BMC Endocrine Disorders*, 19(1). <https://doi.org/10.1186/s12902-019-0457-1>
28. Brzozowski J, Taylor O, Lincz L, Gedye C, & Skelding K (2019). The Use of PARP Inhibitors in Glioblastoma. In ASIA-PACIFIC JOURNAL OF CLINICAL ONCOLOGY Vol. 15 (pp. 38). WILEY. Retrieved from http://gateway.webofknowledge.com/gateway/Gateway.cgi?GWVersion=2&SrcApp=PARTNER_APP&
29. Taylor O, Holien J, Gedye C, Brzozowski J, & Skelding K (2019). Characterising a New Target for the Treatment of Glioblastoma Multiforme. In ASIA-PACIFIC JOURNAL OF CLINICAL ONCOLOGY Vol. 15 (pp. 31-32). WILEY. Retrieved from http://gateway.webofknowledge.com/gateway/Gateway.cgi?GWVersion=2&SrcApp=PARTNER_APP&
30. Lassman A, Pugh S, Wang T, Aldape K, Gan H, Preusser M, ...Mehta M (2019). A Randomized, Double-Blind, Placebo-Controlled Phase 3 Trial of Depatuzumabmafodotin (ABT-414) In Epidermal Growth Factor Receptor (EGFR) Amplified (AMP) Newly Diagnosed Glioblastoma (nGBM). In NEURO-ONCOLOGY Vol. 21 (pp. 17). Phoenix, AZ: OXFORD UNIV PRESS INC. Retrieved from http://gateway.webofknowledge.com/gateway/Gateway.cgi?GWVersion=2&SrcApp=PARTNER_APP&
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32. Yip S, Stockler M, Yip D, Nowak A, Mitchell P, Antill Y, ... Cook M (2019). Molecular Determinants of Autoimmunity and Immune Related Adverse Events in Advanced Cancer Patients Treated with Immune Checkpoint Inhibitors (Auto-Check Study). In ASIA-PACIFIC JOURNAL OF CLINICAL ONCOLOGY Vol. 15 (pp. 59). WILEY. Retrieved from http://gateway.webofknowledge.com/gateway/Gateway.cgi?GWVersion=2&SrcApp=PARTNER_APP&
33. Gedye C, & Brook N (2019). ANZUP MDT Masterclass Convenor Welcome. *Asia-Pacific Journal of Clinical Oncology*, 15(S4), 5. <https://doi.org/10.1111/ajco.13191>
34. Moth E, Kiely B, Mandaliya H, 'Older adults' preferred and perceived roles in decision-making about palliative chemotherapy, decision priorities and information preferences', *Journal of Geriatric Oncology* 2019;S1879-4068(19)30190-0
5. Johnson C, Blanchard G, Cox Y, Gedye C. E- Health Symposium: Increasing the accessibility and quality of psychosocial cancer care: challenges and successes in development, codesign and evaluation of eHealth tools. CANcierge: a smartphone application for patients to navigate cancer services, improve treatment experiences and enhance capacity for self-care.
6. Van Der Westhuizen A, Vilain R, Graves M, Mandaliya H, Cornell K, Levy R, et al., 'PRIME002: Early phase II study of Azacitidine and Carboplatin priming for Avelumab in patients with advanced melanoma who are resistant to immunotherapy', Society for Melanoma Research, Salt Lake City, UT, USA (2019)
7. Budden T, Graves M, Wong M, Vilain R, Van Der Westhuizen A, Bowden N, 'Repurposing chemotherapy to alter methylation, DNA repair and immune pathways to prime treatment-resistant melanoma for immunotherapy', Society for Melanoma Research, Salt Lake City, UT, USA (2019)
8. Graves M, Galettis P, Navani V, Van Der Westhuizen A, Bowden N, 'Detecting plasma pembrolizumab concentrations in patients with melanoma using Liquid Chromatography/Mass Spectrometry', Society for Melanoma Research, Salt Lake City, UT, USA (2019)
9. Van Der Westhuizen A, Graves M, Levy R, Majid A, Vilain R, Bowden N, 'PRIME002: Early phase II study of azacitidine and carboplatin priming for avelumab in patients with advanced melanoma who are resistant to immunotherapy', ANNALS OF ONCOLOGY, Barcelona, SPAIN (2019)
10. Wong-Brown MW, Lombard J, van der Westhuizen A, Bowden NA, 'Investigation of DNA Repair and the Epigenome in Chemoresistant High-Grade Serous Ovarian Cancer', ASIA-PACIFIC JOURNAL OF CLINICAL ONCOLOGY (2019)
11. Day F, Loh J, Sridharan S, Martin J. Palliative oesophageal chemoradiotherapy: A Phase I clinical trial. AGITG Annual Scientific Meeting, Adelaide, August 2019. Awarded Best Abstract.
12. Kumar M, Lombard J, O'Sullivan R, Mandaliya H, Tanwar PS. An organoid platform for personalised therapy in ovarian cancer. HCRSA symposium 2019
13. Wong-Brown M, Crowe M, Lombard J, van der Westhuizen A, Bowden NA. Investigation of DNA repair and the epigenome in chemoresistant high grade serous ovarian cancer. ANZGOG 2019
14. Blanchard B, Mandaliya H et al 'The impact of integrating an oncology nurse practitioner into an acute care hospital emergency department: An Australian tertiary cancer centre experience'. May2020- ePoster at ASCO AM 2020

