

RAH INTENSIVE CARE



There have clearly been a number of challenges to the health system over the past 12 months, such as COVID-19, pressure for hospital and ICU beds, and staffing numbers and sick/isolation leave, over most of which we have little control as clinicians. However, despite this, we have continued to achieve significant things of which we should be proud - as you will read in this Newsletter. It can be easy to lose sight of these achievements among all of the other distractions, but when you see them collated as in the coming pages, it paints a pretty clear picture.

There have been further changes to the Consultant group this year with Kris Hayres, Kate Triplett and Michael Davies receiving permanent appointments, and James Malycha doing some work with us from the QEH. Marianne Chapman retired, having been appointed the Director of Research for our Unit in 1998, and remaining in that position until the end of 2021 when she handed over the reigns to Mark Plummer.

We need to look after ourselves and our colleagues, and an important part of that is the social side of the Unit. To that end, we have a number of internal traditions such as morning (and often afternoon) coffee, weekend lunches with newspaper quiz, AFL fantasy competitions and The Bachelor/ Bachelorette sweepstakes, and they will continue to be embraced.

This is an annual publication, so if you are aware of any other achievements that we have unfortunately omitted, please let us know!

RAH ICU Facts and Figures

The Royal Adelaide Hospital ICU is the busiest Level 3 Unit in South Australia, and is a quaternary-referral, adult, general ICU with a broad casemix of patients. In the 12 months from July 2021 to June 2022, we admitted 3362 patients to our 48 beds. In terms of admission diagnoses (based on ANZICS CORE data), about 11% were direct admissions following cardiac surgical procedures, 9% were trauma, 8% pneumonia / respiratory infection without sepsis, 7% sepsis with shock, 4% drug overdose, 3% craniotomy for neoplasm, 3% following cardiac arrest, 3% gastrointestinal malignancy surgery (without perforation), 3% ENT cancer surgery, 2% subarachnoid haemorrhage, 2% respiratory neoplasm surgery, 2% intracerebral haemorrhage, and 0.8% burns. Operating theatres were the source of admission for 44% of our patients, 33% were admitted directly from the Emergency Department, 16% from the wards, and 6% were transferred directly from another hospital to our ICU. 59% of admissions were unplanned.

The Unit currently has 45 Registrars (41.8 FTE) on the roster (23 registered with the College of Intensive Care Medicine) from a variety of backgrounds, experience and training programs. This will increase to 44.8 FTE in 2023.

SOME OF OUR 2021/2022 ACHIEVEMENTS

RESEARCH

52 journal publications

Numerous research grants

Higher degrees attained

Presentations at scientific meetings

TEACHING AND TRAINING

6 Registrars passed the CICM Fellowship Exam

2 Registrars passed the CICM Primary Exam

Involvement in a number of Courses including:

- SA ICU Fellowship Exam Course
- SA Critical Care Ultrasound Courses
- SA ECMO Courses
- BASIC Courses
- Cardiac Surgery Advanced Life Support (CALS) Courses
- RAH Postoperative Care of the Cardiothoracic Patient Courses

Education and Training

Great results in the CICM Fellowship Exam this year, with Josh Thia, Tim Webber and Girish Asundi all passing in March/May (and looking pleased with themselves below), and then Abby McArthur, Carlos Stephenson and Ashok Elangovan passed in August/October!



In addition, Ben Young and Tom Condon both got through the CICM Primary Exam, and Jeroen de Haes, Jonas Delforche and Nilesh Anand passed Part 1 of the European Diploma in Intensive Care Medicine (EDIC) Exam.

So congratulations to all.

Aniket Nadkarni completed 12 months as Education Fellow with us before accepting a locum Consultant position at the Austin Hospital in Melbourne this year.

Amy Sanguesa completed her CICM Transition Year in August this year, and has now taken on the Education Fellow role with us for the next 12 months.

Kris Hayres completed Fellow terms in the Royal Hospital for Children in Glasgow, Kings College, and the Royal Brompton and Harefield Hospital in London, before returning to the RAH this year as an ICU Consultant. She joins Kate Triplett who was also appointed to our Consultant group this year having moved across from the Royal Prince Alfred in Sydney, and Mike Davies, who completed a Cardiac/ECHO Fellow position with us last year.

The 14th Annual Tub Worthley Travelling Scholarship was held in July 2022 and is awarded for the best registrar research presentation at the annual South Australian ANZICS meeting. This year's finalists for the oral presentation section were Fiona Kilpatrick (RAH), Nilesh Anand

(RAH), Amy Sanguesa (RAH), Michael Edwards, Stephanie Ng, and Rajkumar Satyavolu (LMHS), who was awarded the Scholarship for his presentation titled, 'Activation rate and clinical outcomes of medical emergency team and conventional referral-mediated unplanned intensive care admissions'.

Mark Plummer presented at the RAH Medical Grand Round in November this year on 'Current and emerging critical care research in CALHN', and he summarises some of this research and future opportunities later in this Newsletter.

The SA CICM Regional Committee organised a presentation at Herringbone in April from Professor Helen Marshall, who spoke on the 'End game for COVID pandemic and precision public health-targeted vaccine programs to improve equity'.

The South Australian Intensive Care Fellowship Exam Course will finally be back in its full form in February 2023.

Unfortunately, restrictions around COVID have meant that we have only been able to run a shortened local course in the last 2 years, but COVID-permitting, we will be running a full 3-day national course in February. We will be returning to Ayers House, hosting 30 candidates within 12 months of sitting the CICM Fellowship Exam, and over 30 faculty, several of whom will fly in from interstate. Hot Case sessions will be held at the RAH, FMC, LMHS and QEH, and further information about the course can be found at saica.com.au. Demand was extraordinary for next year's course, with all places filled within hours of registrations opening - so make sure you apply (very) early for future courses.

