

2016

RBWH

Research Report

Medical

Imaging



Medical Imaging



Noelle Cridland
Executive Director
Medical Imaging Services

The Department of Medical Imaging (DMI) provides a full range of diagnostic and interventional imaging services. DMI is actively engaged in departmental, interdepartmental and multi-site collaborative research projects. All research within Medical Imaging is managed by the DMI Research Office, a group consisting of a Research Development Officer, Research Medical Officer and Research Project Officer, and who all report to the Director of Research, Professor Alan Coulthard. The DMI Research Office manages approximately 70 service-based research studies, for which the department provides imaging services to research projects and clinical trials established by other RBWH departments, and by external research groups. During 2016, the Research Office has strengthened its collaborative links to external research institutions such as the Queensland Brain Institute, the Centre for Advanced Imaging, QIMR Berghofer and UQCCR. 2016 has seen a highly productive and collaborative relationship develop between DMI staff and the Herston Imaging Research Facility (HIRF). Support from DMI administrative staff, radiographers and radiologists has assisted this facility to increase their output with a view to establishing HIRF as one of the premiere research imaging facilities in Australia.

The work flow within medical imaging is multi-faceted incorporating highly specialised work forces: radiology, radiography and nursing. The role of the Research Office has extended to support, not only consultants, but residents, radiology registrars, radiographers and nursing staff to achieve their research goals. Residents are encouraged to become involved in existing departmental projects and work directly with the Research Medical Officer, thereby, developing key research skills required for their future progression to the Queensland Radiology Training Programme. Registrars are assisted in developing their Part 1 and Part 2 research projects, a requirement of the radiology training programme set by the Royal Australian and New Zealand College of Radiologists (RANZCR). This additional support to registrars has resulted in a number of first authorships in peer-reviewed journals and presenting their work at national and international conferences. Radiographers and nursing staff are supported in their post-graduate studies with a view to developing their career. Research support to DMI staff during 2016 has culminated in many peer-reviewed publications, DMI representation at national and international conferences and across all specialties. Of particular significance is the contribution our interventional neuro-radiologists made towards establishing a global training guideline for endovascular ischemic stroke intervention; this work resulted in a landmark publication in early 2016.

Research in DMI provides valuable insights into standards of clinical practice by exploring new diagnostic and interventional avenues, leading to improvements in patient treatment and care across all imaging modalities. As always, the immediate beneficiaries of our research are our patients.

DMI has successfully obtained a number of research grants during 2015 to support its research interests. These grants have been awarded from a range of different funding bodies including the RBWH Foundation, RANZCR and National Health and Medical Research Council. Furthermore, DMI has maintained its publication output having nine publications accepted by peer-reviewed journals as well as having consistent representation at various national and international conferences by consultants, registrars and radiography staff.

Supervised Post-graduate Research Students

Name (RBWH staff in bold)	Current Studies (e.g. PhD, Masters etc.)University (duration)	Research Project Title	Supervisors (RBWH staff in bold)
Mr Patrick Eastgate	PhD, QUT (2015 – 2018)	Patterns in current imaging practice in an emergency department.	Dr Steven McPhail
Dr Nicole Waters	MPhil, UQ (2015-2018)	Silent Strokes Study: Prospective study of clinically silent ischaemic events post-elective endovascular treatment of intracranial aneurysms.	Prof. Alan Coulthard
Dr Cara Odenthal	MPhil, UQ (2013- 2017)	Corpus Callosum atrophy: a predictor of future disease burden in patients presenting with clinically isolated syndrome.	Prof. Alan Coulthard
Ms Vicki Koi	MPhil, QUT (2016-2018)	Research project under development	Supervisor pending
Ms Katherine Smith	MPhil, QUT (2016-2018)	Research project under development	Dr Karen Dobeli
Mr Jacky Ma	MPhil, QUT (2016-2018)	Research project under development	Supervisor pending

Research Positions: Coordinators, Fellow, Adjunct and Honorary Positions

Name	Type of Fellowship	Research Program	University (years)
Dr Alan Coulthard	Professor	Director of Research, Neurointerventional radiology	UQ, School of Medicine
Dr. Karin Steinke	Associate Professor	Chest and breast oncology	UQ, School of Medicine
Dr Peter Scally	Associate Professor	Fluoroscopy, Tier A procedures	UQ, School of Medicine
Dr Craig Hacking	Senior Lecturer	Trauma and Emergency Radiology	UQ, School of Medicine
Dr Karen Dobeli	Research Fellow	Senior lecturer in the Masters in Medical Imaging CT programme	University of Sydney
Ms Clare Berry	Research Associate	Investigating sexual dimorphism in volumetric mapping of the basal nuclei	QUT