CONFERENCE POSTERS

1. Garg MB, Galettis P, Sakoff J, Lynam, J, Martin, J, Ackland, S (2019) A simple rapid HPLC method for the simultaneous measurement of Temozolomide and its metabolite levels in Glioblastoma cancer patients plasma samples. *Asia-Pacific Journal of Clinical Oncology*, Volume: 15 SI Supplement: 7: PP20, Wiley publishing.
2. Kumari S, Garg MB, Ackland S, Hui, R, Wilcken, N, Gurney, H, Wong, M (2019) The value of pre-treatment plasma dihydrouracil, uracil and dihydrouracil to uracil ratio in predicting 5-fluorouracil toxicity in a modified Mayo regimen. AGITG 2019
3. Sakoff JA, Fay M, Lynam J, Gilbert J. High Levels of the Protein Receptor EphA2 in the Blood of Brain Cancer Patients Undergoing Treatment for their Disease Predicts for Shorter Survival. ASIA-PACIFIC JOURNAL OF CLINICAL ONCOLOGY Volume: 15 Special Issue. SI Supplement: 7 Pages. 28-29 Meeting Abstract. PP19 Published. NOV 2019
4. Forbes E, Clover K, Cook D, Cox Y, Johnson C. Integrating Supportive Care Screening and Assessment into Routine Clinical Care. International Psycho-Oncology Society World Congress 2019

15. McLucas M, Mandaliya H et al, 'Lenvatinib in metastatic radioiodine refractory thyroid cancer'. Nov2019- Poster at COSA ASM 2019
16. Van DerWesthuizen A, Vilain R, Mandaliya H et al, 'PRIME002: Early phase II study of Azacitidine and Carboplatin priming for Avelumab in patients with advanced melanoma who are resistant to immunotherapy' Nov2019- Poster/Abstract at Society of Melanoma Research Congress 2019
17. Syed S, Lombard J, Mandaliya H et al, 'Axin2 marks the cell of origin for endometrial cancer. Nov2019- Posters/Abstracts/Rapid fire session at HCRA Symposium 2019
18. Moth E, Kiely B, Mandaliya H, 'Older adults' preferred and perceived roles in decision-making about palliative chemotherapy, decision priorities and information preferences' Aug2019- Poster at MOGA ASM
19. Kennedy J. A retrospective audit of patient enquiries prior to the implementation of the UKONS Triage Tool: An institutional experience. 23rd CSNA Annual Congress, June 2020

CONFERENCE ORAL PRESENTATIONS

1. Johnson C, Blanchard G, Cox Y, Gedy C. E-Health Symposium: Increasing the accessibility and quality of psychosocial cancer care: challenges and successes in development, codesign and evaluation of eHealth tools. CANCierge: a smartphone application for patients to navigate cancer services, improve treatment experiences

and enhance capacity for self-care. International Psycho-Oncology Society World Congress 2019

2. Day F, Mandaliya H, Sridharan S, van der Westhuizen A, Kumar M et al. Palliative oesophageal chemoradiotherapy: A Phase I clinical trial MOGA Annual Scientific Meeting: Oral Presentation, Canberra, August 2019