The South Australian Primary Examination Course was cancelled this year because of COVID. It was first run in 2008 as a basic sciences course for both CICM and ANZCA trainees, but in recent years has focussed more on the syllabus for the CICM Primary Exam. After coordinating it for the past 15 years, Mark Finnis has handed over the reins to Richard Strickland in 2023,

although Mark will continue to be involved.

The South Australian Critical Care Ultrasound Course is a 2-day course on focused cardiac, lung, abdominal and procedural ultrasound relevant to critical care, and continues to thrive.



The first South Australian ECMO Course was held in 2020, and continues twice a year. In November this year, the 3rd SA ECMO Evening was held as a forum for the public Units who undertake ECMO to discuss practices and challenges over some food and drink.

We continue to run BASIC Courses, and a further 5 of our medical staff completed the Instructor Course in August.

A list of upcoming local ICU Courses is included at the end of this Newsletter.

A number of our Registrars have also been involved with the CICM Online Education Program (see later page).

At the RAH, there is a comprehensive 2-day orientation program around the major registrar changeover dates (in February and August) for registrars new to the Unit, including a Postoperative Care of the Cardiothoracic Patient Course, an extended patient-scenario discussion, and sessions on ALS and CVC insertion.

We run a formal mentoring/support program for all trainees in ICU at the RAH. This process is separate from any skill or competency-based assessment and is aimed purely at providing psychological, emotional and practical support for our junior doctors. Registrars are allocated at least 2 mentors and are encouraged to discuss any non-training issues that they may have with them.

ECMO Course

The SA Introductory ECMO Course is a full day of education, with both the faculty and participants from nursing and medicine.

Pre-reading and pre-course testing prepare participants for a full day of lectures, interactive case-based discussion and high fidelity simulation. Practical skills of cannulation and cardiohelp troubleshooting are also covered with the opportunity to both observe and participate in cannulation on our ECMO mannequins.



RAH ICU Research

Over the last 12 months the Royal Adelaide Hospital Intensive Care Research Unit has continued to produce high-quality impactful research, receive competitive grant funding and contribute meaningfully to national and international multi-centre clinical trials. As a unit we have published over 50 papers, averaging one paper a week! Publication highlights include two papers in the Blue Journal – the highest ranked critical care journal in the world. The PACE study, led by Associate Professor Lee-anne Chapple, demonstrated a marked reduction in the incorporation of dietary protein into skeletal muscle in critically ill patients, and the LUCID study led by Mr Alex Poole demonstrated no benefit of a liberal glucose control regimen in critically ill patients with type 2 diabetes.

Our investigators have secured over \$10.5 million in funding including prestigious Category One funding from the NMRC Ideas Grant, Investigator Grant and Project Grant schemes and MRFF funding through the Cardiovascular Health and Rare Diseases and Unmet Disease schemes. This funding will allow us to continue projects across a broad range of research themes including novel treatments for sepsis, nutrition and metabolism, neurocritical care, rapid response systems, ECMO and data platforms. Registrars are encouraged to join and lead research programmes and there are exciting opportunities to undertake Higher Degrees under the supervision of experienced and established research mentors.

Associate Professor Mark Plummer
Head of Research and Innovation
Intensive Care Unit, Royal Adelaide Hospital

