THE SHIFT EXTENSION

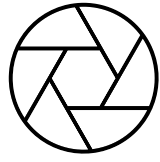
PARAMEDIC PUBLISHING

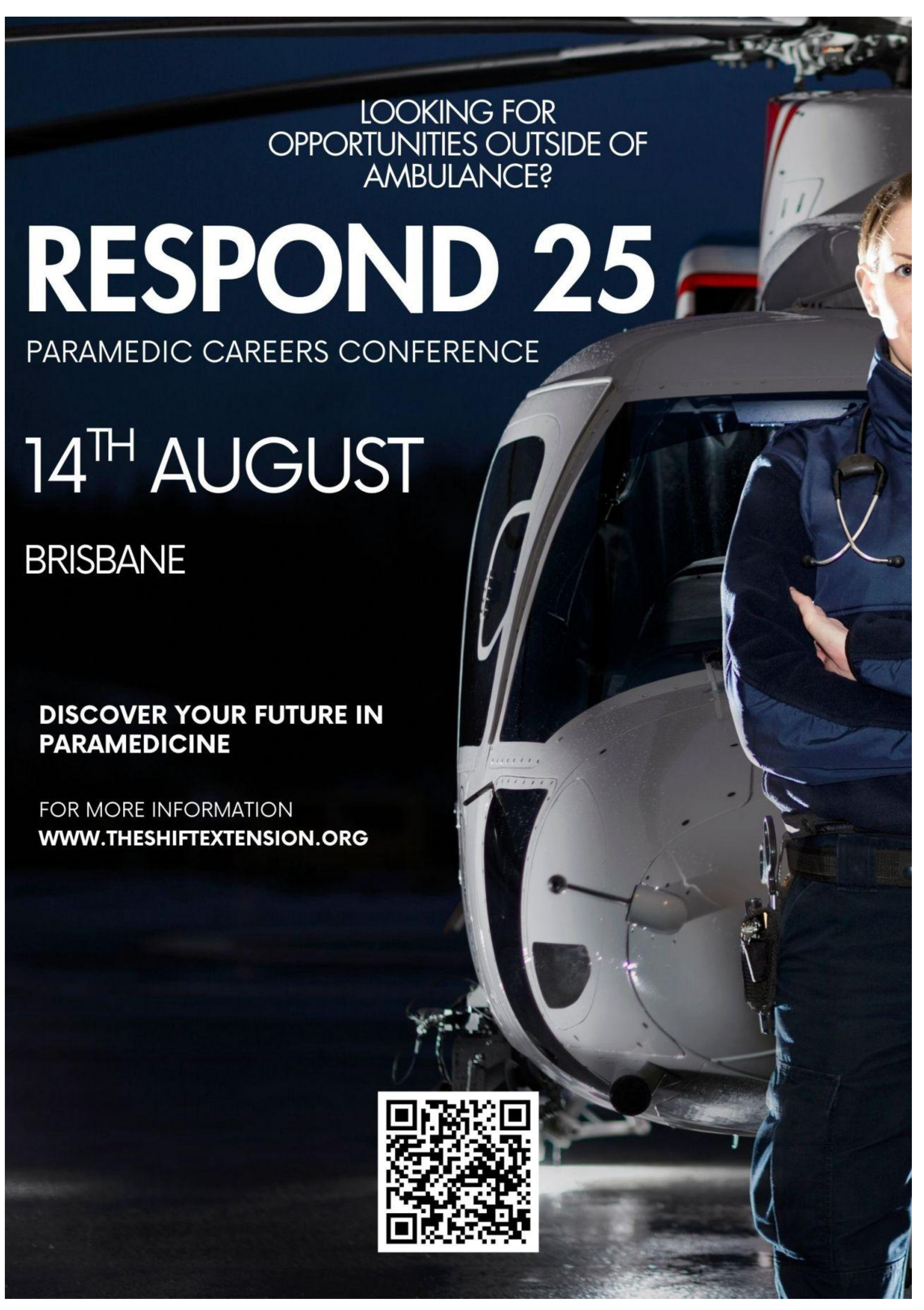
ISSN 2653-3901

Volume 12 Special Edition 2025

PARAMEDICINE in FOCUS
'EDUCATION AND ENJOYMENT'

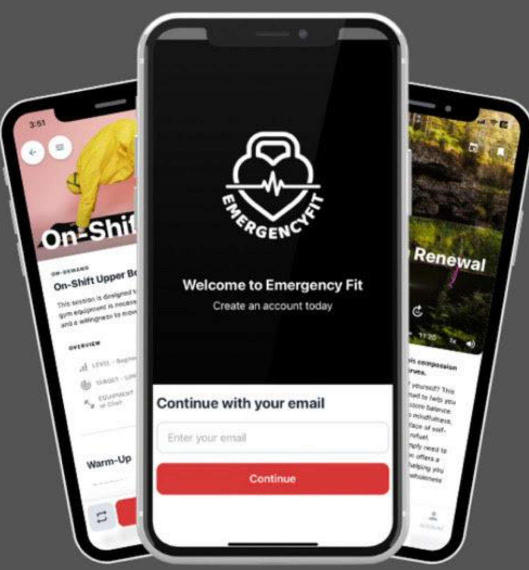
Photo by: Nick Abussi




LOOKING FOR
OPPORTUNITIES OUTSIDE OF
AMBULANCE?
RESPOND 25
PARAMEDIC CAREERS CONFERENCE
14TH AUGUST
BRISBANE
DISCOVER YOUR FUTURE IN
PARAMEDICINE
FOR MORE INFORMATION
WWW.THESHIFTEXTENSION.ORG

Strength, Resilience, Readiness

Fitness built for the frontline



Emergency Fit is the performance edge every paramedic deserves. Stop adapting generic workouts. Start training with tools built for your shifts.

- ☑ Workouts for night/day/staggered shifts
- ☑ Recovery protocols & mobility routines
- ☑ Mental load management tools
- ☑ Accountability features built-in

Use Code: *theshiftextension*

for 40% off

www.emergencyfit.com.au

THE SHIFT EXTENSION

The Shift Extension is a free-to-access, open-source publication that is committed to providing industry-relevant literature and information to enhance the development of the paramedicine profession through the sharing of information.

Cover image courtesy of Emma Day

Whilst every care has been taken to ensure the relevance and accuracy of information, the publishers and editorial team do not accept liability for any error, omission or misrepresentation of the information. Nor does it accept any loss, damage, cost or expense incurred by any person whatsoever arising out of or referable to the information displayed within this publication. Where there is an opinion expressed by the contributors this is not necessarily the opinion of the publishers or editorial team. Also, please understand that whilst advertising and promotional materials are used to fund the publication, its presence it is not indicative of endorsement from the publisher, editor or editorial team. Lastly, the editor has the right to omit or edit contributions for style, space or legal concerns.

All articles published on The Shift Extension - Paramedic Publishing are published under a Creative Commons License.

Explora Group is the official publisher of The Shift Extension - Paramedic Publishing

© Explora Group 2025.

Table of Contents

Features

7 Editorial by Dr Sandy MacQuarrie

11 Sleep and mental health in recruit paramedics: a 6-month longitudinal study – Ali Rengers

15 Social determinants of injury-attributed mortality in Papua New Guinea – Anthony Pryke

21 The impact of double sequential shock timing on outcomes during refractory out-of-hospital cardiac arrest – Josh MacLelland

27 Witnessed prehospital traumatic arrest: predictors of survival to hospital discharge – Jaz Johnson

33 Paramedic clinical practice guideline development in Australia and New Zealand: A qualitative descriptive analysis – Dan MacDonald

39 Paramedic analgesia comparing ketamine and morphine in trauma (PACKMaN): A randomised, double-blind, phase 3 trial – Emalee Outlaw & Tanerah Ghodsian

We are the first to arrive. We respond. We assess, we treat, we comfort, we support. We provide a shoulder to cry on. We save lives. We protect. We care.

And who cares
for the carers?

APA Queensland Inc does.

Members are invited to attend APA Queensland Inc's Special General Meeting to pass a resolution that will shape the future of our Association.

11am, Friday 25th August, 2023

In-person:
Conference room,
Quest Breakfast Creek,
15 Amy St, Albion QLD

Dial-in: 1800 896 323

Check your email or contact APA Queensland for more details.

Want to know more? Scan the QR code to watch a quick video.

APA Queensland. Caring for the carers since 2005.

www.apaq.com.au

Editorial

As Guest Editor for this special edition of The Shift Extension, I am delighted to introduce an issue devoted to research. And hopefully one that will not make your eyes glaze over just hearing that word!

For years, The Shift Extension has been a platform for sharing clinical insights, operational stories, and the lived experience of paramedics from around the world. This July, TSE has set a new challenge: to make research accessible, relevant, and engaging for every paramedic, regardless of their background or experience.

When I began my own career as a paramedic in the early 1990s, research was, frankly, a foreign concept to me. Like many, I had no formal research training and little reason to seek it out. My focus was on the practical—on patient care, free coffee at Subway, and waiting for the next call. It wasn't until I advanced in my career, advocating for new drugs and procedures, that I encountered the roadblock of insufficient evidence or even where to find it. Our medical director was rightly cautious, and I quickly realised that if I wanted change, I needed to understand the research behind it. This realisation came late for me. But not too late!

Today, some paramedics receive research training during their undergraduate years. But for many, research remains intimidating, shrouded in jargon, or simply disconnected from the realities of day-to-day practice. This special edition is designed to bridge that gap. Our aim is to show that research is not just for academics—it is for every paramedic who wants to improve patient care, advocate for change, or simply understand the "why" behind what we do.