GRANT FUNDING

1. Gilbert J, Garg MB (2019) Essential equipment including biohazard safety Hood for cancer research in Medical oncology. CMN Coalfields Cancer Support Group Equipment Grant Scheme: \$17416
2. Ackland SP & Garg M.B. (2020). Hospital Scientist Salary in Medical Oncology Research Laboratory at the Calvary Mater Newcastle Hospital. HCRA \$44,692
3. Sakoff JA & Gilbert J (2020). Targeting the Aryl Hydrocarbon Receptor pathway and PD-L1 expression in cell models of head and neck cancer. James Lawrie CMN Grant Scheme \$49,000.
4. Gilbert & Sakoff (2020). Single Mode Microplate Reader for Colourimetric Cell Growth Assays in the Experimental Therapeutics Drug Development Program. Coalfields Equipment Grant Scheme. \$23,000.
5. Sakoff JA. (2020). Infrastructure support for Experimental Therapeutics Group. Hunter cancer Research Alliance \$37,800.
6. Sakoff JA (2020) Priority Research Centre for Drug Development. Drug Screening. \$40,000.
7. O'Brien N, McCluskey A, Sakoff J (2020) Investigation of quinazolinone based tubulin polymerisation inhibitors. PRC Drug Development Seed Funding. \$9,000.
8. Baker J, Sakoff J, & McCluskey A (2020). Development of Azo-phenylacrylonitriles as selective AhR antagonists. PRC Drug Development Seed Funding. \$9,000.
9. Sakoff J, Gilbert J, Mandaliya H (2020). Co-culturing patient derived ascetic fluid with traditional ovarian cancer cell lines: A model for drug resistance. PRC Drug Development Seed Funding. \$8,900.
10. Paul C. Measuring the financial impacts of cancer. \$16 572
11. van der Westhuizen A & Bowden NA: Pilot Early phase II study of Decitabine, Carboplatin and Avelumab in patients with advanced melanoma. \$340,000 and drug supply ~\$1.5million Merck KGaA, Germany
12. Bowden NA, Martin JH, Marsh D, Ford C, Thomas D, Head R, Wong-Brown M, Stannard G. Associate Investigators: Lombard J, van der Westhuizen A, Mandaliya H, Toney M, Searles A. Medical Research Future Fund EPCDR Ovarian Cancer Research Grant Australian Program for Drug Repurposing for Ovarian Cancer 2020-2025 \$2,693,815
13. McCarter K (UoN), Day F (co-investigator) Smoking Cessation Care for Patients with



Advanced Cancer: Clinician Perspectives.
PRCHB Grants HCRA 2020: \$4,504

14. Faulkner S (UoN), Day F (co-investigator)
Cancer Neuroscience: Defining the
Landscape of Human Tumour Innervation.
HCRA New Strategic Initiatives Funding
Round 2020: \$89,815
15. Lombard J (Associate investigator). HCRA
New strategic initiation grant: Cancer
Neuroscience: Defining the Landscape of
Human tumor innervation- \$89 815.
16. Lombard J (Associate investigator). 2020:
MRFF APP1199620: Emerging Priorities and
Consumer Driven Research- 2019 Ovarian
Cancer Research Grant: \$2.69 million over
5 years.
17. Lombard J (Associate investigator). 2020:
MRFF APP1100619: ADjuvant Tislelizumab
plus chemotherapy after post-operative
pelvic chemoradiation in high risk
Endometrial canCEr: the ADELE study.
18. Mandaliya H. HCRA New Strategic Initiatives
Funding Round 2020. Cardio-Oncology
Strategic Initiate Grant- \$100,000
19. Mandaliya H. HCRA New Strategic Initiatives
Funding Round 2020. Cancer Neuroscience:
Defining the Landscape of Human Tumour
Innervation- \$89,815.04
20. Mandaliya H Hope 4 Cure Foundation 2019.
New platinum agents for the treatment of
ovarian cancer research in Medical Oncology
- \$39,252.00

OTHER

Investigator Driven clinical trials opened 2019-
2020:

1. Day, F. Palliative Oesophageal Cancer
Chemoradioimmunotherapy (PALEO)

DEPARTMENT OF PALLIATIVE CARE

JOURNAL ARTICLES/PUBLICATIONS

- Nixon J, Turner J, Gray L, Scaife J.
Communicating Actively, Responding
Empathically (CARE): Perceptions of
Cancer Health Professionals Attending
Communication Training Workshops. *J
Cancer Educ.* 2020 Jun 26. doi: 10.1007/
s13187-020-01809-y. Epub ahead of print.
PMID: 32592036.