Current RBWH Research Group / Department Led Research Activity

Research Group / Department Lead Researchers	Collaborative Researchers	Research Project Title
Prof. Coulthard Dr Waters Dr Hocking Dr Prior	DMI - departmental project	Bright Spots Study – Prospective study of clinically silent ischaemic events post elective endovascular treatment of intracranial aneurysms.
Prof. Coulthard Dr Hocking Dr Prior	Dr Jeffrey (Neurosurgery) Dr Robertson (Anatomical Pathology) Prof Reutens (Centre for Advanced Imaging)	High field magnetic resonance imaging of hippocampal sclerosis
Prof. Coulthard Dr Hocking Dr Prior	DMI - departmental project	Enoxaparin for postoperative prophylaxis in intracranial coiling and stents (EPPICS)
Prof. Coulthard Dr Hocking Dr Prior	DMI - departmental project	Silent intracranial lesions in endovascular treatments (SILEnT)
Prof. Coulthard Dr Waters	DMI - departmental project	Verify Now Study – Effect of collection technique on platelet inhibition results.

Collaborative Research Activity involving RBWH Research Group / Department

Collaborative Lead Researchers	RBWH Researchers	Research Project Title
Assoc. Prof. Yan (Royal Melbourne Hospital)	Dr Nicole Waters (DMI) Prof. Alan Coulthard (DMI)	Genetic Effects on Antiplatelet Response (GEAR)
Prof. Kwun Fong (TPCH)	Assoc. Prof. Karin Steinke (DMI)	Low Dose Computed Tomography (LCDT) to diagnose lung cancer
Prof. Pender (Dept of Neurology, RBWH)	Prof. Alan Coulthard (DMI)	Adoptive immunotherapy for multiple sclerosis
Prof Colditz (UQCCR), Prof. Boyd (QLD Cerebral Palsy Rehabilitation and Research Centre, UQ)	Prof. Alan Coulthard (DMI)	Neurodevelopment of the preterm infant (PREterm Brain Outcomes – PREBO)
Sillagen – Global Trial	Dr Richard Skoien (Dept of Gastroenterology and Hepatology) Dr Sam Davis (DMI) Dr Nigel Mott (DMI)	A study comparing Pexa-Vec (Vaccinia GM-CSF/Thymidine Kinase-deactivated virus) followed by Sorafenib versus just Sorafenib in patients with advanced hepatocellular carcinoma (HCC)

Research Awards and Achievements

Recipient	Award	Event
Dr Eryn Arnfield	Best Poster prize	Selected at RANZCR ASM for presentation at the American Roentgen Ray Society (ARRS) ASM, Los Angeles 2016
Dr Glenna Gibson	Best Poster prize	Thoracic Society of Australia and New Zealand ASM, April 2016
Dr Neda Varzeshi		Poster selected for presentation at RSNA ASM Chicago, 2016

Research Grants – Awarded

Investigators (RBWH staff in bold)	RBWH Research Groups / Departments	Project Title	Granting Body	Amount in 2016	Total Amount (years)
Prof. Coulthard Dr Jeffree Dr Robertson Dr Hocking Dr Prior Prof Reutens	Medical Imaging, Neurosurgery, Anatomical Pathology, Centre for Advanced Imaging	High field magnetic resonance imaging of hippocampal sclerosis	RBWH Foundation	\$22 817	2016 - 2018
Prof Coulthard Dr Hocking Dr Prior	Medical Imaging	Enoxaparin for postoperative prophylaxis in intracranial coiling and stents (EPPICS)	RANZCR	\$28 519	2016 - 2018
Prof. Kwun Fong, Assoc. Prof. Steinke	Prince Charles Hospital Northside Clinical Unit, Medical Imaging	Low Dose Computed Tomography (LCDT) to diagnose lung cancer.	NHMRC	\$3 000 000	2016 - 2021

