



Government of Western Australia  
Department of Health  
East Metropolitan Health Service



# Centre for Clinical Research in Emergency Medicine

## 2024 Annual Research Report

# Centre for Clinical Research in Emergency Medicine

The Centre for Clinical Research in Emergency Medicine (CCREM) is a Centre within the Harry Perkins Institute of Medical Research, established in 2008 with start up and ongoing funding from Royal Perth Hospital, the Royal Perth Hospital Research Foundation, and the Division of Emergency Medicine, University of Western Australia.

CCREM brings together clinical and research staff working in the Emergency Department (ED) and laboratory scientists using immunological and molecular biological techniques. CCREM investigates a number of conditions within the spectrum of disease treated by EDs including:

- Sepsis and septic shock (Critical Illness)
- Emerging and illicit drugs (Emerging Drugs Network of Australia)
- Concussion and traumatic brain injury
- Anaphylaxis
- Geriatric syndromes
- Chest pain as potential acute coronary syndrome
- Snake and spider envenoming

Clinical information and special blood samples are collected from patients while they are in the ED, providing an invaluable tool for investigating the underlying mechanisms of disease.

CCREM research approaches include observational studies and laboratory work designed to uncover the mechanisms of disease, and randomised controlled trials designed to improve clinical care with a focus on patient-oriented outcomes. We also endeavour to integrate laboratory and clinical research, using laboratory studies to help us understand the results of clinical trials. CCREM is a leading clinical trials centre for Emergency Medicine in Australasia, and we are unique in having a wet lab within the ED, which allows for timely specimen processing.

Over the years, research by CCREM has resulted in major changes and/or justification for clinical approaches to spontaneous pneumothorax, chest pain, critical illness, anaphylaxis, and envenomation. CCREM studies also address economics and avoiding unnecessary (or even harmful) use of drugs and interventions.

CCREM provides opportunities for both laboratory and clinical post-graduate honours and PhD students, and research terms for Emergency Medicine Advanced Trainees.

# CCREM staff and associates

## **Royal Perth Hospital**

Professor Daniel Fatovich MBBS FACEM PhD, Program Director  
Clin A/Professor Stephen Macdonald BSc MBChB DCH FRCP FACEM PhD  
Dr David McCutcheon MBBS FACEM DCH CCPU  
Dr Jessamine Soderstrom MBBS FACEM GradCertClinTox

### *Research management and administration*

Samantha Carey RN BSc (Nurs) GradCert Crit Care (ICU), GradCert International Health, Clinical Nurse Manager  
Sophie Damianopoulos, Research Assistant  
Katherine Mackie, Research Assistant

### *Laboratory*

Dr Erika Bosio BSc (Hons) PhD, Research Fellow  
Erin Bolitho BSc (Hons), Research Officer  
Moira Hibbs, Research Assistant

### *Research Nurses*

Jen Wurmel, Rachel Edmondson, Chloe McLean, Ellie Burnitt, Sarah Halligan

### *Emerging Drugs Network of Australia (EDNA)*

Jennifer Smith BSc PGDip (Pub Health) PhD, Research Fellow and National Coordinator  
Courtney Weber BSc (Hons Psych) MPH PhD, Data Manager  
Ellie Kotkis MPH, Research Assistant  
Marjan Nijmeijer, Visiting Medical Student, University of Groningen, The Netherlands

### *WA Model for Violence Prevention Pilot Program*

Helen Hamersley, Clinical Nurse Manager  
Candice Anstey, Research Assistant

### *Consumer Representative*

Anne Cordingley BSc (App) Nursing Grad Dip Ed BA MEd

### *PhD Students*

Dr David McCutcheon MBBS FACEM  
Evaluating methamphetamine, illicit drug and novel psychoactive substance blood levels and their related clinical effects in the emergency department (Principal Supervisor Prof Daniel Fatovich)

## **South West Area Health Service**

Dr Hugh Mitenko MBBS  
Sharon Waterson, Research Nurse

## New Funding

Cowen G, Fatovich D, Thomas E, Ha NT, Hendrie D. Evaluating reliability and validity of ICD-10-AM coding for concussion in the WA hospital setting. Curtin Medical School Priming Grant. \$5000.

## Funding

Arendts G, Chenoweth L, Hayes B, Etherton-Beer C, Spilsbury K, Howard K, Campbell E, Celenza A. A randomised trial of a Carer End of Life Planning Intervention (CELPI) in people dying with dementia. National Health and Medical Research Council Targeted Call for Research into End of Life Care. \$1,486,232.