To achieve this, we have assembled a remarkable group of contributors: seasoned clinicians, operational leaders, and emerging student voices from Australia, Canada, and Papua New Guinea. Each has taken on the task of summarising a recent, high-impact research article in plain language—in no more than 1,000 words, and free of unnecessary complexity. Their topics are as diverse as our profession: clinical guideline development, the impact of sleep and mental health on recruits, innovations in cardiac arrest management, predictors of survival in traumatic arrest, and pain management in trauma care. We have even gone offshore to Papua New Guinea, where the social determinants of injury-related mortality provide a powerful reminder of the global and humanitarian dimensions of paramedicine.

What sets this edition apart is not just the content, but the process. Each author was asked not only to summarise their article, but also to reflect on how they approached the task: How did they interpret the study design? How did they judge the credibility of the journal? What resources or strategies did they use to translate complex findings into practical insights? I spent time with each contributor in conversation, and their reflections—tips, challenges, and lessons learned—are shared.

Editorial

Our hope is that this edition will inspire paramedics to see themselves as both consumers and producers of research. We want you to feel confident navigating the literature, asking critical questions, and applying evidence to your own practice. More than that, we hope some of you will be motivated to contribute your own research, adding to the growing evidence base that underpins our profession.

The Shift Extension remains committed to an unconventional, learner-focused approach. We value curiosity, critical thinking, and the unique perspective that every paramedic brings to the table. I invite you to engage with this content, share your experiences, and consider submitting your work for future editions. Use this special issue as a springboard for your own professional development—whether as continuing education, a conversation starter, or a catalyst for change in your service.

And I want to take this time to formally recognize the kind contribution of the text "Introducing, Designing and Conducting Research for Paramedics" to each of our contributors to this issue. We thank Elsevier and their staff for their generosity and support!

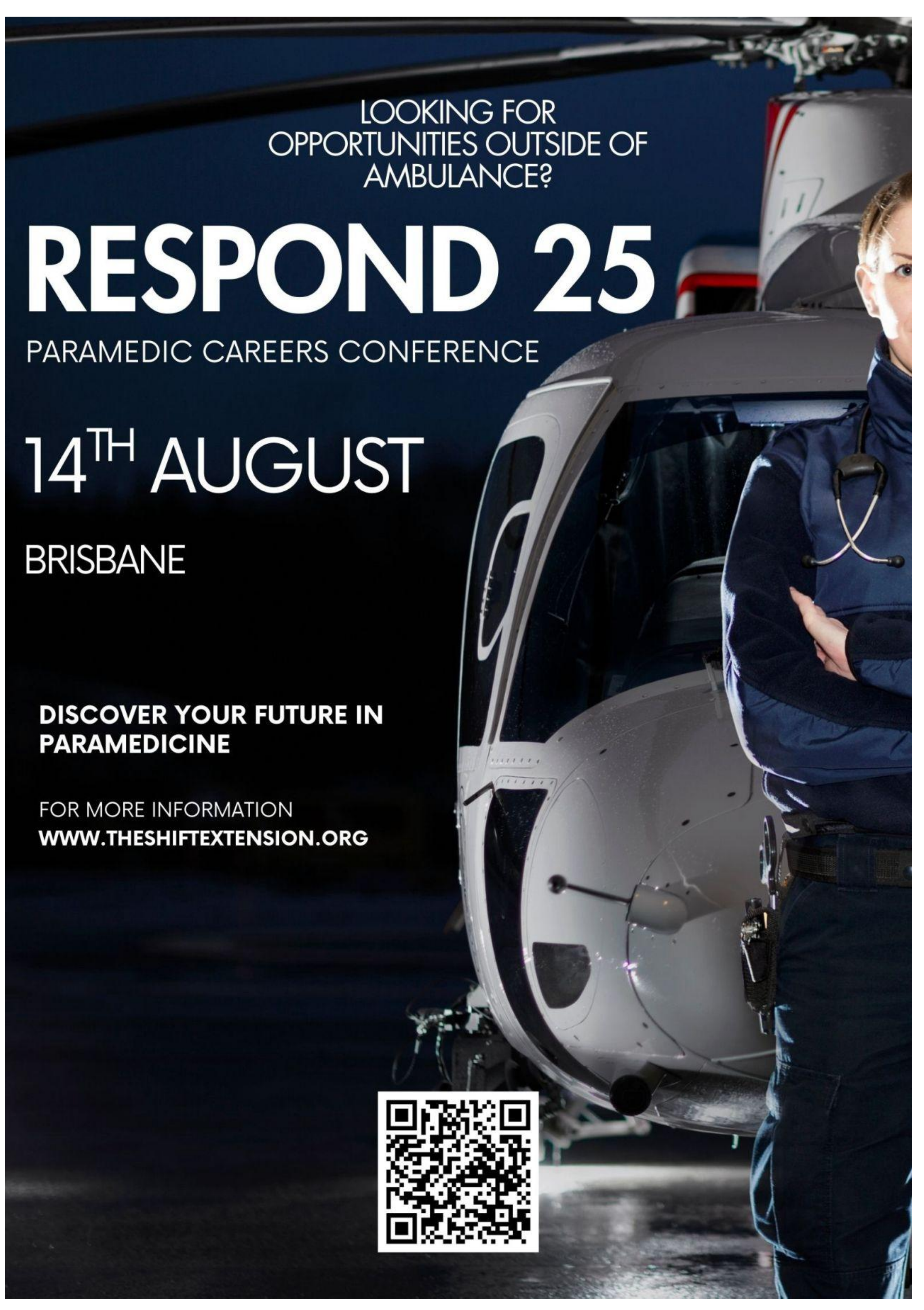
Dr Sandy MacQuarrie

Introducing, Designing and Conducting Research for Paramedics

1st Edition - September 15, 2022 • Imprint: Elsevier

Authors: Alexander Olaussen, Kelly-Ann Bowles, Bill Lord, Brett Williams • Language: English

Paperback ISBN: 9780729544092 • eBook ISBN: 9780729589734


LOOKING FOR
OPPORTUNITIES OUTSIDE OF
AMBULANCE?
RESPOND 25
PARAMEDIC CAREERS CONFERENCE
14TH AUGUST
BRISBANE
DISCOVER YOUR FUTURE IN
PARAMEDICINE
FOR MORE INFORMATION
WWW.THESHIFTEXTENSION.ORG

We are the first to arrive. We respond. We assess, we treat, we comfort, we support. We provide a shoulder to cry on. We save lives. We protect. We care.

And who cares
for the carers?

**APA Queensland
Inc does.**

Members are invited to attend APA Queensland Inc's Special General Meeting to pass a resolution that will shape the future of our Association.

11am, Friday 25th August, 2023

In-person:
Conference room,
Quest Breakfast Creek,
15 Amy St, Albion QLD

Dial-in: 1800 896 323

Check your email or contact APA Queensland for more details.

Want to know more?
Scan the QR code to
watch a quick video.

**APA Queensland.
Caring for the carers
since 2005.**

www.apaq.com.au

Sleep and mental health in recruit paramedics: a 6-month longitudinal study

Words by Ali Rengers

The article examines the relationship between sleep and mental health, specifically in paramedics during their first six months of working full time in the prehospital environment.

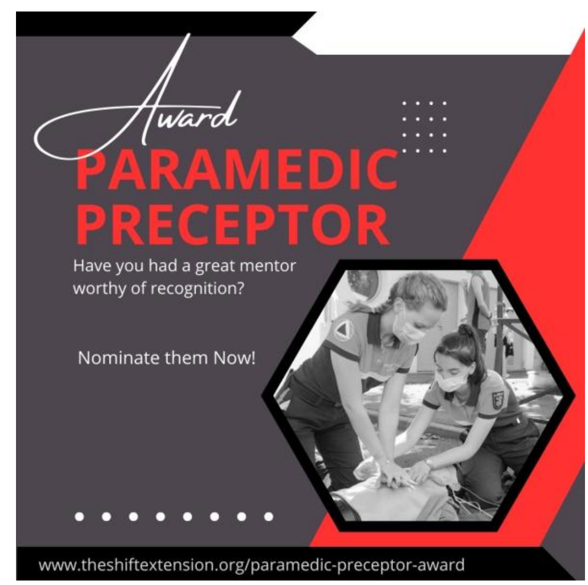
The article aims to investigate if sleep disturbances before and after commencing full time prehospital work predict mental health conditions including depression, generalised anxiety disorder (GAD – excessive, ongoing worry about everyday situations) and post-traumatic stress disorder (PTSD - a disorder that can develop after a traumatic event). The article also seeks to understand if mental health conditions influence sleep disorders, including obstructive sleep apnoea (OSA - where breathing stops and starts during sleep).

The researchers aim to:

- Examine the relationship between sleep and mental health symptoms in recruit paramedics before their exposure to full time emergency work.
- Investigate if sleep and mental health symptoms change during the first six months of this full-time emergency work
- Assess if sleep disturbances prior to starting full time emergency work predicted poorer mental health outcomes at the six-month mark.

Majority of the research prior to this article focused on the relationship between sleep and mental health in male experienced emergency personnel. This study examines this relationship among early career paramedics with both female and male participants.

The study collected data from the same group of recruit paramedics over six months (a 'longitudinal' study) using a type of analysis called a 'linear mixed model (LMM), to help track changes in individuals. Using 'hierarchical regression' the study examined if adding new information, outside of variables of age, gender etc., changed the results.



Qualitative data (descriptive information not represented by numbers) was captured by the participants completing a sleep diary over a 14-day period. The quantitative data (measures expressed as numbers) was captured prior to the commencement of shift work and at the six-month mark using an online sleep and mental health survey consisting of:

- The Berlin Questionnaire (questions checking for the risk of obstructive sleep apnoea)
- The Insomnia Severity index (a questionnaire checking for the risk of insomnia – a sleep disorder characterised by persistent difficulty falling asleep, remaining asleep or non-restorative sleep)
- The Life Events Checklist (checking for potentially traumatic events and PTSD)
- PTSD checklist (a screening tool measuring for symptoms related to a traumatic event)
- Patient Health Questionnaire-9 (a questionnaire measuring the presence and severity of depressive symptoms)
- GAD-7 questionnaire (seven questions measuring the severity of generalised anxiety disorder)
- Alcohol Use Disorders Identification Test – Consumption (identifying those who are hazardous drinkers or have alcohol use disorders)
- Drug use frequency checklist.