2016 Research Publications

Type (Journal article / Book / Book chapter / Letter)	Publication information (RBWH staff in bold)
Journal Article	Arnfield E, Bhardwaj H, Brown N, Handy M, Cleland P. Hydrogen peroxide poisoning: an unusual cause of portal venous gas. BJR Case Reports. 2016: doi: 10.1259/bjrcr.20150283
Journal Article	Odenthal C, Simpson S, Oughton J, van der Mei I, Rose S, Fripp J, Lucas R, Taylor B, Dear K, Ponsonby A, Coulthard A. Midsagittal corpus callosum area and conversion to multiple sclerosis after clinically isolated syndrome: a multicentre Australian cohort study. JMIR. 2016: doi:10.1111/1754-9485.12570
Journal Article	Cheng M, Fay M, Steinke K. Percutaneous CT-guided thermal ablation as salvage therapy for recurrent non-small cell lung cancer after external beam radiotherapy: A retrospective study. International Journal of Hyperthermia. 2016: doi:10.3109/02656736.2015.1137640
Letter to the Editor	Schleiger E, Wong A, Read S, Coulthard A, Finnigan S. Improved cerebral pathophysiology immediately following thrombectomy in acute ischaemic stroke: Monitoring via quantitative EEG. Clinical Neurophysiology. 2016: doi.org/10.1016/j.clinph.2016.06.001.
Journal Article	Thaker D., Douglas E., Blazak J., Xu W., Hughes B., Burge M., Steinke K. Wyld D. An analysis of incidental and symptomatic pulmonary embolism (PE) in medical oncology patients. Asia-Pac J Clin Oncol. 2016 doi:10.1111/ajco.12650
Journal Article	Binmahfouz A, Leschke P, Steinke K. Removal of a 40-kg ovarian tumor and the ensuing complex postoperative complications. Int J Case Rep Images 2016;7(10):628–632.
Journal Article	Binmahfouz SA, Steinke K. A case report of breast implant-associated anaplastic large cell lymphoma: The good, the bad, and the ugly. Int J Case Rep Images 2016;7(8):537–541
Journal Article	Binmahfouz SA, Steinke K. The wanderlust of a gallstone: a case report of intrathoracic migration of a gallstone post complicated cholecystectomy mimicking lung cancer. BJR Case Rep 2016: doi.org/10.1259/bjrcr.20150430
Journal Article	Lavine S, Coulthard A. et al. Training guidelines for endovascular ischemic stroke intervention: an international multi-society consensus document. AJNR 2016: doi.org/10.3174/ajnr.A4766
Journal Article	Currie G, Woznitza N, Bolderston A, Westrunk A, Beardmore C, di Prospero L, Nightingale J. Twitter Journal Club in Medical Radiation Science. JMIRS 2016: doi. 10.1016/j.jmir.2016.09.001

2016 Conference Presentations – Invited Speaker, Oral and Poster

Type (Oral / Poster / Invited)	Presentation information (RBWH staff in bold)
Invited Speaker	Prof. Alan Coulthard. Clinical Radiology Research Forum: The RANZCR research grant – what the reviewers are looking for. RANZCR ASM. Gold Coast. October 2016
Invited Speaker	Prof. Alan Coulthard. Lecture: Complications in thrombectomy and how to avoid them. International Neurointerventional Course, Edinburgh UK, 2016
Invited Speaker	Prof. Alan Coulthard. Lecture: Non-invasive imaging of treated and untreated aneurysms. ANZSNR ASM 2016
Invited Speaker	Dr John Clouston. Lecture: Vascular malformations – intervention radiology. Moreton Bay Vascular Society 2016
Invited Speaker	Dr John Clouston. Workshop panellist: Treating Wisely Oncology Workshop. HealthPACT Qld. 2016
Invited Speaker	Dr Craig Hacking. Gastrointestinal: Radiology and Anatomy of Common and Uncommon Herniae. RANZCR ASM. Gold Coast. October 2016
Invited Speaker	Dr Craig Hacking. ANZERG Session: Case-based review of midnight emergencies. RANZCR ASM. Gold Coast. October 2016
Invited Speaker	Dr Ken Mitchell. Neuro: Update on stroke imaging and therapy. RANZCR ASM. Gold Coast. October 2016
Invited Speaker	Dr Nick Keinzle. Liver: Imaging of the liver post percutaneous liver ablation. RANZCR ASM. Gold Coast. October 2016
Invited Speaker	Dr Jennifer Sommerville. Head and Neck: Sinus CT – Making reporting relevant. A surgeon's perspective. RANZCR ASM. Gold Coast. October 2016
Invited Speaker	Dr Ryan Sommerville. Head and Neck: Sinus CT – Making reporting relevant. A surgeon's perspective. RANZCR ASM. Gold Coast. October 2016
Invited Speaker	Assoc. Prof. Karin Steinke. Chest: New image-guided treatments – the many faces of thermal ablation in lung tumours. RANZCR ASM. Gold Coast. October 2016
Invited Speaker	Assoc. Prof. Karin Steinke. Breast Imaging. SMRT ANZ Annual Meeting, Brisbane, November 2016.
Invited Speaker	Dr Karen Dobeli. Lecture: Customising CT protocols for head and neck cancer. I-Med QLD conference, Brisbane 2016.