CONFERENCE PRESENTATIONS

- Dr Rachel Hughes, Characteristics of
Australian adolescent and young adult
palliative care patients: A national study
to aid definitions and services. Palliative
Care Outcome Collaboration, Outcomes
and Benchmarking Conference, Sydney
November 2019.
- Ms Lyn Campbell, Developing a
multidisciplinary triage to improve access
and outcomes for community palliative care
patients. Oceanic Palliative Care Conference,
Perth, September 2019.

RESEARCH FUNDING/GRANTS

A randomised controlled trial assessing the
effectiveness of a new model of community based
palliative care to improve patient-centred care in
preferred place.

\$461,101

Medical Research Future Fund, administered by
NSW Regional Health Partners

CLINICAL TRIALS

Above clinical trial will commence recruitment
during the 2020-2021 financial year.

ANY OTHER RELEVANT MATERIAL (MILESTONES, ACHIEVEMENTS, ETC.)

Study funded by Hunter Integrated Alliance.

Title: Enabling person centred-care in residential
aged care facilities

Methods: Mixed methods study to look at current
state of end of life care in aged care facilities:
The study compared Emergency Department
presentations retrospectively over two years
and compared the end of life care (symptom
management and delivery of care in line with
wishes). Qualitative approach examined the
enablers and barriers of quality end of life care
and document the presence of advanced care
planning, preferences and timeliness of symptom
management at end of life.

Key findings: Most residents (96.7%) wished to
remain in their residential aged care facility if
their health were to deteriorate in an expected
way. Residents of facilities whose model of care
employs Palliative Care Nurse Practitioner had the
lowest rates of emergency department transfers
and timelier symptom management at end of
life. Family decision making influenced location
of death.

QUALITY PROJECT

Caring@Home

Caring@Home is a national initiative to improve
access to symptom control for patients who wish
to stay at home as their preferred place of care.

Calvary Mater Newcastle Outreach team have led
the introduction of this package in the community
to support this goal and improve management
of symptoms using subcutaneous medicine
administered by carers.

Patient and staff experience, unplanned ED
presentations and hospital admissions have been
evaluated post implementation to support the
ongoing use of Caring@Home in the service. This
model will be rolled out HNE wide.

DEPARTMENT OF RADIATION ONCOLOGY

Radiation Oncology continues to prioritise
embedding research into its routine clinical
care. The department continues to make a wide
spectrum of significant contributions across
clinical trials, teaching, and basic research. Staff
from medical, physics, radiation therapy and
dietetics have all had first author publication,
increasing the breadth of its research capacity.

The department's aim is to continue to remain
at the forefront of its field in Australasia, with
the ultimate goal of continuing to offer patients
cutting edge care. The research pipeline remains
strong, and the department looks forward to its
achievements continuing to grow. Despite the
challenges presented by the ongoing pandemic,
some specific achievements to highlight:

- 53 publications, including prestigious
mastheads such as *The Lancet*, *Lancet
Oncology*, *Nature Reviews Urology*, as well
as the world's leading *Radiation Oncology*
and *Medical Physics* journals.
- Radiation Oncology Clinical Trial Unit runs
over 30 active studies across 12 tumour
sites, with ~80 patients accrued to various
clinical trials.
- Dedicated planning Magnetic Resonance
Imager continues to provide value in helping
to accurately define treatment in novel ways
which would not have been possible without
this investment.
- Four Completed research higher degrees in
both Medical Physics and Radiation Therapy.