The participants also wore an actigraph (a wrist-worn device that tracks movement to estimate sleep patterns) over a 14-day period.

The study was conducted across multiple Ambulance Victoria (AV) Australia induction groups between August 2018 to December 2020. The study followed each recruit paramedic for six months, assessing them prior to commencement of full time on road work and after six months of active-duty paramedic work. The 101 participants (52% female, 48% male), average age of 26, were recently graduated paramedics commencing work for AV. Eight participants dropped out of the study, resulting in 93 remaining.

Participants were excluded if they had previously worked as a paramedic, part of another emergency service or in the Defense Force. Other participants were excluded if they had a history of working full time shift work with ≥ 2 overnight shifts per week in the three months before the study.

Before starting full-time on road work, increased insomnia and 'wake after sleep onset' (WASO - meaning the amount of time spent awake during the night after first falling asleep) were linked to depression and GAD symptoms. Before the study, participants' WASO exceeded healthy adult recommendations, while sleep duration and restorative sleep were below recommendation.

Symptoms of insomnia and depression increased over six months. While total sleep time significantly increased, most participants were still not getting enough sleep for good health. Sleep onset decreased meaning participants fell asleep more quickly. There were no significant changes to OSA risk, GAD, PTSD, sleep efficiency (SE) or WASO in the first six months. Interestingly, during the six-month study, participants each experienced one potentially traumatic event, with 16% of participants experiencing physical assault or life-threatening illness/ injury.

Participants with insomnia before starting full time emergency work were more likely to have higher depression symptoms. Participants who spent more time awake during the night before starting work were more likely to have symptoms of PTSD at the six-month mark. No other mental health symptoms were predicted by testing different combinations of sleep variables, including OSA (which may be due to the higher female cohort as OSA is generally more common on men).

Despite relatively low baseline rates of mental health symptoms (likely due to the younger healthier participants used in the study) the collected sleep data showed elevated WASO and reduced sleep duration – a common theme for shift workers.

The article concludes that sleep disturbances increase the risk of depression and PTSD. However, these risks may be reduced through occupational health programs and cognitive behavioural therapy, helping to improve mental health in vulnerable paramedics and emergency personnel.

This article features in the journal SLEEP, a leading peer-reviewed Oxford University Press publication in the field of sleep research and medicine. As of 2023–2024, it has been cited approximately 6.7 times in the years since its publication and consistently ranks in the top 25% of its category (Q1 quartile) that includes Clinical Neurology, Psychiatry and Mental Health and Sleep.

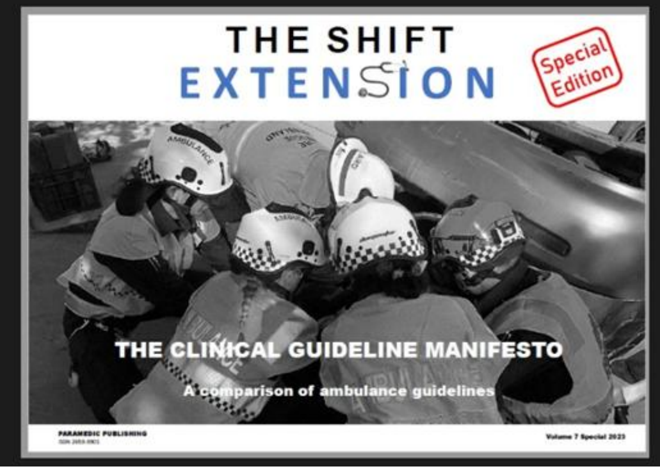
This article is a glimpse into the relationship between sleep disturbances and mental health symptom development in early career paramedics. To further understand this relationship a study longer than six months should be conducted. There was no exploration of the locations of the participants (rural vs. inner city), their case load, shift lengths (10 vs. 12 hours), rotation of their roster (how many night shifts vs. days and afternoons) and their access to different leave types. Overall, further research is required in this area.

Nguyen, E., Meadley, B., Harris, R., Rajaratnam, S. M. W., Williams, B., Smith, K., Bowles, K.-A., Dobbie, M. L., Drummond, S. P. A., & Wolkow, A. P. (2023). Sleep and mental health in recruit paramedics: A 6-month longitudinal study. Sleep, 46(8), Article zsad050. https://doi.org/10.1093/sleep/zsad050

The Complete Manifesto 2023

Special Edition - Volume 7

DOWNLOAD



Connecting Research to Practice: Ali Rengers' Story

Ali Rengers' journey into research and paramedicine is grounded in real-world experience, practical challenges, and a drive to make complex knowledge accessible for everyone. As a new paramedic balancing full-time work and everyday life in Brisbane, Ali's perspective on research is refreshingly candid and relatable.

Ali's path to research wasn't a straight line. Like many in the field, she first engaged with academic writing as a student, but it wasn't until recently that she was tasked with distilling a dense, peer-reviewed article into a plain language summary. The assignment was clear: break down a complex study on the relationship between depression, PTSD, and shift work into something her peers could actually use.

Her method was systematic. "I opened a Word document, wrote down each of the requirements, and then broke the article into sections," Ali explains. She allocated word counts to each part, ensuring the most technical sections—like the study model—got extra attention. Ali's process included taking handwritten notes, then switching to digital to save time, and even leveraging AI tools to help condense her ideas into clear, concise paragraphs

Ali is honest about the challenges. "It was pretty complex," she admits. The academic language was so dense that even as a trained paramedic, she found herself frustrated. "I was, for lack of a better word, maybe a little bit annoyed at the researchers for making it somewhat inaccessible to a lot of people who don't understand...the language they used was just so difficult at times." This frustration wasn't just academic—it was personal. Ali felt that research should be accessible to everyone, not just other researchers

She notes that if she handed the article to her colleagues in the crew room, most would give it back, overwhelmed by the jargon and complexity. "Most probably three out of the four would hand it back and just feel like, 'What is this? I know what it's asking, but what's the endpoint?'"

Ali believes that researchers and journals need to do more to make their findings accessible. She suggests practical solutions: include glossaries or tables at the end of articles to explain technical terms, or publish dual versions—one for academics, another for practitioners. "I wonder if there's a way they can literally throw it into AI and say, 'Make this really straightforward in 1,000 words,' essentially what we've done," she muses

Her experience highlights a broader issue in science communication: the need for plain language summaries that truly serve their audience. Studies show that when research is written in accessible language, it's more likely to be read and used by practitioners, ultimately benefiting patients and communities.

For Ali, the most rewarding moments come not from dramatic interventions, but from small, meaningful interactions—listening to a patient, offering a referral, or simply being present. "It is imperative to remember that small actions, such as actively listening and acknowledging a patient, can make a world of difference to their receptiveness to receive healthcare and trust healthcare providers"

Social determinants of injury-attributed mortality in Papua New Guinea:

New data from the Comprehensive Health and Epidemiological Surveillance System - Pham BN, Maraga S, Kue L, et al.

Words by Anthony Pryke

Working on the frontline, we're often the first to see how serious and life-changing injuries can be. Knowing what puts certain people at greater risk helps us think beyond the emergency response and look at how we can be part of preventing the risk before harm occurs.

This article aims to explore why people in Papua New Guinea (PNG) are dying from injuries like road accidents, violence, drowning, or falls, and what social factors may be increasing their risk. These social factors, called “social determinants”, include things like where someone lives, their income, education level, or how easy it is to get to a clinic. These are real-life circumstances that can make someone more or less likely to get hurt or survive an injury.

Studying these factors, the authors want to show that preventing injury deaths is not just about having hospitals or ambulances, it’s also about improving the environment people live in and the opportunities they have. This helps leaders, public health workers, and community programs better plan to reduce these preventable deaths.

What is the article format?

The article is a quantitative observational study, which means the researchers used real-life data gathered from several communities. Instead of doing experiments, they observed what was already happening. They looked at numbers, trends, and patterns to find out which social conditions, like education, income, or access to healthcare, were linked to people dying from injuries.

Comment on the methodology

The researchers used information from PNG’s Comprehensive Health and Epidemiological Surveillance System (CHESS), which is run by the PNG Institute of Medical Research. CHESS collects ongoing health and population data from six urban and rural communities across the country to help track major health issues.

The study looked at all injury-related deaths between 2018 and 2020, collecting details such as:

- Age and gender of the person
- Education level
- Whether they lived in an urban or rural area
- The type of injury
- Whether they accessed healthcare before they died

They analysed the data using statistical tools to find patterns. For example, they looked at whether people with lower education or those living far from health services were more likely to die from injuries.

When reading this part of the study, I found it helpful to pause and look up the linked data sets to understand what the numbers were really saying. I also checked out WHO's work on social health factors, which gave more context about how other countries are working to create safer and more resilient communities, something PNG is working towards too.

Comments on the results

The study revealed several important findings:

- Injuries were responsible for about 12% of all recorded deaths in the CHESS system.
- Most of these deaths occurred in young men aged 15 to 44.
- A large number of these deaths happened outside of healthcare settings, such as at home or in the community, indicating many people either couldn't reach help or didn't seek it.

The leading causes of injury death were:

- Road traffic injuries
- Assaults and violence
- Drowning and falls
- Self-harm or suicide

The study also found strong links between social disadvantage and risk of injury death. These included:

- Low levels of education
- Living in rural or remote areas
- Limited or no access to healthcare
- Poor housing and sanitation
- Unemployment or informal work

This tells us that injury prevention needs to go beyond medical response, it's about solving the everyday issues that make people more vulnerable. If people have access to safer transport, better housing, and education, they're less likely to get injured. And if injury does happen, having clinics or emergency care nearby can mean the difference between life and death.