Type (Oral / Poster / Invited)	Presentation information (RBWH staff in bold)
Invited Speaker	Dr Karen Dobeli. Lecture: Patient preparation for cardiac CT angiography. Society of Cardiovascular Computed Tomography ASM. Orlando USA 2016.
Invited Speaker	Dr Karen Dobeli. Lecture: Pre-procedural blood work and sedation. RADaim. Gold Coast 2016.
Oral	Dr Dan Hilton. Education and Research: Presentations of Acute Abdominal Pain from Emergency – Are you full of it? RANZCR ASM. Gold Coast. October 2016
Oral	Dr Nicole Waters. Interventional: Verify Now Variation. RANZCR ASM. Gold Coast. October 2016
Oral	Dr Jeffrey Hocking. Neuro and Nuclear Medicine: Gadolinium Retention in Brain Tissue after repeated contrast-enhanced MRIs. RANZCR ASM. Gold Coast. October 2016
Oral	Dr Fallon Cominos. Breast, O&G, and Paediatrics: Indications and Outcomes of MRI Guided Breast Biopsy in a dedicated Breast-Imaging Clinic. RANZCR ASM. Gold Coast. October 2016
Poster	Preston D, Prior M, Cleland P. Scientific Poster: Is there a need for non-contrast MDCT imaging with suspected acute aortic syndrome? RANZCR ASM. Gold Coast. October 2016.
Poster	Hocking J, Buchan C. Educational Poster: Lisfranc injuries in wave surfers – a case series. RANZCR ASM. Gold Coast. October 2016
Poster	Robertson S, Hocking J, Coulthard A. Scientific Poster: Platelet response to clopidogrel n 83 patients presenting for elective neurovascular intervention of intracranial aneurysms. RANZCR ASM. Gold Coast. October 2016
Poster	Thalagala H, Hocking J, Coulthard A. Educational Poster: The Rockwood system of acromioclavicular joint injuries and novel imaging techniques improve accuracy of injury and classification. RANZCR ASM. Gold Coast. October 2016
Poster	Brown N, Leschke P, Cleland P. Pre-oncall key conditions training for first year radiology registrars.
Poster	Blazak J, Wullschleger M, Brown N, Wall D, Cleland P. Scientific Poster: Correlation between computed tomographic images and intraoperative findings of bowel and mesenteric injury in blunt trauma.
Poster	Brown N, Handy M, Wullschleger M, Wall D, Cleland P. Scientific Poster: Delayed diagnosis – impact on patient management and quality improvement.
Poster	Arnfield E, Bhardwaj H, Brown N, Handy M, Cleland P. Educational Poster: Hydrogen peroxide poisoning – an unusual cause of portal venous gas.
Poster	Varzeshi N, Cleland P. Educational Poster: Traumatic aorto right ventricular fistula following stab wound diagnosed early by CT angiogram. RSNA. Chicago. November 2016.
Poster	Rao A, Steinke K. Educational: Poster.Pulmonary amyloidomas – an unusual cause mimicking lung cancer. RANZCR ASM. Gold Coast. October 2016.
Poster	Gibson G, Ravi Kumar A, Steinke K, Bashirzadeh F, Roach R, Windsor M, Ware R, Fielding D. Scientific Poster: FDG-PET/CT is sensitive but not specific and outperforms clinical risk predictors in the investigation of solitary pulmonary nodules in a Thoracic Medicine referral centre. TSANZ ASM. Perth. April 2016.

Research Publications / Presentations Summary Table

Research Group / Department	Publications		Presentations National and International	
	Journal Articles	Books and Chapters	Oral	Poster
Department of Medical Imaging	10	0	21	11