Research Publications: September 2021 - November 2022

- Liu Z, Karamesinis A, Plummer MP, Segal R, Bellomo R, Smith JA, Perry LA. Epidemiology of persistent postoperative opioid use after cardiac surgery – a systematic review and meta-analysis. *British Journal of Anaesthesia*. 2022;129(3):366-77.
- van Zuylen ML, van Tron AMP, Duindam HB, Scholten E, van Dongen EPA, Hoope WT, Plummer MP, DeVries JH, Preckel B, Scheffer GJ, Abdo E, Hermanides J. Perioperative cerebrospinal fluid sorbitol and fructose concentrations in patients undergoing thoracic surgery. *British Journal of Anaesthesia*. 2022;129(3):73-6.
- Plummer MP, Bellomo R. Restrictive fluid therapy and high-dose vitamin C in sepsis. *Nature Reviews Nephrology*. 2022;18:607-8.
- Deane AM, Plummer MP, Ali Abdelhamid Y. Update on glucose control during and after critical illness. *Current Opinion in Critical Care*. 2022;28(4):389-94.
- Plummer MP, Hermanides J, Deane AM. Is it time to personalise glucose targets during critical illness? *Current Opinion in Critical Care*. 2022;25(5):364-9.
- Liu Z, Penny-Dimri JC, Nagel M, Plummer MP, Segal R, Morley P, Smith JA, Perry LA. Early versus late surgical start times for on-pump cardiac surgery. *Cochrane Database of Systematic Reviews*. 2022;6. doi 10.1002/14651858,CD014901.
- Liu Z, Perry JA, Penny-Dimri JC, Handscombe M, Overmars I, Plummer MP, Segal R, Smith JA. Elevated cardiac troponin to detect acute cellular rejection after cardiac transplantation: a systematic review and meta-analysis. *Transplant Int*. 2022. doi 10.3389/ti.2022.10362.
- Murthy TA, Plummer MP, Tan E, Chapman MJ, Chapple LAC. Higher versus lower enteral calorie delivery and gastrointestinal dysfunction in critical illness: A systematic review and meta-analysis. *Clinical Nutrition*. 2022;41(10):2185-94.
- Begum H, Serpa Neto A, Villodre Alliegro P, Broadley T, Trapani T, Campbell LT, Cheng AC, Cheung W, Cooper DJ, Erickson S, French C, Litton E, McAllister RE, Nichol AD, Palermo A, Plummer MP, Rotherham H, Ramanan M, Reddi BAJ, Reynolds C, Webb SAR, Udy AA, Burrell A. The evolving patient characteristics, treatments and outcomes of critically ill patients in the first, second and third waves of COVID-19 in Australia. *Medical Journal of Australia*. 2022 doi.org/10.5694/mja2.51590.
- Plummer MP, Rait L, Finnis ME, French CJ, Bates S, Douglas J, Bhurani M, Broadley T, Trapani T, Deane AM, Udy AA, Burrell AJC. Diabetes mellitus, glycaemic control and severe COVID-19 in the Australian Critical Care Setting – a nested cohort study. *Australian Crit Care*. 2022 May 23;S1036-7314(22)00066-2. doi: 10.1016/j.aucc.2022.05.002.
- Reveendran D, Penny-Dimri JC, Segal R, Smith JA, Plummer MP, Liu Z, Perry LA. The prognostic significance of postoperative hyperbilirubinemia in cardiac surgery: systematic review and meta-analysis. *J Cardiothorac Surg*. 2022, 26;17(1):1-13.
- Liu Z, Perry LA, Penny-Dimri JC, Handscombe M, Overmars I, Plummer MP, Segal R, Smith JA. Prognostic significance of elevated troponin in heart transplant recipients: a systematic review and meta-analysis. *Experimental and Clinical Transplantation*. 2022;20(7):633-41.
- Liu Z, Perry LA, Penny-Dimri JC, Handscombe M, Overmars I, Plummer MP, Segal R, Smith JA. Donor cardiac troponin for prognosis of adverse outcomes in cardiac transplantation recipients: a systematic review and meta-analysis. *Transplantation Direct*. 2022;8(1):e1261.
- Bisiani A, Redmond JM, Deane AM, Plummer MP. Vaptans for the management of hyponatremia in neurocritical care: a systematic review. *SN Comprehensive Clinical Medicine*. 2022;4(1):1-8.
- van Gassel RJJ, van de Poll MCG, Schaap FG, Plummer MP, Deane AM, Olde Damink SWM. Postprandial rise of essential amino acids is impaired during critical illness and unrelated to small-intestinal function. *JPEN*. 2022;46(1):114-22.
- Burrell AJC, Serpa Neto A, Broadley T, Trapani T, Begum H, Campbell LT, Cheng AC, Cheung W, Cooper J, Erikson SK, French CJ, Kaldor JM, Litton E, Murthy S, McAllister RE, Nichol AD, Palermo A, Plummer MP, Ramanan M, Reddi BAJ, Reynolds C, Webb SA, Udy AA. Comparison of baseline characteristics, treatment and clinical outcomes of critically ill COVID-19 patients admitted in the first and second waves in Australia. *Crit Care and Resus*. 2021;23(3):308-19.
- Karri R, Chen YP, Burrell AJC, Penny-Dimri J, Broadley T, Trapani T, Deane AM, Udy AA, Plummer MP. Machine learning predicts the short-term requirement for invasive ventilation among Australian critically ill COVID-19 patients. *Plos One*. 2022 Oct 26;17(10):e0276509.

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21. Chapple LS, Summers MJ, Weinel LM, Lange K, Yang WH, Deane AM, Chapman MJ; TARGET Investigators for the Australia and New Zealand Intensive Care Society Clinical Trials Group. Muscle size, strength, and physical function in response to augmented calorie delivery: A TARGET sub-study. *J Crit Care*. 2022 Dec;72:154140. Epub 2022 Sep 1.
22. Noyahr JK, Tatucu-Babet OA, Chapple LS, Barlow CJ, Chapman MJ, Deane AM, Fetterplace K, Hodgson CL, Winderlich J, Udy AA, Marshall AP, Ridley EJ. Methodological Rigor and Transparency in Clinical Practice Guidelines for Nutrition Care in Critically Ill Adults: A Systematic Review Using the AGREE II and AGREE-REX Tools. *Nutrients*. 2022 Jun 23;14(13):2603. doi: 10.3390/nu14132603. PMID: 35807784; PMCID: PMC9268338.
23. Chapple L, Parry S, Schaller S. Attenuating muscle mass loss in critical illness: The role of nutrition and exercise. *Current Osteo Reports*. 2022 Oct;20(5):290-308.
24. Murthy T, Plummer M, Tan E, Chapman M, Chapple L. Higher versus lower enteral calorie delivery and gastrointestinal dysfunction in critical illness: A systematic review and meta-analysis. *Clin Nutr*. 2022 Oct;41(10):2185-2194.
25. Murthy TA, Chapple LS, Lange K, Marathe CS, Horowitz M, Peake SL, Chapman MJ. Gastrointestinal dysfunction during enteral nutrition delivery in ICU patients: Risk factors, natural history and clinical implications. A post-hoc analysis of the TARGET trial. *AJCN*. Accepted April 2022. IF 7.045.
26. Viner-Smith E, Ridley EJ, Rayner CK, Chapple LS. Nutrition management for critically ill patients requiring non-invasive ventilation: A scoping review. *Nutrients*. 2022 Mar 30;14(7):1446. doi: 10.3390/nu14071446.
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28. Viner-Smith E, Ridley E, Rayner CK, Chapple LS. Nutrition management for critically ill adult patients requiring non-invasive ventilation: a scoping review protocol. *JBI Evidence Synthesis*. 2022 Jul 1;20(7):1814-1820. doi: 10.11124/JBIES-21-00328.
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35. Arunachala Murthy T, Chapple LS, Lange K, Marathe CS, Horowitz M, Peake SL, Chapman MJ. Gastrointestinal dysfunction during enteral nutrition delivery in intensive care unit (ICU) patients: Risk factors, natural history, and clinical implications. A post-hoc analysis of The Augmented versus Routine approach to Giving Energy Trial (TARGET). *Am J Clin Nutr*. 2022 Aug 4;116(2):589-98.
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39. Ridley EJ, Chapple LS. Time to combine: Integrating physical therapy and nutrition. *Intensive Crit Care Nurs*. Invited editorial. 2022 Aug;71:103263. doi: 10.1016/j.iccn.2022.103263.
40. Ridley EJ, Bailey M, Chapman MJ, Chapple LS, Deane AM, Hodgson CL, King VL, Marshal AP, Miller EG, McGuinness SP, Parke RL, Udy AA and the Australian and New Zealand Intensive Care Society Clinical Trials Group. Protocol summary and statistical analysis plan for Intensive Nutrition Therapy comparEd to usual care iN criTically ill adults (INTENT): a phase II randomised controlled trial. *BMJ Open*. Accepted Dec 2021. IF 2.69.
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42. Jalleh RJ, Xie C, Deane AM, Plummer MP, Jones KL, Horowitz M, Kar P. One-hour plasma glucose level after a 75 g oral glucose load and its relationship to gastric emptying in survivors of critical illness and stress hyperglycaemia. *Critical Care and Resuscitation*. Sept 2022;24(3): 268-71.