The article is published in BMJ Open, a well-regarded international medical journal that focuses on open-access, peer-reviewed research.

BMJ Open is trustworthy as it:

- It is peer-reviewed, meaning the article was checked and approved by other experts in the field.
- It is Q1 ranked, putting it among the top 25% of public health journals worldwide.
- It has an Impact Factor of around 2.9, showing it is widely cited by other researchers.
- It is open access, meaning anyone can read it online for free, this is important in lower-income settings like PNG.

This gives the article weight and ensures the

findings are accessible to decision-makers, practitioners, and researchers both locally and internationally.

Final thoughts

This is a powerful reminder that injuries don't just happen in isolation, they often occur within systems that fail to protect or support people. Many of these deaths in PNG could have been prevented with better infrastructure, health access, education, and community-level safety.

As paramedics, we're in a unique position to support change by doing more than just responding to emergencies. We can help address social factors by sharing basic injury prevention advice during call-outs, supporting local safety initiatives, and taking part in community education where possible.

We also have valuable insight into what's not working, especially in rural areas where access to care and infrastructure is often limited. By observing and sharing these challenges with the right people, we can help shape better planning and improve community safety.

This article reminded me that while research is important, big change can also come from small, practical actions. By applying what we see and experience on the frontline, we can contribute to preventing injuries and improving outcomes in the communities we serve

Pham BN, Maraga S, Kue L, et al. Social determinants of injury-attributed mortality in Papua New Guinea: new data from the Comprehensive Health and Epidemiological Surveillance System. BMJ Open 2022;12:e064777. doi:10.1136/bmjopen-2022-064777

Connecting Research to Practice

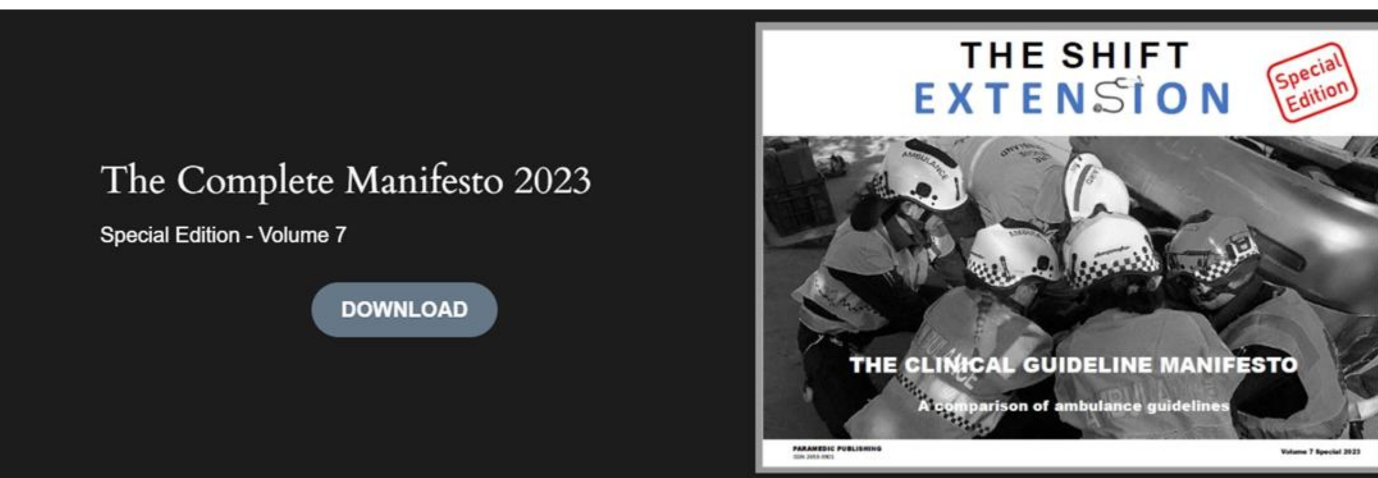
Anthony Pryke's journey into research began in the field, not the classroom. As a first responder in Papua New Guinea, he spent years on the front lines—first with two years of on-road emergency work after nine months of intensive training, and then another two years in the Education Department, developing his skills and completing a trainer's course. Research seemed distant from his daily reality, but that changed when he was asked to write a plain language summary of a complex, peer-reviewed article.

At first, the task was daunting. Anthony recalls, "It did because I didn't know what to expect until I sort of started reading and it still scared me. And it's just reading the whole content and understanding it and then sort of. Putting it into simpler terms" The challenge was not just in understanding the dense language, but in making it accessible for others. "So basically, what went through my mind it was put in a way where people could understand the context.

Anthony's approach was collaborative. He shared the article with colleagues who were "pretty much in the same boat" and read the material several times, taking it slow. He also sought out additional resources, including WHO publications, to broaden his understanding and see how similar issues played out in other countries. This global perspective was important to him, especially as he considered the challenges faced by countries with low levels of education and healthcare infrastructure. "So, we're talking about social factors and you know what happens with countries who experience low level education, low healthcare systems, all these sort of things."

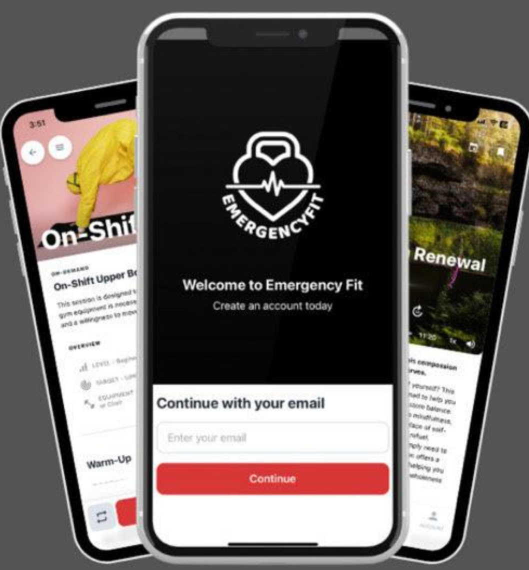
Anthony's personal experiences in rural and remote areas made the research feel real. He remembered times when something as simple as a cut could become a major health issue due to lack of basic healthcare. "Back in the days, I mean couple of years back, I used to live in rural remote areas. And so, I experienced this first hand…having a cut on your on your leg and it getting infected because you don't have things like basic healthcare, medications and other things to help the healing process"

The process of engaging with research shifted Anthony's perspective on its importance. "I understand that having done it, now it's important. Otherwise, I wouldn't have known these things if I didn't do it." He found that his recent scholarship application, which involved similar questions, also helped him navigate the article and deepen his understanding.



Strength, Resilience, Readiness

Fitness built for the frontline

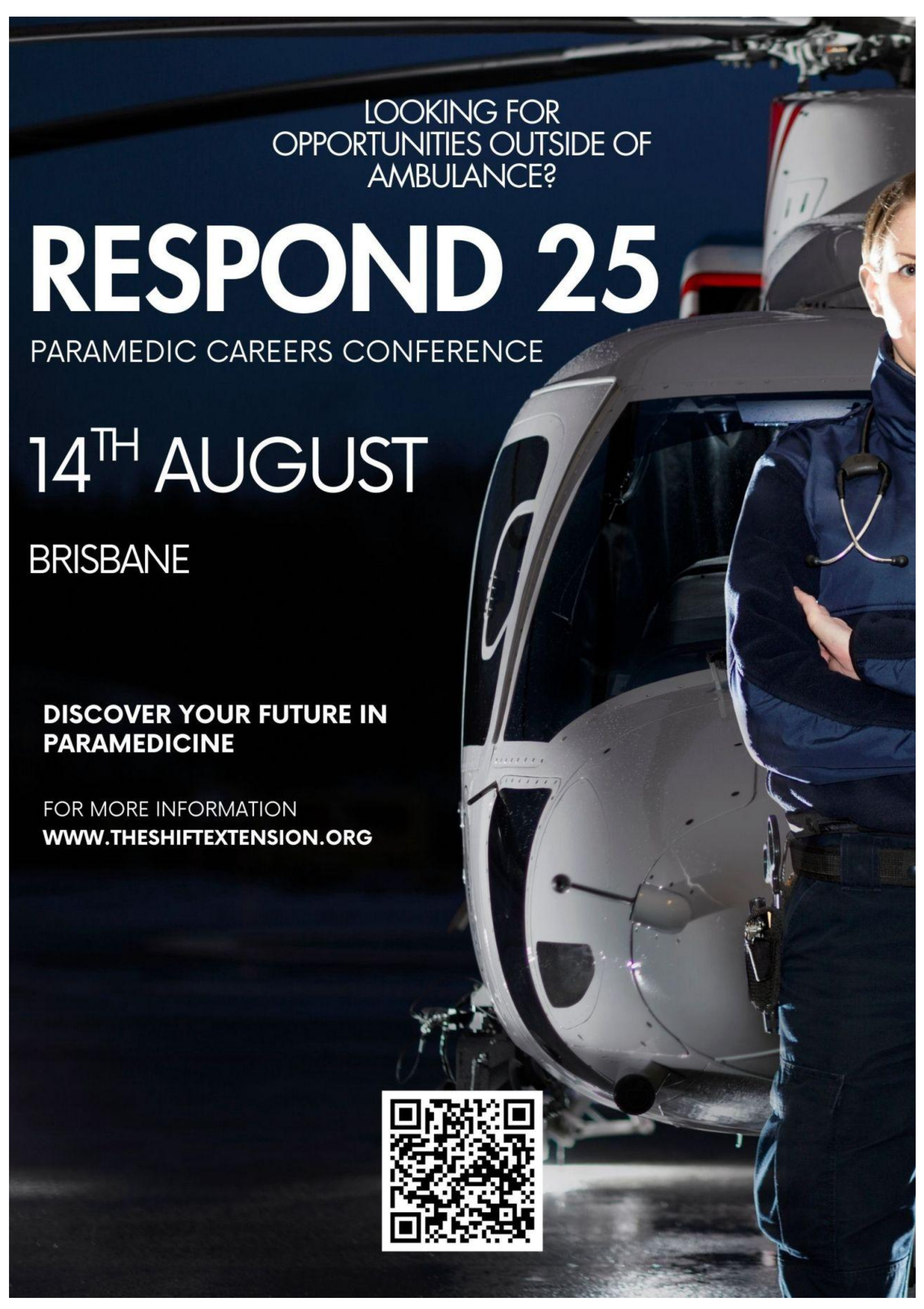


Emergency Fit is the performance edge every paramedic deserves. Stop adapting generic workouts. Start training with tools built for your shifts.