Egerton-Warburton D, Cameron P, Cullen L, Teede H, Rickard C, Morphet J, Fatovich D, O'Reilly G, Callander E, Keijzers G, Kuhn L, Enticott J, Buntine P, Tran V, Heiss L. Just Say No to the Just in Case Cannula: An Implementation Science Trial with Roadmap for National Roll Out. National Health and Medical Research Council, Medical Research Future Fund, Clinical Trials Activity Application 2023389. \$2,890,283.

Fatovich D, Soderstrom J, Dawson A, Alfred S, Greene S, Isoardi K, Pulbrook L, McCutcheon D, Oosthuizen F, Ezard N. Emerging Drugs Network of Australia: a coordinated toxico-surveillance system of illicit drug use in Australia to enable rapid detection and harm reduction responses via an Early Warning System. National Health and Medical Research Council Ideas Grant GNT2001107. \$3,722,730.

Fitzgerald M, Ponsford J, Lannin N, O'Brien T, Cameron P, Cooper J, Rushworth, AUS-TBI investigators, Gabbe B (Fatovich D, CI-21 of 50 CIs). AUS-mTBI: designing and implementing the health informatics approaches to enhance treatment and care for people with mild TBI. National Health and Medical Research Council, Traumatic Brain Injury - Stream 1. APP2015762. \$2,999,658.

Hicks C, Lawrence A, Akesson G, Fatovich D, Hamersley H, Burcham J. WA Model for Violence Prevention – Pilot Study. Mental Health Commission (2023-2026) \$3,470,000.

Peake S, Macdonald S, Delaney A, Keijzers G, Udy A, Arendts G, Egerton-Warburton D, Fatovich D, Higgins A, Milford E. Australasian Resuscitation in Sepsis Evaluation: Fluids or Vasopressors in Emergency Department Sepsis (ARISE FLUIDS). Medical Research Future Fund. \$2,335,440.

# Research Projects

## Coordinated by CCREM

### **Critical illness and shock study (CISS)**

A prospective study of patients presenting to the emergency department with critical illness or injury that compromise the cardiovascular and/or respiratory systems. Currently focusing on septic shock.

### **Emerging Drugs Network of Australia (EDNA)**

EDNA is a national multi-centre prospective toxico-surveillance system of acute recreational drug toxicity in sentinel EDs. This includes using rapid laboratory confirmed data to identify the specific drugs causing harm and their associated clinical effects. This information is also used to inform public health and harm reduction responses to emerging drug-related threats in the community.

### **Glycocalyx – Study of Endotheliopathy in Sepsis and Shock (Glyco-X Study)**

The purpose of this proof-of concept study is to characterise the changes in microcirculatory parameters in patients admitted to hospital with infection.

### **INFORMED Sepsis**

Improving Information Comprehension and Recall Metrics in the Emergency Department. A randomised trial comparing eConsent vs paper consent embedded in a randomised trial comparing electronic bedside sepsis education with paper bedside sepsis education.

## Collaborations

### **Australasian Resuscitation in Sepsis Evaluation: Fluids or Vasopressors in Emergency Department Sepsis (ARISE Fluids)**

A binational clinical trial investigating the effect of intravenous fluid resuscitation compared to early vasopressor use in ED patients with septic shock. (Clin A/Prof S MacDonald, University of Western Australia and Royal Perth Hospital).

### **Australian Snakebite Project (ASP)**

A national multicentre observational study investigating the appropriate use, dose and safety of snake antivenoms in Australia. (Dr G Isbister, University of Newcastle, Calvary Mater Hospital).

### **The CELPI Trial**

A randomised trial of a Carer End of Life Planning Intervention (CELPI) in people dying with dementia.

**Concussion Recovery Study (CREST)**

A validation study to predict poor outcomes following mild traumatic brain injury. (Prof M Fitzgerald, Curtin University and the Perron Institute).

**Evaluating reliability and validity of ICD-10-AM coding for mild traumatic brain injury (concussion) in the Western Australia hospital setting (ConCode)**

This project seeks to identify the concordance between Diagnosis ICD-10-AM Concussion Coding (So6.00-So6.05) and a clinical diagnosis of mild traumatic brain injury (mTBI). (G Cowen, Curtin University).

**Fibrinogen Early in Severe Trauma Study II (FIESTY II)**

A phase III RCT evaluating Fibrinogen Concentrate compared to Cryoprecipitate in severely injured bleeding adult trauma patients with hypofibrinogenaemia. (A/Prof Z McQuilten and Dr J Winearls, Monash University and Prof D Weber, Dr J Iliff and Dr M Kiely, Royal Perth Hospital).