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52. Hodgson CL, Higgins AM, Bailey MJ, Anderson S, Bernard S, Fulcher BJ, Koe D, Linke NJ, Board JV, Brodie D, Buhr H, Burrell AJC, Cooper DJ, Fan E, Fraser JF, Gattas DJ, Hopper IK, Huckson S, Litton E, McGuinness SP, Nair P, Orford N, Parke RL, Pellegrino VA, Pilcher DV, Sheldrake J, Reddi BAJ, et al; EXCEL Study Investigators on behalf of the International ECMO Network and the Australian and New Zealand Intensive Care Society Clinical Trials Group. Incidence of death or disability at 6 months after extracorporeal membrane oxygenation in Australia: a prospective, multicentre, registry-embedded cohort study. *Lancet Respir Med*. 2022 Nov;10(11):1038-1048.

Research Grants: September 2021 - November 2022

Ridley E, Chapple L, Davies A, Deane A, Hodgson C, Cooper J, Bailey M. Baxter Healthcare Corporation, Global Scientific Review Council.
Project: Intensive nutrition in critically ill adults: A pilot randomised controlled study.
Value: \$2,400,000

Deane AM, Finfer S, Cook D, Myburgh J, Young P, Guyatt GH, Chapman MJ, Venkatesh B. NHMRC Project Grant.
Project: Re-Evaluating the Inhibition of Stress Erosions (REVISE): Gastrointestinal bleeding prophylaxis in ICU.
Value: \$2,955,164

Nadkarni A, Besic N, Micik S, Chapple L, Farquharson M, Reddi B. South Australian Blood Management Council.
Project: Rationalising arterial blood gas sampling in the ICU.
Value: \$50,000

Jones K, Wu T, Rayner C, Marathe C, Chapple L, Horowitz M. University of Adelaide Faculty of Health and Medical Sciences Research Infrastructure Funding Award.
Project: LOGIQ E10 Ultrasound system- Portable 3D ultrasound device and software.
Value: \$130,328

Crane R, Chapple L. Dietitians Association Small Grant.
Project: Views of nutrition in patients with scleroderma and their treating physicians: The VENUS study.
Value: \$5000

Kouw IWK, Chapple L, Summers M, Chapman M, Jones K, Horowitz M. 2021. Diabetes Australia.
Project: The effect of enteral feeding pattern on glycaemic control and gastrointestinal function in critically ill patients.
Value: \$49,826

Gallagher J, Chapple L, Viner-Smith E, Chapman M, Crane R. 2021. Royal Adelaide Hospital Allied Health Grant.
Project: Measuring energy expenditure in long-stay intensive care unit patients (MEELS-ICU).
Value: \$30,000

Perriam A, Kouw I, Chapple L, Heilbronn L, McEwen S, O'Connor S. Royal Adelaide Hospital Allied Health Grant.
Project: Day and night rhythms in critically ill patients.
Value: \$30,000

Grubor-Bauk B, Barry S, Reddi B, et al. The Hospital Research Foundation.
Project: COVID-19 SA
Value: \$150,000

Plummer MP. NHMRC Investigator grant (EL1)

Project: Sickly sweet: managing high blood glucose during and post critical illness.

Value: \$447,128

Burrell A, McQuilten Z, Nair P, Marasco S, Serpa Neto A, Shekar K, Fraser J, Kasza J, Nichol A, Hodgson C, Higgins A, Dennis M, Stub D, Combes A, O'Sullivan J, Pellegrino V, Fan E, Gattas D, Kaye D, Litton E, Plummer MP, Young M, Brown A. MRFF Cardiovascular Health Grant.

Project: Precision ECMO in cardiogenic shock: PRECISE study.

Value: \$997,500

Horowitz M, Chapman MJ, Plummer MP, Jones KL, Deane AM, Rayner C. Diabetes Australia Research Trust General Grant.

Project: Management of critical illness-induced ('stress') hyperglycaemia with native glucagon-like peptide-1 (GLP-1).

Value: \$60,000

Plummer MP. The Hospital Research Foundation Group Emerging Leaders Fellowship.

Project: Mega-dose vitamin C for the management of septic shock in humans.

Value: \$390,000

Plummer MP. University of Adelaide Emerging Leader Development Award.

Project: Sickly sweet: a novel peptide for the management of high glucose during critical illness.

Value: \$40,000

Young R, Torpy D, Plummer MP, Nenke M, Meyer E. University of Adelaide FHMS Strategic Research Support Scheme

Project: Preserving glucocorticoid delivery and targeting to save lives during sepsis.

Value: \$70,000

Deane A, Chapman M, Peake S, Chapple L, Presneill J, Bellomo R, Young P, Ridley E, Karahalios E, Tran-Duy A. MRFF Rare Cancers Rare Diseases Unmet Need.