- Workouts for night/day/staggered shifts
- Recovery protocols & mobility routines
- Mental load management tools
- Accountability features built-in

Use Code: *theshiftextension* for 40% off

www.emergencyfit.com.au


LOOKING FOR
OPPORTUNITIES OUTSIDE OF
AMBULANCE?
RESPOND 25
PARAMEDIC CAREERS CONFERENCE
14TH AUGUST
BRISBANE
DISCOVER YOUR FUTURE IN
PARAMEDICINE
FOR MORE INFORMATION
WWW.THESHIFTEXTENSION.ORG

The impact of double sequential shock timing on outcomes during refractory out-of-hospital cardiac arrest

Rahimi et al., 2024

Words by Josh McClelland

Intent of the Article

This study aimed to determine whether the timing between shocks delivered via Double Sequential External Defibrillation (DSED) affects outcomes in patients with refractory ventricular fibrillation (RVF) during out-of-hospital cardiac arrest (OHCA). DSED is the use of two defibrillators being used to deliver Direct Counter Current Shocks (DCCS) in rapid succession. RVF refers to Ventricular Fibrillation (VF) that persists despite three standard defibrillation attempts. DSED is increasingly used in such cases, but the optimal timing between shocks, known as the "DSED interval" had not yet been studied in humans (previously studied in veterinary medicine). The researchers sought to examine whether shorter or longer intervals between the sequential shocks influenced the key outcomes: VF termination, return of spontaneous circulation (ROSC), survival to hospital discharge, and favourable neurological status.

Article Format

This article is a retrospective cohort study meaning the researchers looked back at real patient cases over several years to identify patterns in outcomes. It's useful for spotting trends and associations but can't prove direct cause and effect) using data from six Canadian (Ontario) paramedic services between January 1, 2015, and May 22, 2022. It included both routine prehospital care and patients enrolled in the DOSE-VF randomised controlled trial (RCT), where patients are randomly assigned to different treatment strategies. This helps remove bias and is considered the strongest method for testing if one treatment is truly better than another.

Within the study period, two methods of DSED were performed: simultaneous and sequential. The study used quantitative statistical analysis, including Fisher's exact test, to identify any associations between DSED timing and clinical outcomes.

Methodology Overview

The retrospective cohort study included 106 adult patients with refractory VF who received at least one DSED shock. DSED involved two defibrillators: one set of pads placed in the standard anterior-lateral position, and a second set placed anterior-posterior. The interval between the two shocks was calculated using data from the defibrillator records. Calculations are precise to millisecond accuracy.

The DSED intervals were grouped into four predefined time ranges:

- <75 milliseconds (ms)
- 75 - 125ms
- 125 - 500ms
- >500ms

The primary outcomes measured were:

- VF termination
- ROSC
- Survival to hospital discharge
- Favourable neurological status at discharge (Modified Rankin Scale ≤ 2) (The Modified Rankin Scale is a tool, used to assess and evaluate severity of neurological impairment, generally post a stroke or cardiac arrest)

Because some patients received multiple DSED shocks, data analysis accounted for this using statistical models that adjusted for clustering.

4. Results and Interpretation

A total of 303 DSED shocks were delivered across 106 patients. The key findings were:

- DSED intervals less than 75ms had the highest success rates for VF termination (48%) and ROSC.
- Longer intervals (especially >500ms) were significantly less effective.
- No statistically significant difference was found in survival to hospital discharge or favourable neurological outcome, regardless of the interval.

Clinical interpretation:

This study suggests that delivering DSED shocks as close together as possible, preferably within 75 milliseconds, may increase the chance of terminating VF and achieving ROSC. These are critical early steps toward survival. While the study did not demonstrate a clear survival or neurological benefit, early defibrillation success is essential to downstream outcomes.

For paramedics, this highlights the importance of technique: simultaneous or near-simultaneous defibrillator activation during DSED may be more effective than sequential shocks spaced apart.

Journal Characteristics

This article was published in Resuscitation, a highly respected, peer-reviewed medical journal specialising in emergency and critical care research.

SCImago Journal Rank (SJR): Q1 (top quartile globally – indicates the journal ranks in the top 25% in its field).

Impact factor: ~ 6.5 (Average number of times articles published in the journal have been cited in the previous two years).

The journal is widely read in prehospital and emergency care circles and known for publishing practice-shaping resuscitation research. This adds credibility to the study and its potential influence on clinical guidelines and protocols.

6. Final Thoughts

This is the first human study to examine how the timing between DSED shocks influences patient outcomes. It reinforces the idea previously only explored in animal studies, that shorter shock intervals lead to better immediate outcomes, specifically VF termination and ROSC.

Although survival and neurological outcome results were not statistically significant, the findings are still highly relevant to clinical practice. They suggest that paramedics should aim to deliver DSED shocks with minimal delay between them, ideally using a simultaneous technique if safe and feasible.

As services continue to adopt DSED for refractory VF, protocols may need to evolve to focus not just on whether DSED is delivered, but how it is delivered. Training, equipment configuration, and procedural clarity will be key to optimising shock timing in the field.

Personal Reflection

To interpret this article effectively, I focused on attempting to translate technical findings into clinically relevant language. It felt like an easier version of a literature review as I was only reviewing one article. Though it took a few reads to gain a solid understanding, when beginning to analyse and dot point out the structure it looked something like: identifying the research question, then carefully reviewing the methods section to understand how the study measured DSED timing.

I cross-referenced the results tables with the written interpretation to confirm what outcomes were statistically significant. Throughout the review, I tried to analyse and reflect with regard to the clinically significant for myself and my colleagues on-road, which helped me focus on practical applications rather than purely academic interpretation.

This approach made it easier to extract key messages and reflect on how evidence like this can guide protocol improvements, equipment setup, and ongoing training for paramedics delivering advanced resuscitation.

Rahimi, M., Drennan, I. R., Turner, L., Dorian, P., & Cheskes, S. (2024). The impact of double sequential shock timing on outcomes during refractory out-of-hospital cardiac arrest. Resuscitation, 194, 110082. https://doi.org/10.1016/j.resuscitation.2023.110082

Connecting Research to Practice: A Conversation with Josh McClelland

When I caught up with Josh McClelland, a recent graduate of Griffith University's Bachelor of Paramedicine, I wanted to explore how a new paramedic approaches the challenge of translating research into practical knowledge for the profession. Josh currently works as a rescue paramedic in the Bowen Basin coal mines, balancing this with event medicine roles as he considers a future in either ambulance services or medicine.

Josh's enthusiasm for research was clear from the start. "I was excited. I had actually approached Sunny Whitfield a couple weeks prior to you reaching out and asked him if he had anything going research wise that I could participate in or help out with," he explained. For Josh, creating opportunities is essential: "You have to create your own luck sometimes I think."

Tackling a technical, acronym-heavy research article wasn't easy. "The first week I had access to the article, I honestly probably read it like 10, 15, 20 times just to really try and understand everything that was within it, and especially a lot of the data points," Josh admitted. "It's not the easiest thing to pick up and read at a glance and sort of get the big picture out of it in terms of maybe being able to apply it to paramedic practice."

Josh's approach combined persistence and curiosity. "I do actually enjoy reading research quite often. Just cause I'm a bit of a nerd and I love to learn. But I did have to sort of use publicly available resources just to bring myself up to speed… with concepts such as double sequential defibrillation and understanding the pathophysiology or what we think we're trying to achieve when we use these things in practice." He also appreciated the support: "I am very grateful… to have been so kind to provide us with a free copy of [the paramedic research textbook]. And I'm looking forward to being able to use it moving forward as well in further research."

I asked Josh how research is viewed among his colleagues. He sees a generational shift: "I feel like a lot of younger, keen paramedics and students actually are quite interested in research and participating, especially [with] the competitive nature of paramedicine in Australia at the moment… everyone now is degree educated, so there's people looking at other ways to potentially be more competitive when they're going for different roles." He believes this is part of a broader evolution: "That's also running parallel with the expansion of paramedicine clinically and in terms of the scopes of practice and the amount of medical knowledge that is actually culminating into what we do."