Publications since 1 July 2019

1. Hofman, M. S., Lawrentschuk, N., Francis, R.
J., Tang, C., Vela, I., Thomas, P., Rutherford,
N., Martin, J. M., Frydenberg, M., Shakher,
R., Wong, LM., Taubman, K., Lee, S. T.,
Hsiao, E., Roach, P., Nottage, M., Kirkwood,
I., Hayne, D., Link, E., Marusic, P., Matera,
A., Herschtal, A., Iravani, A., Hicks, R. J.,
Williams, S., Murphy, D. G., Prostate-specific
membrane antigen PET-CT in patients with
high-risk prostate cancer before curative-
intent surgery or radiotherapy (proPSMA): a
prospective, randomised, multicentre study,
The Lancet, Volume 395, Issue 10231, 2020,
Pages 1208-1216, ISSN 0140-6736, [https://
doi.org/10.1016/S0140-6736\(20\)30314-7](https://doi.org/10.1016/S0140-6736(20)30314-7).
2. Kneebone, A., Fraser-Browne, C., Duchesne,
G. M., Fisher, R., Frydenberg, M., Herschtal,
A., Williams, S. G., Brown, C., Delprado, W.,
Haworth, A., Joseph, D. J., Martin, J. M.,
Matthews, J. H. L., Millar, J. L., Sidhom, M.,
Spry, N., Tang, C. I., Turner, S., Wiltshire, K.,
Woo, H. H., Davis, I. D., Lim, T. S., Pearse, M.,
Adjuvant radiotherapy versus early salvage
radiotherapy following radical prostatectomy
(TROG 08.03/ANZUP RAVES): a randomised,
controlled, phase 3, non-inferiority trial, *The
Lancet Oncology*, Volume 21, Issue 10, 2020,
Pages 1331-1340, ISSN 1470-2045, [https://
doi.org/10.1016/S1470-2045\(20\)30456-3](https://doi.org/10.1016/S1470-2045(20)30456-3).
3. March, B., Faulkner, S., Jobling, P., Steigler,
A., Blatt, A., Denham, J., Hondermarck, H.,
Tumour innervation and neurosignalling
in prostate cancer, (2020) *Nature Reviews
Urology*, 17 (2), pp. 119-130., DOI: 10.1038/
s41585-019-0274-3
4. Marcello, M., Denham, J. W., Kennedy,
A., Haworth, A., Steigler, A., Greer, P. B.,
Holloway, L. C., Dowling, J. A., Jameson,
M. G., Roach, D., Joseph, D. J., Gulliford,
S. L., Dearnaley, D. P., Sydes, M. R., Hall,