**The InFluenza Complications Alert Network Surveillance System (FluCAN)**

FluCAN is the first system in Australia to collect high quality and reliable data on hospitalised acute respiratory disease and other influenza related admissions in real time. Royal Perth Hospital participates as the sentinel site for Western Australia. (Dr A Cheng, Infectious Diseases Unit, Alfred Hospital).

**Multi-site Observational intervention trial on the efficacy of Personalised, mobile-accessible Instructions for Opioids at Discharge from the Emergency Department and Surgical outpatient department (OPIOIDS Trial)**

A multi-site observational intervention trial to assess the efficacy of personalised, mobile-accessible patient instructions for opioid medications at discharge from ED and surgical outpatient departments with patients and doctors. (Dr S Sinha-Roy, East Metropolitan Health Service)

**Non-Suicidal Self-Injury: Reducing the impact on patients, health professionals and health service (NSSI ED)**

A mixed method design to improve patient outcomes and reduce death by suicide for patients who present to the emergency department with a non-suicidal self-injury. (A/Prof P Hasking, Curtin University).

**Proteomic signature of adult sepsis – discovery and validation**

Identification of the complete proteomic signature of 300 sepsis patients using the novel highly sensitive diaPASEF technique. Following comparison to healthy controls, the study will identify novel proteins associated with sepsis, which will be subsequently validated using longitudinal patient samples. (A/Prof Andrew Currie (Murdoch University), Dr Julie Hibbert (TKI), Prof Allan Stensballe (Aalborg University, Denmark).

**Western Australian Model for Violence Prevention Pilot (WA-MVP)**

The aim is to prevent alcohol-related violence and injuries and reduce alcohol-related presentations to Royal Perth Hospital Emergency Department, pressure on other government services and impacts on community safety, based on the Cardiff Model. (G Akesson, Mental Health Commission, East Metropolitan Health Service).

## Publications

Fatovich D, Dessauer P and Ezard N on behalf of the EDNA Investigators. 'You mean you're not doing it already?' A national sentinel toxico-surveillance system for detecting illicit, emerging and novel psychoactive drugs in presentations to emergency departments. *Emergency Medicine Australasia* 36(6):990-992.

Jonathon J, Freeman S, Eroglu E, Dumitrascu N, Lu J, Goudie A, Sprivulis P, Akhlaghi H, Tran V, Sanfilippo F, Celenza A, Than M, Fatovich D, Walker K and Dwivedi G. Attitudes towards artificial intelligence in emergency medicine. *Emergency Medicine Australasia* 36 (2) 252-265.

Macdonald S, Fatovich D, Finn J and Litton E. Critical Illness Outside the Intensive Care Unit: Research Challenges in Emergency and Prehospital Settings. *Critical Care Clinics* 40 (3) 609-622.

McKimmie A, Keeves J, Gadowski A, Bagg M, Antonic-Baker A, Hicks A, Hill R, Clarke N, Holland A, Veitch B, Fatovich D, Reeder S, Romero L, Ponsford J, Lannin N, O'Brien T, Cooper D, Rushword N, Fitzgerald M, Gabbe B and Cameron P on behalf of the Australian Traumatic Brain Injury Initiative Investigators. The Australian Traumatic Brain Injury Initiative: systematic review of clinical factors associated with outcomes in people with moderate-severe traumatic brain injury. *Neurotrauma Reports* 5 (1) 640-659.

Meier C, Burns K, Manolikos C, Fatovich D and Bell D. Hyperammonaemia: review of the pathophysiology, aetiology and investigation. *Pathology* 56 (6) 763-772.

Richardson D, Fatovich D and Egerton-Warburton D. Summer alcohol-related emergency department workload and occupancy in Australasia 2019–2022. *Emergency Medicine Australasia* 36 (5) 732-736.

Sims S, Pereira G, Fatovich D, Preen D and O'Donnell M. The hidden impact of alcohol on young victims: an analysis of alcohol-related police offences resulting in hospitalisation. *BMC Public Health* 24(1) 206.

Sims S, Pereira G, Fatovich D, Preen D and O'Donnell M. Assessing the utility of night-time presentations as a proxy for alcohol-related harm among young emergency department trauma patients. *Emergency Medicine Australasia* 36 (1) 47-54.