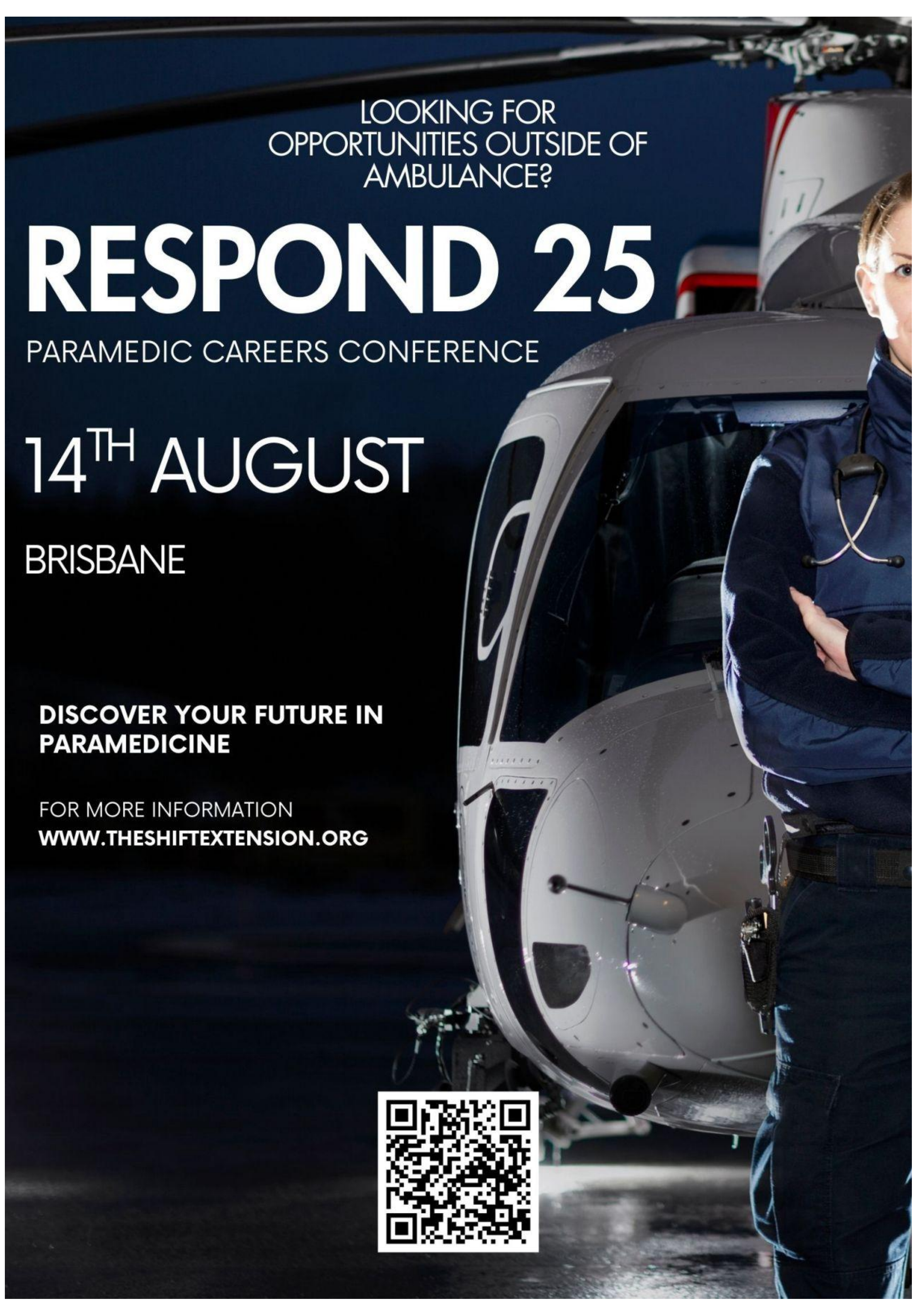
Josh is optimistic about the profession's future, even as he acknowledges there's still progress to be made. "We're such a young profession. And so there's lots to learn in terms of the world of research as well… I think there's a long way to go because I suppose it's not necessarily quite yet part of what we are expected to do as compared to what you're expected to do through like a medical degree… but I feel like we're headed in that direction."

For Josh, accessible and well-presented research is vital: "Sometimes you just want… quick and easy, well-presented research that you can learn from. And I feel like what you guys are doing at the Shift Extension is a really cool concept."

WHAT PARAMEDICS DO
BY AMY GOMES

Written by Critical Care Paramedic Amy Gomes, the book is designed to help reduce medical anxiety in kids through familiarity while providing educational tips for how/when to call 000. The book includes a linked reading with Greg Page (Original Yellow Wiggle and cardiac arrest survivor) and every book sold helps fund more community AEDs! Find out more via the QR code.

www.onelittleheart.com.au


LOOKING FOR
OPPORTUNITIES OUTSIDE OF
AMBULANCE?
RESPOND 25
PARAMEDIC CAREERS CONFERENCE
14TH AUGUST
BRISBANE
DISCOVER YOUR FUTURE IN
PARAMEDICINE
FOR MORE INFORMATION
WWW.THESHIFTEXTENSION.ORG

Witnessed prehospital traumatic arrest: predictors of survival to hospital discharge

Pemberton, Katherine et al., 2023

Words by Jaz Johnson

Witness prehospital traumatic arrest: predictors of survival to hospital discharge explores the factors that might influence whether someone survives to hospital discharge after experiencing a traumatic cardiac arrest witnessed by emergency medical services (EMS).

In this context, a “witnessed prehospital traumatic arrest” refers to a patient who was alive when EMS arrived but went into cardiac arrest before or upon arrival at hospital. The study aimed to identify key clinical and demographic factors-such as gender, mechanism of injury, scene systolic blood pressure (SBP), injury severity, heart rate and Glasgow coma scale (GCS) score-to determine their association with survival outcomes. In essence, this data is trying to help paramedics make informed decision about effort and use of resources following an EMS-witnessed cardiac arrest. It may help to support aggressive resuscitation efforts in cases with favourable indicators, or alternatively guide the decision to cease efforts earlier in cases where the outcomes aren’t looking promising.

What is the article format?

The article follows the common scientific research layout known as IMRaD—Introduction, Methods, Results, and Discussion. This format is easy to follow and helps readers understand what they were looking at, why they were looking at it and what they found. A list of keywords is included to highlight important topics, and each section is clearly organised. The methods section explains how the study was designed, where the data came from, who was included or excluded, what information was collected and how the data was analysed. The results section discusses the main findings in both written form and through detailed tables, showing important outcomes and whether they were significant. The discussion section helps make sense of the results by comparing them to other studies, explaining their importance in a clinical context, and pointing out any limitations. Tables used throughout clearly summarise patient details, study results and the article finish with a declaration statement as well as a full list of references.

Article methodology

This was a retrospective observational study. This means researchers looked at data from the National Trauma Data Bank (NTDB) between 2007–2018 to identify patterns that linked to survival over a large group of trauma cases. The NTBD is the largest registry in the world, collecting data from U.S. trauma centres, particularly Level 1 and

Level 2 centres verified by the American College of Surgeons (ACS). Patients included in the NTDB experienced a traumatic injury within 14 days of hospital arrival, and were either admitted, observed, transferred, or died from their injuries. Patients were grouped into three categories:

1. Survived to hospital discharge

2. Died in hospital (after leaving the emergency department)

3. Died in the ED or declared dead on arrival (DOA)

Researchers used One-Way Analysis of Variance (ANOVA) and Chi-Square tests to compare differences between the groups. ANOVA checks if the group averages are different, while Chi-Square looks for important differences in other variables. They also used logistic regression to see which factors were most related to survival. These were expressed using odds ratios (ORs). Odds ratios show the strength and association between the variables and survival to hospital discharge:

• An OR greater than 1 means a higher chance of survival.

• An OR less than 1 indicates a lower chance of survival.

• A p-value < 0.001 was used to show statistical significance.

A p-value represents how likely it is the results happened by chance. In this study, the p-value being < 0.001 represents a less than 0.1% chance the observed results happened just by coincidence.

Results

Out of the patients included, only 10% survived to hospital discharge, 22% died in hospital, and 68% died in the ED or were declared DOA. Patients with blunt trauma had better outcomes than those with penetrating trauma (12% vs. 7% survival), and survivors were more likely to have higher systolic blood pressure (SBP) and Glasgow Coma Scale (GCS) scores on scene, with lower overall injury severity. These findings emphasize just how low the survival rate is for traumatic cardiac arrest even when witnessed by EMS. They also shed light on important factors that can influence survival—such as younger age, female sex, blunt trauma, and higher scene SBP and GCS scores. For the paramedic on the ground, this highlights the need to critically assess each situation. For example, if we have a young patient with blunt trauma and decent scene SBP, it might be worth pushing harder with resuscitation efforts compared with an older patient who has a penetrating trauma injury. A key takeaway for myself has been the importance of early interventions and how important it is to focus on the reversible causes of cardiac arrest early.

To determine the characteristics of the journal I used Scimago to find the Scimago Journal Rank (SJR) and Quartile Rank (Q-rating). Scimago is a free online tool that ranks scientific journals based on impact and citation data. The European Journal of Trauma and Emergency Surgery has a SJR of 0.757, which might seem modest at first, however, the journal has a Q rating of Q1.

The SJR score measures both the number of citations a journal gets and the prestige of the journals that cite it. A score of 0.757 means that, on average, articles in this journal are moderately cited. However, in fields like trauma and emergency care—where citation rates are generally lower—this score is quite strong.

Quartile rankings (Q1–Q4) place journals in order within their subject category. Even with a SJR below 1, this journal performs better than most others in the trauma/emergency field. Being in Q1 means it’s in the top 25% in its field. This shows that the research is sound as it has been published in a reputable trauma journal.

Final thoughts

Although this study highlights how low survival rates are following an EMS-witnessed traumatic cardiac arrest, it presents key variables that are linked with better outcomes.

It emphasised to me how important it is to make informed decisions under pressure and the importance of early interventions given how quickly a patient can deteriorate.

Schellenberg, M., Owattanapanich, N., Ugarte, C., Grigorian, A., Nahmias, J., Lam, L., Martin, M. J., & Inaba, K. (2024). Witnessed prehospital traumatic arrest: Predictors of survival to hospital discharge. European Journal of Trauma and Emergency Surgery, 50(3), 959–965. https://doi.org/10.1007/s00068-023-02398-3

THE SHIFT EXTENSION
PARAMEDIC PODCAST
with
SUNNY, NICK & LOU

Connecting Research to Practice: My Conversation with Jaz

When I sat down with Jaz, a second-year paramedic student at Charles Darwin University in the Northern Territory, I wanted to understand how someone early in their career approaches the challenge of translating research into practice—especially in a place where tradition and innovation often collide.

Jaz's journey into paramedicine began with a search for meaningful work. "I wanted to do something in emergency services, but I wasn't sure exactly what. I love it in the NT; this is definitely where my long-term passion lies. I might spend a couple of years overseas at some point, but this will always be home."

