



Two dimensional imaging of vascular abnormalities in the brain (left) versus three dimensional rotational angiography (centre and right). 3DRA is used by interventional radiologists and radiotherapists to plan treatments for cerebral aneurysms and AVMs.

The Alfred Radiology Department is one of the most advanced radiology departments in Australia and is committed to providing safe, efficient and cost effective diagnostic and interventional radiology services. State-of-the-art facilities include the first completely robotic digital radiography room and the lowest radiation dose computerised tomography (CT) scanner in Victoria. The commitment of our staff is underpinned by excellence and leadership in radiological practice, safety, teaching and academic research. Radiological imaging and minimally invasive image-guided interventional procedures are used across all medical disciplines. With support and governance through the Radiology Research Unit, internal, collaborative and commercially sponsored clinical trials are conducted.

Current Projects

Vascular Intervention

- Evaluation of the CRUX Biomedical™ inferior vena cava (IVC) filter system
- CORAL: Cardiovascular Outcomes in Renal Atherosclerotic Lesions
- 3D rotational angiography in stereotactic radiotherapy planning for arteriovenous malformations (AVMs)
- A randomised study to compare the technical difficulty of retrieval of the Bard G2® X and the Cook Celect vena cava filter systems
- Percutaneous balloon angioplasty for the treatment of extracranial vein abnormalities in MS patients: a retrospective study
- PROTECT: PROphylaxis of ThromboEmbolism in Critical care Trial
- Splenic embolisation in blunt abdominal trauma
- Uterine vascular malformations
- Post-operative pain management in patients undergoing uterine artery embolisation for symptomatic leiomyoma
- Follow up of failed retrieval of IVC filters in trauma patients
- Catheter-directed thrombolysis of lower limb thrombosis
- Variant treatment for gastric varices with polidocanol foam using balloon-occluded retrograde transvenous obliteration: a pilot study

Neurovascular Intervention

- Reflection of intracerebral aneurysm identification of multislice computer tomography (64 slice) and digital subtraction angiography
- A Phase 2, multicentre, international, double blind, randomised, placebo-controlled, parallel group, dose finding study for the prevention of cerebral vasospasm after aneurysmal subarachnoid hemorrhage by intravenous administration of clazosentan
- The epidemiology of blunt cerebrovascular injury

Trauma

- Correlation between MRI and operative findings in acute cervical spine injury: a retrospective review
- Occipital condylar fractures – incidence and clinical follow up
- Evaluation of the cervical spine clearance process in a level 1 trauma centre
- The incidence and severity of discoligamentous injuries with isolated facet joint injuries (fracture/dislocation) identified on CT scan of the cervical spine – is routine MRI required?
- TBI II protocol fluid resuscitation of critically ill patients with traumatic brain injury: potential mechanisms behind the detrimental effect of albumin resuscitation
- Focused assessment with sonography for trauma
- Persistent midline cervical tenderness after normal CT in alert, neurologically intact trauma patients

Renal Trauma

- Assessing the usefulness of delayed imaging in routine follow-up for renal trauma
- Predictors of outcome in blunt high-grade renal injuries treated with conservative intent
- Review of management of renal trauma

Tumour Ablation and Embolisation

- Irreversible electroporation (IRE) for the treatment of focal liver, kidney and lung cancer: a pilot study
- A Phase 2 randomised, double-blind, placebo-controlled study of sorafenib or placebo in combination with transarterial chemoembolisation for hepatocellular carcinoma

Cancer and MRI

- A prospective, open label Phase 1B study of single dose intravenous KDF-07002 administered as a tumour imaging agent with MRI in male subjects with head and neck cancer
- A review of MRI for rectal cancer reporting in The Alfred: is synoptic reporting required?
- Comparing clinical sigmoidoscopy and MRI measurements for rectal cancer location – is there a correlation?
- Practicalities of MRI screening for women at genetic high risk for breast cancer

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Postgraduate Students

3 PhD Students
9 Masters Students

Publications

6 Journal Articles



TheAlfred



Emergency and Trauma

Director, Emergency and Trauma Centre: Dr De Villiers Smit MB, ChB, FACEM
Director, Trauma Services: Associate Professor Mark Fitzgerald ASM, MBBS, FACEM, MRACMA

The Emergency and Trauma Centre has an active research program that covers a broad spectrum of activity and involves collaborations with most inpatient units, the National Trauma Research Institute (NTRI) and the Monash University Department of Epidemiology and Preventive Medicine (DEPM).