Project: Augmenting dietary protein during critical illness: A cluster cross-sectional double cross-over clinical trial.

Value: \$1,992,218

Chapple LS, Deane A, Viner-Smith E, Young P, O'Connor S, Peake S, Chapman M, Bellomo R. Intensive Care Foundation.

Project: TARGET Protein: The effect of augmented enteral protein administered to critically ill adults on clinical outcomes.

Value: \$100,000

Samm D, Chapple L, Crane R, Proudman S, McWilliams L. Acraman Bequest - RAH Allied Health Research Grant.

Project: ViEws of Nutrition in patients with Scleroderma and their treating Physicians: The VENUS Study.

Value: \$5000

Chapple LS. Industry sponsored grant, Nutricia Australia.

Project: TARGET Protein Cluster Randomised Controlled Trial.

Value: \$290,883

Chapple L, Jones K, Horowitz M, Viner-Smith E. AMS/Biomed Small Equipment Funding Award.

Project: Phillips Lumify linear array transducer ultrasound probe and portable tablet.

Value: \$7,800

Chapple LS. Emerging Leaders Development Award, Faculty of Health and Medical Sciences.

Project: Nutrition intake and physical recovery for critically ill patients requiring non-invasive ventilation.

Value: \$35,091

Jones K, Horowitz M, Rayner C, Marathe C, Wu T, Chapple L, Umaphysivam M. Diabetes Australia.

Project: Effect of subcutaneous semaglutide on gastric emptying measured using the 'gold standard' technique, scintigraphy, in type 2 diabetes.

Value: \$50,000

Kouw IWK. Rubicon Research Fellowship. The Netherlands Organisation for Health Research and Development (NWO/ZonMW).

Value: \$226,112

Kouw IWK. Diabetes Australia Research Project. Diabetes Australia.

Value: \$60,000

A selection of presentations and roles at scientific meetings

Plummer MP. Scientific Chair: Asia Pacific Intensive Care Society Meeting. Singapore, 2022.

Plummer MP, Lankadeva YR, Finnis ME, Harrois A, Harding C, Peiris RM, Okazaki N, May CN, Evans RG, Macisaac CM, Barge D, Bellomo R, Deane AM. ANZICS ASM. Best Free Paper Session. 'Urinary and renal oxygenation during dexmedetomidine infusion in critically ill adults with mechanistic insights from an ovine model'. Sydney, Apr 2022.

Chapple L. AuSPEN Annual Conference. 'Extended scope of practice in the ICU'. Nov 2022.

Chapple L. Renal Nutrition Program. 'Acute Kidney Injury'. Adelaide, Sep 2022.

Chapple L. European Society of Clinical Nutrition and Metabolism (ESPEN) Scientific Congress. 'Protein Summit: Protein catabolism in critical illness and amino acid dynamics: Implications for proteins used and amino acids supplied'. Vienna, Austria, Sep 2022.

Chapple L. AuSPEN Annual Conference. 'Impact of protein on muscle metabolism, what we know and future trials'. Online, Nov 2021.

Chapple L. European Society of Clinical Nutrition and Metabolism (ESPEN) Scientific Congress. 'Meet the Expert Session'. Vienna, Austria, Sep 2022.

- Chapple L. AuSPEN pre-conference Research Workshop. 'Research basics: Where to start'. Online, Nov 2021.
- Chapple L. European Society of Clinical Nutrition and Metabolism (ESPEN) Scientific Congress. 'Post-ICU Summit: What do we know today about post ICU nutritional care?'. Vienna, Austria, Sep 2022.
- Chapple L. European Society of Clinical Nutrition and Metabolism (ESPEN) Scientific Congress. Oral poster presentation: 'Oral versus artificial nutrition therapy in critically ill patients: A bi-national prospective observational study in Australia and New Zealand'. Vienna, Austria, Sep 2022.
- Chapple L. Continulus Global Library of Critical Care Nursing; an education resource for low and middle income countries. 'Muscle wasting in the ICU and nutrition strategies to prevent it'. Feb 2022.
- Chapple L. AuSPEN Annual Conference. 'Nutritional impact on critically ill patients with COVID-19 in Australia'. Online, Nov 2021.
- Chapple L. European Society of Clinical Nutrition and Metabolism (ESPEN) Scientific Congress. Oral poster presentation: 'Gastrointestinal dysfunction during enteral nutrition delivery in ICU patients: Risk factors, natural history and clinical implications. A post-hoc analysis of the TARGET trial'. Vienna, Austria, Sep 2022.
- Chapple L. European Society of Clinical Nutrition and Metabolism (ESPEN) Scientific Congress. Poster presentation: 'Feeding critically ill trauma patients: The difference a decade makes'. Vienna, Austria, Sep 2022.
- Chapple L. European Society of Clinical Nutrition and Metabolism (ESPEN) Scientific Congress. Poster presentation: 'Intake at a buffet meal in ICU survivors compared to general medical patients'. Vienna, Austria, Sep 2022.
- Devanand NA. ANZICS ASM. Matt Spence Medal. 'Withdrawal of life-sustaining therapy in intensive care unit patients following out-of-hospital cardiac arrest: An Australian metropolitan experience'. Sydney, Apr 2022.
- Farquharson M. World Congress of Echocardiography. 'Lung ultrasound'. Adelaide, Apr 2022.
- Farquharson M. Emergency South Australia (EMSA) 2022 - Revived. 'eCPR in the Resus Room'. Adelaide, Aug 2022.
- Edwards NA. Australasian College for Emergency Medicine (SA) - Clinical Updates. 'COVID in SA - ICU perspective'. Adelaide, Nov 2021.
- Edwards NA. ANZSGM (SA) Scientific Meeting. 'COVID-19 in our hospitals and ICUs'. Adelaide, Oct 2022.