Smith J, Greene S, McCutcheon D, Weber C, Kotkis E, Soderstrom J, Douglas B, Lenton S, Griff J, Dessauer P, Ezard N, and Fatovich D on behalf of the EDNA Investigators. A multicentre case series of analytically confirmed gamma-hydroxybutyrate intoxications in Western Australian emergency departments: Pre-hospital circumstances, co-detections and clinical outcomes. *Drug and Alcohol Review* 43(4):984-96.



Soderstrom J, Grigg J, McWilliam O and Fatovich D. Brain and body disconnect: A retrospective case series of subacute combined degeneration of the spinal cord from chronic nitrous oxide use in Perth, Western Australia. *Drug and Alcohol Review* 43 (6) 1636-1644.

Thorne J, Hellewell S, Cowen G, Ring A, Jefferson A, Chih H, Gozt A, Buhagiar F, Thomas E, Papini M, Bynevelt M, Celenza A, Xu D, Honeybul S, Pestell C, Fatovich D and Fitzgerald M. Symptoms associated with exercise intolerance and resting heart rate following mild traumatic brain injury. *The Journal of Head Trauma Rehabilitation* 39 (5) E381-E392.

## Books

Hager D, Gunnerson K and Macdonald S. Critical Illness Outside the ICU, An Issue of Critical Care Clinics: Critical Illness Outside the ICU, An Issue of Critical Care Clinics, E-Book. Vol. 40, no. 3. Elsevier Health Sciences.

# Posters

## International

Finn J, Finn L, Mckenzie N, Ball S, Belcher J, Majewski D and Celenza A on behalf of the WA OHCA in-hospital follow-up investigators. The in-hospital journey for out-of-hospital cardiac arrest (OHCA) patients in Western Australia (WA): a population-based descriptive cohort study. New Zealand Resuscitation Council Conference, Wellington.

McLean C, Hopkins L, Burcham J, Cordingley A, Dickson J, Fatovich D, Laing S, Leslie G, McGough S, Ngune I, Wynaden D, Hasking P. Non-suicidal self-injury: Reducing the impact on patients, health professionals and Health services. 19th Annual Conference, The International Society for the Study of Self-Injury. Toronto.

Kenneally M, Partridge E, Stockham P, Alfred S, Luong A, Fatovich D, Kostakis C and Greene S. Unusual co- detection of xylazine, nitrazolam, bromazolam, and nitazenes in multiple clinical cases. The International Association of Forensic Toxicologists 61st Annual Meeting, St. Gallen, Switzerland.

## National

Kovach N, Dix S, Brand B, Siddiqui Z, Celenza A, Fatovich D and Innes K. Impact of art and reflective practice on medical education in the emergency department. Australian and New Zealand Association for Health Professional Educators Conference, Adelaide.

## Awards

### **Royal Perth Hospital Research Foundation Early Publication Award**

Weber C, Smith J, Soderstrom J, Burrows S, McCutcheon D, Oosthuizen F and Fatovich D, on behalf of the Emerging Drugs Network of Australia Investigators. Analytically confirmed illicit and novel psychoactive drug use in Western Australian emergency departments: initial results from the Emerging Drugs Network of Australia (EDNA). *Clinical Toxicology*, 61(7) 500–508.doi:10.1080/15563650.2023.2229951.

### **UWA Medical School Award for Research Impact and Innovation**

Emerging Drugs Network of Australia (EDNA).

### **WA Health Excellence Award for Research and Innovation**

Emerging Drugs Network of Australia (EDNA), East Metropolitan Health Service, South Metropolitan Health Service, WA Country Health Service and Mental Health Commission and the University of Western Australia.

### **University of Western Australia Vice-Chancellor's Research Award**

Research Impact and Innovation.

Fatovich D and the Investigators from the Emerging Drugs Network of Australia (EDNA).

# Conferences

## International

Fatovich D. The Emerging Drugs Network of Australia (EDNA): from red Mitsubishi to REDCap. ACEM Aotearoa New Zealand Emergency Medicine Conference, New Plymouth, New Zealand.

Greene S, Syrjanen R, Smith J, Hodgson S, Abouchdid R, Koutsogiannis Z, Weber C and Schumann J. Clinical predictors of opioid exposure in emergency department presentations with hypoxaemia: analysis of 151 presentations with analytically confirmed illicit drug toxicity in Victoria, Australia. 44th Congress of the European Association of Poisons Centres and Clinical Toxicologists, Munich.

Soderstrom J. EDNA (Emerging Drugs Network of Australia). International Conference on Emergency Medicine. Taiwan.