When I asked Jaz how she felt about being tasked with explaining a complex journal article in plain language, she was candid about her initial reaction: "Like with anything research-related, I wanted to give it a go. I did feel a bit out of my depth at first, but I was determined to give it a try."

Curious about her process, I asked what resources she turned to. Jaz described a practical approach: "I listened to the Student Paramedic podcast series on research—that was the first thing I did. I used Perplexity to help clarify the article for me, and I also did some searching on Google."

I wondered if she was surprised by how the project came together. Jaz reflected, "It all came together. I asked others in the industry to read over it and offer feedback—could they understand it?"

The conversation shifted to the culture of research in paramedicine, especially among her peers and mentors. Jaz observed, "Some people may not see the need to know where our best evidence for practice comes from. I've worked with paramedics who are told, 'This is what we're doing,' but not always why. There's a tendency to focus on how we do things, without questioning the reasons behind them."

Looking ahead, I asked how research might shape her future as a paramedic. Jaz was thoughtful: "Research could help us consider medications and treatments we don't currently use here. It's about examining why we do things a certain way. Now that we have Shell Piercey (Chief Paramedic Officer for the NT), who will play a big role in driving change, I see myself wanting to be part of that."

For Jaz, the heart of the matter is always the patient: "The best thing for patients is having up-to-date guidelines based on solid research."

When I asked if this project helped her prepare for her future, her answer was straightforward: "Yes. It made me quite nervous, but with support, I managed to get through it. Thank you."

We are the first to arrive. We respond. We assess, we treat, we comfort, we support. We provide a shoulder to cry on. We save lives. We protect. We care.

And who cares for the carers?

APA Queensland Inc does.

Members are invited to attend APA Queensland Inc's Special General Meeting to pass a resolution that will shape the future of our Association.

11am, Friday 25th August, 2023

In-person:
Conference room,
Quest Breakfast Creek,
15 Amy St, Albion QLD

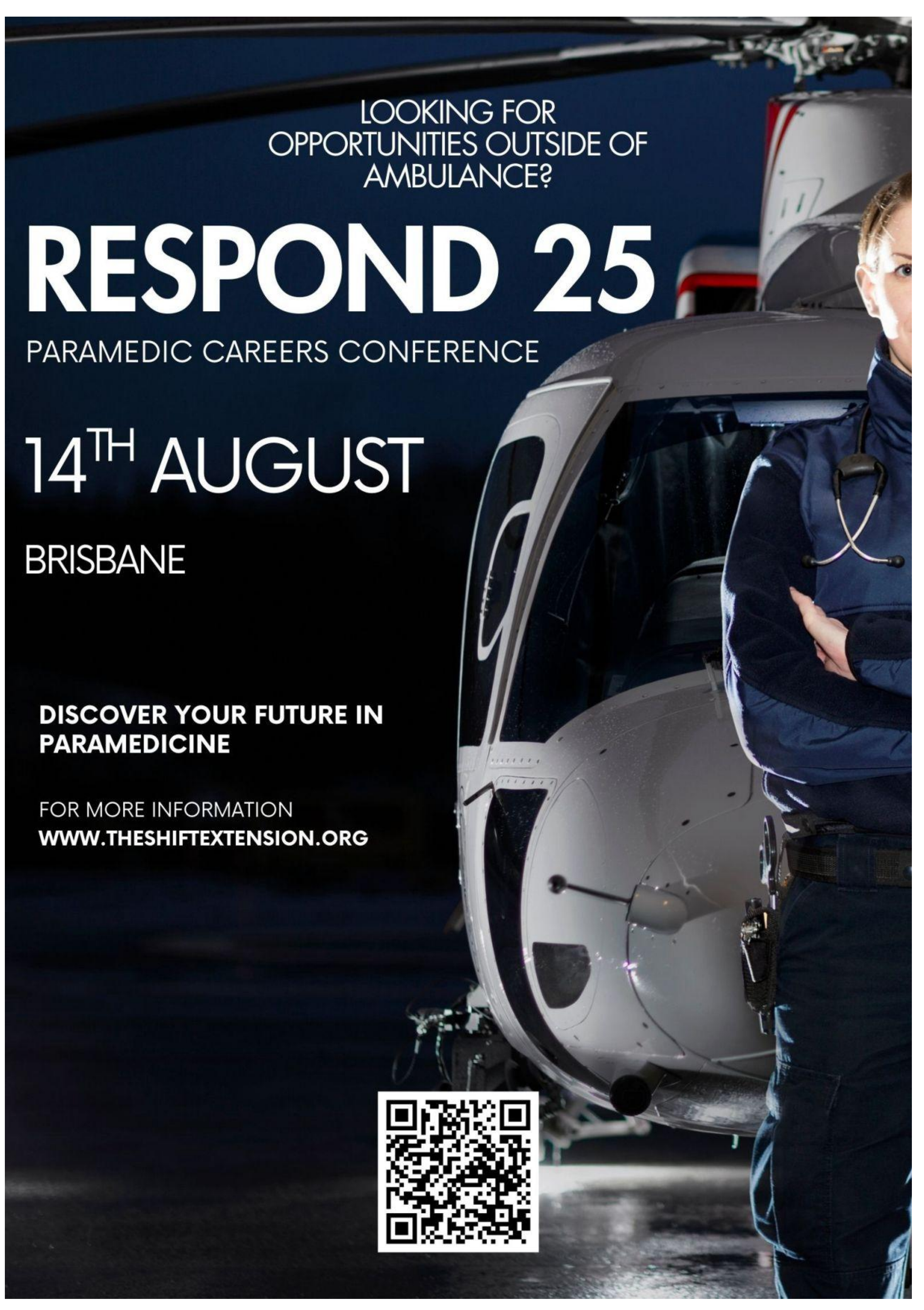
Dial-in: 1800 896 323

Check your email or contact APA Queensland for more details.

Want to know more? Scan the QR code to watch a quick video.

APA Queensland. Caring for the carers since 2005.

www.apaq.com.au


LOOKING FOR
OPPORTUNITIES OUTSIDE OF
AMBULANCE?
RESPOND 25
PARAMEDIC CAREERS CONFERENCE
14TH AUGUST
BRISBANE
DISCOVER YOUR FUTURE IN
PARAMEDICINE
FOR MORE INFORMATION
WWW.THESHIFTEXTENSION.ORG

Paramedic clinical practice guideline development in Australia and New Zealand: A qualitative descriptive analysis

Maria et al., 2024

Words by Dan McDonald

When reading any publication, it is important to know the primary purpose or intent of the article. The study “Paramedic clinical practice guideline development in Australia and New Zealand: A qualitative descriptive analysis” (Maria et al., 2024) explores and explains how clinical practice guidelines (CPGs) for paramedics are created and updated in Australia and New Zealand. The authors want to shed light on the processes, challenges, and influences behind these guidelines, which are essential for ensuring paramedics deliver safe and effective care in the field. The intent is to help improve guideline development, providing an evidence-based and relevant approach to real-world prehospital practice.

The research in this article employed a qualitative descriptive design, which means it doesn’t use numbers or statistics to answer its questions. Instead, it collects detailed stories and opinions from people involved in CPG development (participants) to describe their experiences and perspectives in depth.

The researchers interviewed key people involved in developing paramedic guidelines, which included clinical leaders and subject matter experts, providing representation from all jurisdictional ambulance services across Australia and New Zealand. They used open-ended questions, allowing participants to speak freely about their experiences, challenges, and suggestions for improvement. After collecting these interviews, the researchers analyzed the responses to identify common themes and patterns, a process known as thematic analysis. As someone who has managed the clinical department of a provincial ambulance service, I see this as a strong approach. It captures the real-world complexity of building guidelines, including the practical and sometimes political issues that can’t be measured by surveys or numbers alone. There was obvious potential for investigator bias in this article, as four authors directly participated in the research as interviewees. However, this was acknowledged, and mitigating strategies were implemented throughout the entire process.

Key findings of the article were as follows:

• Resource limitations: Many services struggle with limited time, funding, training, and staff for developing and updating guidelines.

• Adapting evidence: Guidelines are often based on hospital research, which doesn’t always fit the prehospital setting. Paramedic services sometimes must adapt or interpret this evidence for their unique context.

• Stakeholder involvement: Effective guideline development requires input from a range of people, including frontline paramedics, medical advisors, and sometimes even patients.

• Variability: There's no single, standardized way of developing guidelines. This means there are differences in how guidelines are created and updated between services and regions.

These findings resonate with my experience in Canada. We face similar challenges, especially when adapting hospital-based evidence to the realities of prehospital care and the need for buy-in from multiple stakeholders. The lack of standardization can lead to inconsistencies, but also allows for innovation and adaptation to local demands. This study highlights the need for more prehospital-specific research, better funding, and increased collaboration between services. Globally, EMS systems are grappling with the same issues, as can be seen in Martin-Gill et al., (2016) and Renshaw et al., (2022). Improving guideline development can lead to more consistent, higher-quality patient care everywhere.

The article's source, Australasian Emergency Care, is a respected, peer-reviewed journal in the emergency and prehospital care field. To judge its credibility, I consider the following:

• Impact Factor: 2.1 as of 2023 (a score of less than 1.0 is considered average, 3.0 is considered good, and 10.0 is considered exceptional).

• Quartile (Q) Rating: Q1 in Emergency Nursing, meaning it's in the top 25% of journals in this field.

• SCImago Journal Rank (SJR): 0.690, which reflects its scientific influence. A score above 1.0 has an above-average citation potential, while a score below 1.0 has a below-average citation potential.

• h-index: 36, indicating many highly cited articles by the authors.

These metrics are available through databases like Scopus and Web of Science, and they help me assess whether the journal is widely read, trusted, and cited by emergency care professionals.