PhD Attained

- Tejaswini Murthy - 'Nutrient delivery, absorption and utilisation in health and illness' (University of Adelaide). October 2022.
- James Malycha - 'Predicting Clinical Deterioration' (University of Adelaide). March 2022.

PhD Students

- 2022-current Matthew Summers - 'Enteral protein delivery in the critically ill'.
- 2021-current Elizabeth Viner-Smith - 'Critical care nutrition throughout the hospital continuum'.

Honours Students

- 2022-current Kaitlyn Page - 'Nutrition in non-invasive ventilation'.

Chief and Senior Registrar Positions

Chief (CR) and Senior Registrars (SR) are pivotal to the effective running of the Intensive Care Unit.

In addition to providing essential continuity of care for our patients, they work closely with the registrar group and nursing staff, and are a key interface between ICU and the other Units in the hospital. They set an important example in terms of clinical and non-clinical activities, as well as their interpersonal interactions, and are expected to show enthusiasm and leadership in their role.

These positions carry significant additional responsibility, and accordingly, the selection of registrars to these appointments involves careful consideration using a number of criteria including:

- clinical and procedural ability
- level of experience
- progression through training
- leadership, mentoring and team-building qualities
- non-clinical commitments and achievements (eg teaching, research, safety and quality, other portfolios)
- interpersonal skills
- ability to work in a diverse multi-disciplinary team and demonstrate positive attitudes and behaviours that conform to CALHN values
- perceived benefit to the registrar from the CR/SR role in terms of their professional development

In addition, the CR role involves being on remote call after-hours (with Consultant backup), and registrars are only considered for this role if it is considered appropriate for them to take on that level of responsibility. Successful completion of the CICM Fellowship Examination does not in itself guarantee a CR position, as there are a range of other considerations as outlined above.

There are currently 4 FTE of CR positions, and 8 FTE of SR positions, and they are allocated for 6 month terms. Internal candidates will be assessed utilising feedback from the ICU Consultant group, as well as input from senior ICU Nursing and Allied Health Staff. Registrars applying externally will be assessed on the same criteria, utilising information gleaned from their CV, employment interview and references.

Presenting a registrar Clinical Audit at the ICU Journal Club (to ICU staff in person and online)



ICU Registrar Involvement in Research and Clinical Audits

Research

Registrars, and ICU (College of Intensive Care Medicine) trainees in particular, are actively encouraged to participate in research on the Unit, both in terms of personal research and larger trials. Significant support is also available for CICM trainees for their Formal Project requirements, and they are encouraged to present and publish their results.

The Tub Worthley Travelling Scholarship Dinner is run annually in May with the support of Pfizer, and provides trainees with an excellent opportunity to present their research to Intensive Care colleagues from across the State, and compete for the Scholarship. Trainees are also encouraged to present their research at the annual Australian and New Zealand Intensive Care Society (ANZICS) ASM and the CICM ASM.

Clinical Audits

It is also an expectation that all CICM trainees at the RAH will undertake a clinical audit every 6 to 12 months in an aspect of critical care practice that interests them, which they present at one of the weekly ICU Journal Clubs. We also recommend that residents and registrars not in the CICM training program take the opportunity to undertake a clinical audit and they will be actively encouraged and supported to do so.

Audits that have been presented this year include;

- Impact of donor liver disease on renal transplant outcomes - Amy Chapman
- Rocuronium dosing in emergency intubations in an Australian Intensive Care Unit - Tess Chee
- Adherence to red cell transfusion guidelines in the ICU, and the effect of a registrar teaching event on adherence - Kimberley Wattchow
- Organ donation discussion with families of patients not medically suitable - Joyce Dekker
- Audit of ICU registrar ward consults - Chris Smith
- A snapshot of nutritional delivery in the ICU - Palash Kar
- Documentation of airway grade (re-audit following intervention) - Amy Sanguesa

CICM Online Education Program and the RAH ICU

In March 2020, a group of motivated CICM Trainees and Fellows, passionate about education, formed a working group to explore the potential of providing open access, bi-national, intensive care medicine learning opportunities. This has developed into an Online Education Program, with sessions on basic sciences (COBS), exam preparation (primary and fellowship), paediatrics, research and general intensive care medicine.

Abby McArthur is a Co-Chair of the COBS program, and as such is involved in designing the teaching program, recruiting hosts and presenters (including herself for Liver and GIT Physiology) for the weekly sessions, organising the schedule, and collecting feedback from participants. In addition, a number of our ICU registrars have hosted sessions, including Abby, Amy Chapman, Isuru Sirisinghe, Phil Emerson and Amy Sanguesa.

The Online Program also coordinates practice viva sessions for the CICM Primary and Fellowship Exams, and Abby (Primary) and Amy (Fellowship) have both hosted one of these sessions, and acted as quizmaster.

Further information on the program is available at <https://www.cicm.org.au/Resources/Educational-Resources/online-education>.

The Name Game



Correctly name the ICU Consultants and CICM trainees to win a bottle of the 2012 Penfolds Bin 389. All are female except one..... 1 entry per person. First correct entry to chopper45@outlook.com.au. Final entries by 7pm December 21.



ICU Registrar Travel Stories

Jeroen

After finishing my anaesthetics training in Belgium I moved to Australia to enjoy living abroad and gaining some much needed ICU experience. Thanks to Covid, getting to Adelaide wasn't the easiest thing to achieve but after a minor delay of a few months I did arrive here in November. My first experience in Adelaide was 2 weeks of quarantine hotel. And, I must say, looking back on it, it was quite the adventure.

Previous Belgian registrars were always raving about the RAH ICU and honestly I can only concur. The RAH ICU is and has been a very open, friendly department with an incredible cohort of people from all over the world. A key point for me to take home is the central role of teaching here in the ICU. The amount of time and effort is made every week to give a packed schedule ranging from journal club to radiology meetings, combined with SIM training, ECMO and US, is just amazing and such a benefit to any registrar. Also, the attention to work-life balance is just great. I have never had this much time off. And not only that, the attention to creating a nice atmosphere at work with our morning coffees, weekend lunches and quiz, just makes it fun to come to work.