- E., Ebert, M. A., Reduced Dose Posterior to Prostate Correlates With Increased PSA Progression in Voxel-Based Analysis of 3 Randomized Phase 3 Trials, (2020) *International Journal of Radiation Oncology Biology Physics*
5. Zwan, B. J., Caillet V., Booth J.T., Colville E., Fuangrod T., O'Brien R., Briggs A., O'Connor, D.J., Keall, P.J., Greer, P.B., Toward real-time verification for MLC tracking treatments using time-resolved EPID imaging, submitted to *Medical Physics*, 2020
 6. Gholizadeh, N., Simpson, J., Ramadan, S., Denham, J., Lau, P., Siddique, S., . . . Greer, P. B. (2020). Voxel-based supervised machine learning of peripheral zone prostate cancer using noncontrast multiparametric MRI. *Journal of Applied Clinical Medical Physics*. doi:10.1002/acm2.12992
 7. Hewson, E. A., Nguyen, D. T., O'Brien, R., Poulsen, P. R., Booth, J. T., Greer, P., . . . Keall, P. J. (2020). Is multileaf collimator tracking or gating a better intrafraction motion adaptation strategy? An analysis of the TROG 15.01 Stereotactic Prostate Ablative Radiotherapy with KIM (SPARK) trial.. *Radiotherapy and oncology: journal of the European Society for Therapeutic Radiology and Oncology*. doi:10.1016/j.radonc.2020.08.010
 8. Marcello, M., Denham, J. W., Kennedy, A., Haworth, A., Steigler, A., Greer, P. B., . . . Ebert, M. A. (2020). Relationships between rectal and perirectal doses and rectal bleeding or tenesmus in pooled voxel-based analysis of 3 randomised phase III trials.. *Radiotherapy and Oncology*, 150, 12 pages. doi:10.1016/j.radonc.2020.07.048
 9. Mir, R., Kelly, S. M., Xiao, Y., Moore, A., Clark, C. H., Clementel, E., Corning, C., Ebert, M., Hoskin, P., Hurkmans, C. W., Ishikura, S., Kristensen, I., Kry, S. F., Lehmann, J., Michalski, J. M., Monti, A. F., Nakamura, M., Thompson, K., Yang, H., Zubizarreta, E., Andratschke, N., Miles, E., Organ at risk delineation for radiation therapy clinical trials: Global Harmonization Group consensus guidelines, *Radiotherapy and Oncology*, Volume 150, 2020, Pages 30-39, <https://doi.org/10.1016/j.radonc.2020.05.038>.
 10. Marcello, M., Denham, J. W., Kennedy, A., Haworth, A., Steigler, A., Greer, P. B., . . . Ebert, M. A. (2020). Increased Dose to Organs in Urinary Tract Associates With Measures of Genitourinary Toxicity in Pooled Voxel-Based Analysis of 3 Randomized Phase III Trials. *Frontiers in Oncology*, 10, 20 pages. doi:10.3389/fonc.2020.01174
 11. Olaciregui-Ruiz, I., Beddar, S., Greer, P., Jornet, N., McCurdy, B., Paiva-Fonseca, G., . . . Verhaegen, F. (2020). In vivo dosimetry in external beam photon radiotherapy: Requirements and future directions for research, development, and clinical practice. *Physics and Imaging in Radiation Oncology*, 15, 108-116. doi:10.1016/j.phro.2020.08.003
 12. Caillet, V., Zwan, B. J., Briggs, A., Hardcastle, N., Szymura, K., Podreka, A., O'Brien, R. T., Harris, B., Greer, P. B., Haddad, C., Jayamanne, D., Ead, T., Todd-Booth, J., Keall, P. J., Geometric uncertainty analysis of MLC tracking for lung SABR, Accepted manuscript *Physics in Medicine and Biology*, accepted 19/08/2020.
 13. Gao, F., Griffin, N., Faulkner, S., Li, X., King, S.J., Jobling, P., Denham, J.W., Jiang, C.C., Hondermarck, H., The Membrane Protein Sortilin Can Be Targeted to Inhibit Pancreatic Cancer Cell Invasion, (2020) *American Journal of Pathology*, 190 (9), pp. 1931-1942, DOI: 10.1016/j.ajpath.2020.05.018
 14. Delahunt, B., Murray, J.D., Steigler, A., Atkinson, C., Christie, D., Duchesne, G., Egevad, L., Joseph, D., Matthews, J., Oldmeadow, C., Samaratunga, H., Spry, N.A., Srigley, J.R., Hondermarck, H., Denham, J.W., Perineural invasion by prostate adenocarcinoma in needle biopsies predicts bone metastasis: Ten year data from the TROG 03.04 RADAR Trial, (2020) *Histopathology*, DOI: 10.1111/his.14107