Five emergency specialists and one nurse specialist are undertaking doctoral studies and a large number of nurses and doctors are undertaking postgraduate research training. The Emergency and Trauma Centre also takes a leading role nationally in hosting a research training course for emergency trainees. Publications have consistently increased over the last decade.

Major ongoing collaborative research projects with NHMRC research funding include:

- **Australasian Resuscitation in Sepsis Evaluation (ARISE)** – an NHMRC funded randomised controlled trial across more than 40 hospitals involving the emergency and intensive care areas, in collaboration with the Australian and New Zealand Intensive Care Society (ANZICS) research group. The study examines the role of early goal directed therapy in severe sepsis and will take a further two years to complete.
- **POLAR** – an NHMRC funded randomised controlled trial across six hospitals in collaboration with the ANZICS research group to determine the role of hypothermia in protecting patients with traumatic brain injury from further secondary brain injury has commenced enrolment.

Patient receives acupuncture in the Emergency and Trauma Centre as part of the MEDACT Study.



- **MEDACT** – an NHMRC funded randomised controlled trial in collaboration with RMIT University across three hospitals. The study, which aims to determine the role of acupuncture in acute pain syndromes presenting to the Emergency Department, has commenced enrolment and is led by Dr De Villiers Smit.
- **HOLTT** – an NHMRC and Traffic Accident Commission funded study in collaboration with the Hyperbaric Unit examines the role of hyperbaric oxygen in lower limb trauma and continues to enrol patients.
- **RINSE** – a prehospital randomised controlled trial in collaboration with Ambulance Victoria assessing the outcomes of early cooling post cardiac arrest. This study has just commenced and will continue the extensive Melbourne based research that has already changed management in this area.
- **Patient Safety** – in conjunction with the DEPM, there has been an emphasis on improving the methodology for measuring and improving patient safety. This has involved research to improve outcomes in trauma, burns and cardiac arrest. Smaller projects have included investigation of human factors in areas such as wrong blood in tube and patient handover.

The Alfred Emergency and Trauma Centre is a leader in international emergency medicine and has received funding to undertake improvements to emergency and trauma care in Sri Lanka, India, China, Singapore, Hong Kong, Malaysia and other nations. A number of collaborative research projects are being undertaken to evaluate these programs.

Collaboration with Ambulance Victoria has been particularly important for the Emergency and Trauma Centre. As well as being involved in a number of large randomised controlled trials, collaborative research with Ambulance Victoria using the Victorian Ambulance Cardiac Arrest Registry (VACAR) has been integral to investigating the epidemiology, management and outcomes of out of hospital cardiac arrest. Dr Conor Deasy, an emergency specialist from Ireland, has undertaken a PhD studying improvements to out of hospital cardiac arrest management in Victoria. His work has involved evaluating outcomes in patients at the extremes of age – paediatrics and the elderly. Conor has also evaluated the impact of the changes to guidelines for resuscitating cardiac arrest victims.

Postgraduate Students

3 PhD Students
50 Masters Students

Publications

33 Journal Articles
1 Book
1 Book Chapter

Diagnostic and Interventional Radiology continued from page 36

MRI

- A Phase 2, randomised, double-blind, placebo-controlled, study to evaluate the safety and efficacy of daunetide for the treatment of progressive supranuclear palsy MRI component
- Aspirin for the prevention of cognitive decline in the elderly: a neuro-vascular imaging study (ENVIS-ion) from ASPREE

- Evaluation of cerebral AVM before and after radiosurgery utilising brain STAT cerebral perfusion with arterial input function
- Use of posterolateral corner injuries of the knee

Other

- The impact of norfloxacin on portal pressure and endotoxaemia and the role of vasoactive mediators in clinically significant portal hypertension
- Osseointegrated prosthesis for the rehabilitation of amputees