Soderstrom J. Tales from EDNA: Opioids: Something old, something new and something blue. International Conference on Emergency Medicine. Taiwan.

## National

Carey, Samantha. WA Model for Violence Prevention Pilot Study. Australian Public Health Conference, Perth.

Kotkis E. E-volution of case report forms: digitisation's impact on a clinical toxicology database. Public Health Association of Australia Public Health Conference, Perth.

Smith J. Three-years of comprehensive toxicology testing in sentinel Australian emergency departments: findings, learnings, future forecasting. National Centre for Clinical Research on Emerging Drugs Symposium, Sydney.

Smith J. Two-years of comprehensive toxicology testing in sentinel Australian emergency departments: type and frequency of novel psychoactive substance detections. Australasian Professional Society on Alcohol and Other Drugs Conference, Canberra.

Smith J. Strengthening Australia's preparedness for emerging drug threats: state and national toxicosurveillance systems. Public Health Association of Australia Public Health Conference, Perth.

Soderstrom J. Introduction to EDNA. The 12th Forensic and Clinical Toxicology Association Conference, Hobart.

Weber C. Emergency department presentations with analytical confirmation of Bromazolam across Australia. Australasian Professional Society on Alcohol and Other Drugs Conference, Canberra.

Weber C. Nitazenes in Australia: Emergency department (ED) presentations with analytically confirmed 'nitazenes' from the Emerging Drugs Network of Australia (EDNA). The 12th Forensic and Clinical Toxicology Association Conference, Hobart.

## Local

Fatovich D. Unlocking Insights: How the Emerging Drugs Network of Australia is helping emergency departments address illicit drug use. Royal Perth Hospital Research Foundation Community Health Talk.

Hamersley H. Unhappy Hour? Pouring out the first 6 months of alcohol related presentations to RPH ED - the WA Model for Violence Prevention Pilot. Curtin School of Nursing 50 Years of Excellence Conference.

McLean, C. Non-suicidal self-injury: Reducing the impact on patients, health professionals and health services. Curtin School of Nursing 50 Years of Excellence Conference.

Smith J. The Emerging Drugs Network of Australia – National toxicosurveillance, localised responses. Western Australian Community Program for Opioid Pharmacotherapy Conference.

Soderstrom, J. Overview of the Emerging Drugs Network of Australia (EDNA) project. Western Australia Addictions Symposium.

Soderstrom J. Opioids: Something old, something new and something blue. Western Australia Addictions Symposium.

## Annual CCREM Research Symposium

Keynote: Rebecca McKetin (A/Prof, National Drug and Alcohol Research Centre, Medicine and Health, University of New South Wales). Methamphetamine: Behavioural and clinical manifestations.

David McCutcheon. Mythbusting MDMA – what do we know about MDMA toxicity in the ED? Results from the WISE study.

Jennifer Smith. Novel psychoactive substances detected in Australian Emergency Departments: the EDNA perspective, 2022-2023.

Jasmine Tan and Maddison Ayton (Medical Students, University of Western Australia). The story of meth: a qualitative analysis of presenting features of emergency department patients with biologically confirmed methylamphetamine use.

Jess Soderstrom. Tales from EDNA: Something old, something new, something blue.

Ellie Kotkis. Acute intoxications involving estazolam: a case series of two emergency department presentations at RPH.

Helen Hamersley. Unhappy Hour? Pouring out the First 6 Months of Alcohol Related Presentations to RPH ED – the WA Model for Violence Prevention Pilot.

Chloe McLean. Non-suicidal self-injury: Reducing the impact on patients, health professionals and health services.

Erika Bosio. Natural Killer cell profiles in patients with anaphylaxis – Novel insights from the GEANI project.

John Illiff (Emergency Physician, Royal Perth Hospital/St John of God Hospital Murdoch; Aeromedical Consultant, Royal Flying Doctor Service). A review of FEISTY II - what, why and the current progress.

## Other notable achievements

EDNA Reflections 2024 (report).

Kotkis E, Smith J, Fatovich D and Weber C on behalf of all the EDNA Investigators.

DOI: <https://doi.org/10.26182/hbq7-of65>

Forensic and Clinical Toxicology Association 2024 Conference, Hobart.

Session Sponsor: Emerging Drugs Network of Australia (EDNA).

Open Online Course (MOOC). edX Course Non-Suicidal Self-Injury Awareness for Nurses.

NSSI ED Investigators: Royal Perth Hospital, East Metropolitan Health Service, Curtin University and Edith Cowan University.