15. Fraser, A., Odelli, C., Britton, B., Kumar, M., Day, F., Tieu, M.T., Wratten, C., Gastrostomy dependency trends over 15 years of patients at a large tertiary referral center following the insertion of a prophylactic gastrostomy for chemoradiation for mucosal head and neck cancer, *Asia Pac J Clin Oncol* 2020 Jun 9. doi:10.1111/ajco.13342. Online ahead of print.
16. Aftab, S., Barnes, M. P., Doebrich, M., Lehmann, J. (2020) The effect of the horizontal metallic drive on reference dosimetry in the SND 3D scanner water tank, *Journal of Applied Clinical Medical Physics*,. <https://doi.org/10.1002/acm2.12858>
17. Hardcastle, N., Kron, T., Cook, O., Lehmann, J., Mitchell, P.L.R., Siva, S. Credentialing of vertebral stereotactic ablative body radiotherapy in a multi-centre trial (2020) *Physica Medica*, 72, pp. 16-21
18. Puyati, W., Khawne, A., Barnes, M. P., Zwan, B. J., Greer, P., & Fuangrod, T. (2020). Predictive quality assurance of a linear accelerator based on the machine performance check application using statistical process control and ARIMA forecast modeling. *Journal of Applied Clinical Medical Physics*, 21(8), 73-82. doi:10.1002/acm2.12917
19. Astono, I. P., Welsh, J. S., Chalup, S., & Greer, P. (2020). Optimisation of 2D U-Net Model Components for Automatic Prostate Segmentation on MRI. *Applied Sciences*, 10(7), 20 pages. doi:10.3390/app10072601
20. Gholizadeh, N., Pundavela, J., Nagarajan, R., Dona, A., Quadrelli, S., Biswas, T., . . . Ramadan, S. (2020). Nuclear magnetic resonance spectroscopy of human body fluids and in vivo magnetic resonance spectroscopy: Potential role in the diagnosis and management of prostate cancer. *Urologic Oncology: Seminars and Original Investigations*, 38(4), 150-173. doi:10.1016/j.urolonc.2019.10.019
21. Oultram, S., Dempsey, S., Greer, P., & Clapham, M. (2020). Comparing Breast Conservation Surgery Seromas Contoured by Radiation Therapists versus those Contoured by a Radiation Oncologist in Radiation Therapy Planning for Early-Stage Breast Cancer. *Journal of Medical Imaging and Radiation Sciences*, 51(1), 108-116. doi:10.1016/j.jmir.2019.10.007
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1. Shulman, A., Li, B., Dempsey, C., Dietrich, S., Brittingham-Hatcher, J., McLeod, M., Sandwall, P., Tassotto, M., “Project ECHO: High Dose Rate (HDR) Brachytherapy Training in Low- and Middle-Income Countries (LMICs)” *Physical and Engineering Sciences in Medicine* (2020) volume 43
 2. Hatcher, J., Shulman, A., Dempsey, C., Chang, B., Malhotra, S., Oladeru, O., Tassoto, M., Sandwall, P., Dieterich, S., Li, B., Collaborative Model for International Telehealth: High Dose Rate Brachytherapy Training for Emerging Radiation Oncology Centers in Lower- and Middle-Income Countries, *JCO Global Oncology* 2020 6. 51-52.
 3. Brooks, F., Glenn, M., Hussein, M., Clark, C., Lye, J. E., Lehmann, J., Silvestre, I., Kry, S., “The Impact of Standardization of Gamma Criteria On Imaging Radiation Oncology Core Phantoms Analysis” *AAPM 2020*, poster presentation PO-GeP-T-778 (virtual), *Physical and Engineering Sciences in Medicine* (2020) 43:297–462, https://doi.org/10.1007/s13246-019-00826-6
 4. Vasina, E, Greer, P.B., Kron, T., Lehman, J., Automated offline image analysis with DIBH image analysis tool (DImAnT), *EPSM 2019*, Engineering and Physical Sciences in Medicine, 28–30 October 2019, Perth, Australia, *Physical and Engineering Sciences in Medicine* (2020) 43:297–462, https://doi.org/10.1007/s13246-019-00826-6
 5. Does timing of salvage prostatic fossa radiotherapy affect rates of late genitourinary toxicity? A TROG 08.03 RAVES Sub Study, Mohamed Ehsan Bin Mohamed Ebrahim, *TROG 2020 ASM*, March 2020.
 6. Genitourinary toxicity in post-prostatectomy fossa radiotherapy: Does timing heal all wounds? A TROG 08.03 RAVES Sub-Study, Mohamed Ehsan Bin Mohamed Ebrahim, *RANZCR 71st ASM*, October 2020.
 7. Richardson, M., Skehan, K., Goodwin, J., Greer, P. B., Martin, J., Visualising the urethra for prostate radiotherapy planning, *AUS MR in RT* November 2019.
 8. Young, J., Van Schelt, J., Wang, D., Kalet, A., Cao, N., Meyer, J., Price, R., Dempsey, C., Kim, J., Young, L., Skin Dose Measurements with Optically Stimulated Luminescence Dosimeters for SAVI Breast Brachytherapy Treatment Quality Assurance, *MEDICAL PHYSICS*, 2019; 46 (6): E163
 9. Artschan, R., Ostwald, T., Simpson, P., (2019) Eclipse Aperture Shape Controller – how does it affect treatment plan modulation? *EPSM & AOCMP* 2019
 10. Lehmann, J., Hussein, M., Standen, T., Siva, S., Moore, A., Subramanian, B., . . . Clark, C. (2019). Toward Safe Delivery of Radiation Therapy-Assessment of the Sensitivity of Clinically Used Patient-Specific Quality