It has been great fun living in Adelaide. The city really grows on you and with some great wine regions and beaches so close by, what's not to love. But, the whole of Australia is blessed with an amazing variety in nature ranging

from the outback to different rainforest. I'm grateful that I have had the opportunity to travel so much during my time here. I have seen and experienced some amazing things. From swimming with dolphins and seals in Kangaroo Island, walking in King's Canyon, diving at the Great Barrier Reef, cuddling with koalas and kangaroos, to watching the final of the Australian Open in Melbourne and celebrating Mardi Gras in Sydney.

This year has been an unforgettable adventure and soon I will head to the UK more experienced in every way. I am excited for the future and where it will take me.



Chris

Hey! How good is Adelaide? Heaps good!

Home to miles (kilometres?) of unspoilt coastline, more than enough wineries to last a lifetime, a fantastic food scene and passion for local produce (*cough* Coffin Bay oysters), 'Mad March', a month packed with the second largest fringe festival in the world (it's always raining in Edinburgh anyway) AND the place where the rotary washing line was invented (it's the eponymous 'Hill's hoist' in SA) - how could you not have a great time?!

As a Brit escaping the Brexit/COVID double whammy, but arriving while SA was basically in quarantine, I was 'trapped' within South Australia's borders. This turns out to have been fortunate: Kangaroo Island is an absolute gem, heading north (via a riesling or two in Clare), the Flinders Ranges are stunning (Arkaroola is like another planet!) and Coober Pedy is, well, underground! The coastline west across to the Nullarbor seen from the air looks like nothing else and the beach drive down from Robe to Cape Banks is great fun (if you remember to air down!), with a stop off on the way home to pick up some Coonawarra cab sauv being essential. True to form however, our expertly British engineered Land Rover made it home only with the assistance of a flatbed (yes, I know, we should have bought a Toyota...).

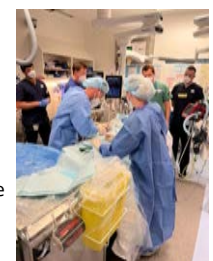
A few tips to share with those making the antipodean transition:

1. If the presenting complaint is Car vs Stobie Pole, the 'Stobie Pole' (a deathly concrete/steel structure used to hold up power lines) always wins. Page neuro and book a 'tech suite'.
2. South Aussies are incredibly friendly - encounters with strangers usually involve a conversation about your day and how you're 'going' or 'travelling' (note: they are not asking which mode of transportation you have chosen to take). This is genuinely a delight. However, do consider that English greetings such as 'Ayup' or 'Hey, y'alrite?' result in a bemused stare only. And, do consider the extra time required for these pleasantries when asking switchboard to put out a cardiac arrest call.
3. For some inexplicable reason the presence of a merge causes South Australian drivers to become more unpredictable than your average Adelaide Hills kangaroo at dusk. Avoid at all costs.

So, grab some FruChocs and a Farmer's Union from the servo and explore SA! But don't tell anyone how good it is...it's a secret!



RAH ICU registrars and nurses at the SA Can't Intubate Can't Oxygenate (CICO) Course, November 2022



eCPR Simulation Exercise with the Emergency Department

RAH ICU Education Fellowship

After spending six months maintaining the RAH ICU teaching program in a caretaker role, I had the honour of accepting the position as RAH ICU Education Fellow. Now in its second year, this role combines both clinical and non-clinical time to ensure the opportunity to improve and gain further clinical skills, whilst allowing time to devote to both the education role in RAH and engage in higher studies in clinical education.

There are two major aspects to this role. The first involves nurturing the teaching program through a combination of registrar tutorials, journal reviews and CICM primary and second part focussed study. The second (and most rewarding) is working to increase both the knowledge and engagement of a diverse group of trainees – from ICU trainees and pre-fellows through to visiting alternate specialties and junior doctors - building their skills and awareness in acute medicine and ultimately improving our patient care.

These six months have seen the introduction of task based training, an expansion of the simulation series, the beginning of state based lectures and a palliative care series of lectures. We have improved inter departmental and disciplinary engagement by presenting practice changing journals and inviting rights of reply from different teams and have introduced practice changes within the unit as an outcome from these. We are also in the process of introducing a practical series of small group lectures to increase specialised equipment knowledge.

Another focus is a complete edit and re-publication of the RAH ICU medical manual. This mammoth task offers the opportunity for senior registrars to improve their ability to consolidate and focus their knowledge and also provides a unit specific and highly useful guide for all doctors in managing critically ill patients within the RAH ICU. We are working hard on this and already have made great inroads. Overall, as well as being challenging, this role is immensely rewarding and I am enjoying growing both my non clinical portfolio as well as expanding my clinical skills.

Amy Sanguesa
ICU Education Fellow

Share the Dignity - Christmas Charity Drive

This October, all South Australian ICUs worked together to collect donations for Share the Dignity's annual It's In The Bag Christmas charity drive. This event collects bags filled with essential hygiene items and everyday luxuries that are donated to people who menstruate who are experiencing poverty, or living in homeless or domestic violence shelters. At a time of cost of living crisis the demand for these bags is at an all-time high.

Each unit put a collection box in their tea room and the response was overwhelming. We had so many bags donated, and more products than we could ever imagine. We also had a donation page and raised over \$600.