United Nations Office on Drugs and Crime. Synthetics Monitoring: Analyses, Reporting and Trends (SMART) forensics programme.

Contributor to Forensics Program: Emerging Drugs Network of Australia (EDNA).

EDNA made presentations to: the Australian National Advisory Council on Alcohol and Other Drugs (reports to the Federal Health Minister); the Alcohol Tobacco and Other Drugs Project Officers Group; the Assistant Secretary, Alcohol and Other Drugs, Australian Government Department of Health and Aged Care; the Western Australian Mental Health Commissioner and Minister for Health and Mental Health.

# 2024 Research Impact Overview

<p><b>Health</b></p> <p>Improvements in health through new therapeutics, diagnostics, disease prevention or changes in behaviour; or improvements in disease prevention, diagnosis and treatment, management of health problems, health policy, health systems, and quality of life.</p>	<p><b>Sepsis Program</b></p> <p>ARISE Fluids, CISS, diaPASEF, Glyco-X-Sepsis, INFORMED Sepsis, TRANSFORM</p>	<p><b>Toxicology Program</b></p> <p>EDNA, ASP</p>	<p><b>Other Projects</b></p> <p>FEISTY II, FluCAN, NSSI, WA-MVP</p>
<p><b>Economic</b></p> <p>Improvements in the nation's economic performance through creation of new industries, jobs or valuable products, or reducing health care costs; improving efficiency in resource use, or improving the welfare/well-being of the population within current health system resources. An economic impact may also contribute to social or health impacts, including human capital gains and the value of life and health.</p>	<p>The sepsis program continues to improve sepsis management and reduce health care burden by improving treatments (ARISE Fluids), enhancing early diagnosis (CISS, diaPASEF, GlycoXSepis), educating patients (INFORMED Sepsis) and tracking outcomes (TRANSFORM). These projects collectively enhance patient outcomes and drive economic benefits.</p>	<p>By detecting harmful substances early, EDNA can help to reduce healthcare costs related to emergency treatments. There has also been economic benefit and improved access to treatment by reducing the amount of antivenom required for snake bite (ASP).</p>	<p>FEISTY II optimises resource use, potentially lowering healthcare costs associated with major haemorrhage. FluCAN improves influenza, COVID and RSV prevention measures, by tracking vaccination effectiveness. NSSI ED reduces costs associated with repeated emergency department visits and long-term care. WA-MVP lowers healthcare and social costs by addressing alcohol-related issues more effectively.</p>
<p><b>Social</b></p> <p>Improvements in the health of society, including the well-being of the end user and the community. This may include improved ability to access health care services; to participate socially (including empowerment and participation in decision making) and to quantify improvements in the health of society.</p>	<p>ARISE Fluids has a consumer informed primary outcome of days alive and out of hospital at day 90. INFORMED Sepsis is identifying consumer preferences and information retention in both sepsis bedside education and consent for research.</p>	<p>The investigators for EDNA have been able to provide public health warnings for emerging drugs of concern, leading to better public awareness and preventative measures. ASP enhances community safety by providing improved clinical management.</p>	<p>FEISTY II enhances patient outcomes and recovery, improving quality of life. FluCAN provides valuable societal insights into community preparedness and the effectiveness of vaccines. NSSI-ED promotes better patient-nurse relationships, improves the resilience of our nursing workforce and enhances patient recovery. WA-MVP improves community safety and well-being through focused prevention efforts.</p>
<p><b>Knowledge</b></p> <p>New knowledge demonstrating the benefits emerging from adoption, adoption or use of new knowledge to inform further research, and/or understanding of what is effective.</p>	<p>This sepsis work will generate new knowledge by advancing our understanding of sepsis management (ARISE Fluids), identifying new diagnostic biomarkers and tools (CISS, diaPASEF, GlycoXSepis), and enhancing patient education and engagement (INFORMED Sepsis).</p>	<p>EDNA generates valuable data on novel psychoactive substances, while ASP generates data on the effectiveness of antivenom treatments. Both contributing to the scientific community's understanding and informing future research and policy decisions.</p>	<p>FEISTY II provides critical data on fibrinogen replacement, informing clinical guidelines and future research. FluCAN, WA-MVP and NSSI ED generate valuable data and insights to inform future training. public health strategies and healthcare practices.</p>





Royal Perth Hospital



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We acknowledge the traditional custodians of the land where we perform our research, the Whadjuk people of the Noongar nation. We pay our respects to their elders, past, present and emerging.

## Contacts

### Clinical

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