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11. Vasina, E., Kong, N., Greer, P. B., & Lehmann, J. (2019). Real-Time Assessment of Lung Depth and Skin Distance during Deep Inspiration Breath Hold (DIBH) Radiotherapy of Breast Cancer. In ASIA-PACIFIC JOURNAL OF CLINICAL ONCOLOGY Vol. 15 (pp. 23-24). WILEY.
12. McNeilly, A., Greer, P. B., Van Beek, T., Van Uytven, E., Fuangrod, T., Chytky-Praznik, K., Zwan, B. J., (2019). Investigations of an EPID-Based 3D Dose Reconstruction Method for Applications in MRI-Linac Radiotherapy. In ASIA-PACIFIC JOURNAL OF CLINICAL ONCOLOGY Vol. 15 (pp. 21). WILEY.
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15. Cassell, C., Lee, D., & Greer, P. B., (2019). Sub-Image Sampling Method to Improve Temporal Resolution of Time-Resolved EPID Applications. In MEDICAL PHYSICS Vol. 46 (pp. E352). San Antonio, TX: WILEY.
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17. Vasina, E., Greer, P. B., Lehmann, J., (2019). Investigation of Live EPID Based DIBH Target Localization Using the Skin-Air Interface. In MEDICAL PHYSICS Vol. 46 (pp. E234-E235). San Antonio, TX:
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19. Marcello, M., Kennedy, A., Haworth, A., Holloway, L., Dowling, J., Greer, P. B., Ebert, M., (2019). External Validation of 3D Spatial Dose-Response Mapping for Toxicity Subsequent to Pelvic Radiotherapy. In MEDICAL PHYSICS Vol. 46 (pp. E314). San Antonio, TX:
20. Choi, J., Lee, D., Dowling, J., O'Connor, L., Pichler, P., Greer, P. B. (2019). Bulk Anatomical Density Maps for Quality Assurance in MRI-Only Prostate Treatment Planning. In MEDICAL PHYSICS Vol. 46 (pp. E318). San Antonio, TX:
21. Greer, P. B., Knutson, N., Wolthaus, J., Barnes, M., (2019). Alternative Strategies for Linac Beam Verification Or Beam Data Collection Without Using a 3D Water Tank. In MEDICAL PHYSICS Vol. 46 (pp. E469-E470). San Antonio, TX:
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23. Beeksma, B., Schellnegger, N., Sams, J., Patterson, J., Doebrich, M., Kumar, M., Implementation of knowledge based radiation treatment planning to improve efficiency and quality of plans for prostate cancer patients: a feasibility report, HCRA Symposium November 2019. [Oral Presentation – Awarded best RapidFire oral presentation].

Grants

1. Faulkner, S., Hondermarck, H., Jiang, C., Jobling, P., Day, F., Tanwar, P., Syed, S., Lombard, J., Mandaliya, H., Tieu, M., Kumar, M., Zhang, X. D., La, T., Ackland, S., King, S., Paul, C., Rush, R., Oldmeadow, C., Cancer Neuroscience: Defining the Landscape of Human Tumour Innervation- \$89.815.04 (2020–2021)
2. Greer, P. B., Welsh, J., Chalup, S., Simpson, J., Deep learning for MRI-only head and neck radiotherapy, Varian Medical Systems (\$260,000), (2020-2022)

Research Higher Degrees

1. Sharon C Oultram MPhil by research – Radiation Therapy
2. Dr Benjamin Zwan, PhD, University of Newcastle, Time-Resolved Quality Assurance and Delivery Verification for External Beam Radiation Therapy Using an Electronic Portal Imaging Device, 15/09/2020
3. Dr Neda Gholizadeh, PhD, University of Newcastle, Improved Prostate Tumour Identification and Delineation Using Multiparametric Magnetic Resonance Imaging, 6/12/19
4. Terry Perkins, MSc University of Sydney, Imaging Respiratory motion using 4D-MRI

ALLIED HEALTH

PUBLICATIONS

1. Allison Fraser, Cathy Odelli, Ben Britton, Mahesh Kumar, Fiona Day, Minh Thi Tieu, Chris Wratten (2020). Gastrostomy dependency trends over 15 years of patients at a large tertiary referral centre following the insertion of prophylactic gastrostomy for chemoradiation for mucosal head and neck cancer. In ASIA-PACIFIC JOURNAL OF CLINICAL ONCOLOGY Vol. 16, Issue 5 (pp e198-e206). WILEY. DOI: 10:1111/ajco.13342