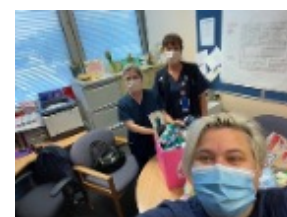
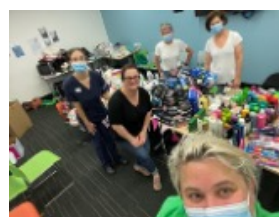
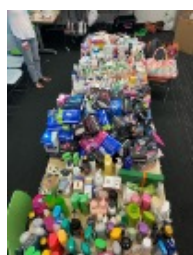
So we got everything together, took over the RAH conference room and got packing. In total we ended up with 45 bags – 4 teen bags, 2 mum and bub, 37 adult and 2 transmasculine bags. Unfortunately our colleagues from WCH, LMH and QEH couldn't join us this time due to work commitments. But it was a great opportunity to spend time with colleagues from FMC, pack up the donations and get to know each other better. We even had a quick impromptu tour of the RAH to talk about the different ways we set up for, and nurse, ECMO patients.

Some of the products donated couldn't be used due to the charity's requirements. Feedback from Survive and Thrive members was that having their hair washed with real shampoo and warm water or having their hands massaged with moisturiser was such a positive turning point in their long admission. So the donated items we couldn't give to the charity have been bundled together and placed in the long stay patient resource boxes in each pod. Please check out the boxes as it has some great resources as well as these products.

This was such a brilliant collaborative event and I'm incredibly proud of how much we achieved. I know the QEH and FMC teams are keen to run this event again next year and I look forward to coordinating it again, and hopefully we can extend it to include the broader hospital. Although if it gets much bigger, I'm going to need a bigger car!

If anyone has any ideas for other charity events that we can coordinate across the units feel free to get in touch. I would love to make this sort of collaboration between the units, as well as medical, nursing and allied health, a much more regular thing.

Kris Hayres, ICU Consultant



Significant Sporting Awards 2022

2022	RAH ICU Fantasy AFL Competition (Classic)	Matt O'Connor (Amy Sanguesa's husband)
2022	RAH ICU Fantasy AFL Competition (Draft)	Lucy Barker (Anaesthetics)

Nick Edwards was extraordinarily unlucky.
And Abby McArthur did not win anything. Yet again.

Upcoming Intensive Care Courses 2022 / 2023

SOUTH AUSTRALIAN INTENSIVE CARE FELLOWSHIP EXAM (TUB'S) COURSE

15-17 February 2023.

For ICU Registrars within 12 months of the CICM Adult Fellowship Examination.

Conducted over 2 days, with sessions on the written paper, vivas, investigation interpretation, and hot cases. There is little didactic teaching, with the focus very much on practical sessions and trial exams testing each component. Further information at http://www.icuadelaide.com.au/course_fellowship.html.

Applications open in September of the preceding year.

Enquiries to Dr Nick Edwards, c/- ICU, Royal Adelaide Hospital. Email: chopper45@outlook.com.au

SOUTH AUSTRALIAN CICM PRIMARY EXAMINATION COURSE

15-19 May 2023.

24 candidates. For Registrars preparing for the CICM (or ANZCA) Primary Examination.

Applications available at https://saica.com.au/course_primary.html.

Enquiries to Dr Richard Strickland, c/- ICU, Royal Adelaide Hospital. Email: part1.course@saica.com.au

SOUTH AUSTRALIAN CRITICAL CARE ULTRASOUND COURSE

Next Course 23-24 March 2023. Dates for September 2023 course to be confirmed.

16 candidates. 2 day course on focussed cardiac, lung, abdominal and procedural ultrasound relevant to critical care. Further information at https://saica.com.au/course_echo.html.

Enquiries to Dr Michael Farquharson, c/- ICU, Royal Adelaide Hospital. Email: michael.farquharson@sa.gov.au

BASIC ASSESSMENT AND SUPPORT IN INTENSIVE CARE (BASIC) COURSE

Courses likely in February and August 2023 (dates to be confirmed).

15 candidates (reduced because of COVID-19). 2 day course.

Enquiries to Dr Ken Lee, c/- ICU, Royal Adelaide Hospital. Email: Kenneth.Lee@sa.gov.au

POSTOPERATIVE CARE OF THE CARDIOTHORACIC PATIENT (PCCP) COURSE

February and August 2023 (dates to be confirmed).

An internal 1 day course for RAH Registrars who will be looking after cardiothoracic patients in the ICU.

Enquiries to Dr Jon Fraser, c/- ICU, Royal Adelaide Hospital. Email: jdfrazer62@gmail.com

CARDIOTHORACIC ADVANCED LIFE SUPPORT (CAL S) COURSE

Dates for 2023 to be confirmed. 4 courses per year, first planned for March.

14 candidates. 1 day course for RAH medical and nursing staff.

Enquiries to Dr Jon Fraser, c/- ICU, Royal Adelaide Hospital. Email: jdfrazer62@gmail.com

SOUTH AUSTRALIAN ECMO COURSE

Next Courses planned for 21 February 2023 and 15 August 2023.

16 candidates. 1 day course for ICU medical and nursing staff.

Enquiries to Dr Michael Farquharson, c/- ICU, Royal Adelaide Hospital. Email: michael.farquharson@sa.gov.au

Pictures from the past year



ICU Registrar Positions at the RAH

If you are interested in a position as an Intensive Care Registrar at the RAH, applications can be made on the SA Health website, or contact Dr Alex Wurm at Alex.Wurm@sa.gov.au.

If you are thinking about ICU as a career and would like to discuss your options, Drs Nick Edwards (chopper45@outlook.com.au), Michael Farquharson (michael.Farquharson@sa.gov.au), Richard Strickland (rich.stricko@gmail.com) and Ken Lee (kenneth.Lee@sa.gov.au) are the ICU (CICM) Supervisors of Training at the RAH – and we are always happy to have a chat.

Contact

Any feedback about this Newsletter, or achievements/details you would like included in the next Newsletter, should be directed to Dr Nick Edwards (chopper45@outlook.com.au).