This article provides valuable insight into the "behind-the-scenes" work that goes into creating paramedic clinical guidelines. As an advanced care paramedic and clinical manager, I see these findings as highly relevant, not just for Australia and New Zealand, but also for Canadian paramedic services. The study highlights the importance of collaboration, adapting evidence to local realities, and the need for ongoing research specific to prehospital care. That said, I must address my own personal bias, in that I have experienced many similarities to what the participants described while creating CPGs.

Understanding these processes is critical for those who have transitioned to leadership roles or aspire to do so. It helps bridge the gap between prehospital and hospital care and ensures guidelines are evidence-based and practical for frontline paramedics. Ultimately, better guidelines mean better patient care and outcomes. One additional consideration I would like to add is patient-important outcomes. Fischer et al., (2024) are testing a tool to assist in shared decision-making between patients and health care providers during CPG development. Providing patients with an opportunity to have a say in future care allows for an understanding of what truly matters to

patients and their experiences. Furthermore, I would encourage anyone interested in CPG development to visit the Prehospital Evidence Based Practice Program (2025) database.

In summary, this article shows that developing paramedic guidelines is complex, resource-intensive, and requires teamwork. The lessons learned apply to paramedic systems everywhere, including Canada, and point toward more effective, evidence-based, patient-centered prehospital care.

Maria, S., Colbeck, M., Wilkinson-Stokes, M., Moon, A., Thomson, M., Ballard, J., Parker, L., Watson, F., & Oswald, J. (2024). Paramedic clinical practice guideline development in Australia and New Zealand: A qualitative descriptive analysis. Australasian emergency care, 27(4), 259–267. https://doi.org/10.1016/j.auec.2024.06.003

Connecting Research to Practice: My Conversation with Dan

When I sat down with Dan, my goal was simple: to explore how paramedics—especially those without much research experience—can meaningfully engage with clinical evidence. I wanted to make the conversation personal and practical for anyone in the field.

Dan's background is a blend of frontline experience and recent academic achievement. When I asked him about his reaction to interpreting a complex research article in plain language, he was candid: "Useful. To really adopt a[n] appreciation for research and ability to interpret research without the intimidation factor."

I was curious about what tools he relied on to tackle this challenge. Dan explained, "Having the knowledge of how to evaluate and research topic for validity…when something has meaning to me and to my patients…that's what matters." For Dan, the key is not just understanding research, but making sure it's applicable: "OK, so you did this. So what? What's the point of it? Am I able to use it? Is there any benefit to me, my practice, and my patients?"

He credited much of his approach to his undergraduate studies. "A large portion of my undergrad was how to appraise literature, how to read it, how to look and see if there's any bias…is there potential for bias in it?" Dan said. He also acknowledged that our discussions had helped him develop this mindset: "Thank you for—you're actually the one that's got me [thinking this way]."

As our conversation shifted to the bigger picture, I asked how research helps move paramedicine from being an "industry" to a "profession." Dan's answer was measured but optimistic. "From research to implementation of practice is the better part of 20 years in general," he noted. "Now when we have information available to us at our fingertips with our phones, compared to 20, 30, 40 years ago, why wouldn't we make changes a lot sooner than what we historically have?"

He gave a practical example from his own service: "Sheldon Cheske's research has impacted Island EMS (PEI Canada)…we have had a medical procedure for those patients in refractory ventricular fibrillation. Now it has a standard practice." For Dan, this is where research truly matters—when it changes what happens for patients

I then asked how he would talk about the value of research to colleagues who might be skeptical or overwhelmed. Dan acknowledged the slow pace of change: "It's moving. I think…maybe in 20 years, maybe," he said, reflecting on the gradual shift toward degree-based entry and professionalization in Canada. Not the scale of other countries but at least movement."

As we wrapped up, I invited Dan to share any final thoughts for a global audience, especially in places like Australia where degree entry is standard. His reflections were grounded: the path from research to practice is slow, but every paramedic can start by asking, "Does this evidence matter to my patients? Can I use it to improve care?"

AMAZON BEST SELLER

PURCHASE HERE

Customer reviews

4.9 out of 5

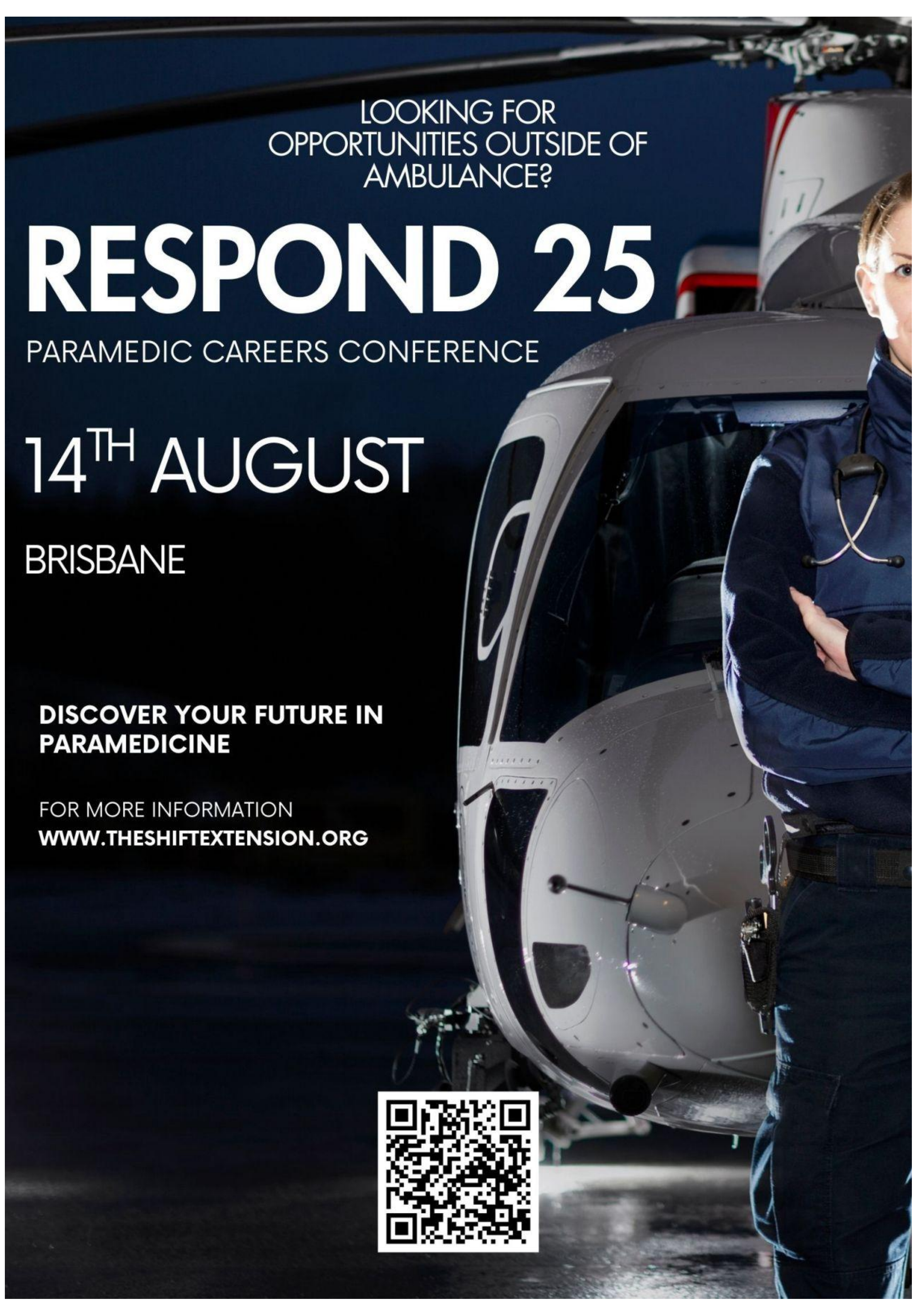
HELICOPTERS COCONUTS VOLCANOES AND SLED DOGS

PARAMEDIC TALES FROM AMBULANCES AND EXPEDITIONS AROUND THE WORLD

SUNNY WHITFIELD

NON FICTION SILVER WINNER BOOK AWARDS

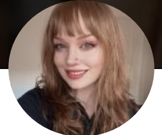
Available here

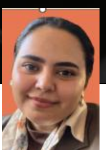

LOOKING FOR
OPPORTUNITIES OUTSIDE OF
AMBULANCE?
RESPOND 25
PARAMEDIC CAREERS CONFERENCE
14TH AUGUST
BRISBANE
DISCOVER YOUR FUTURE IN
PARAMEDICINE
FOR MORE INFORMATION
WWW.THESHIFTEXTENSION.ORG

Paramedic Analgesia: Comparing ketamine and morphine in trauma (PACKMaN): A randomised, double-blind, phase 3 trial

Smythe et al, 2025

Words by Emalee Outlaw & Tanareh Ghodsian





In recent years, there has been a growing interest in finding alternatives to traditional opioid medications in prehospital trauma care. The article "Paramedic analgesia comparing ketamine and morphine in out-of-hospital trauma care," published in The Lancet Regional Health – Europe (2025), explores whether ketamine could be a safe and effective substitute for morphine when administered by paramedics in the field. Pain management is a core component of trauma care, and while morphine has long been the go-to analgesic in paramedic practice, its potential side effects—such as respiratory depression and hypotension—can make it risky in certain situations. Ketamine, on the other hand, offers powerful analgesia with a different risk profile, making it an attractive option in environments where patient presentation or logistics make morphine less suitable.

The study was designed as a double-blind, randomised controlled trial (RCT), a gold standard method for comparing clinical treatments. Patients with traumatic injuries who required pain relief were randomly assigned to receive either ketamine or morphine, without knowing which drug they were given. Paramedics administering the drugs were also blinded to the group allocation, ensuring that neither patient nor clinician expectations could influence the outcome. This level of inflexibility adds considerable weight to the findings and helps eliminate bias in how pain relief and adverse events were assessed.

The study was conducted across two regional ambulance services in the UK. Paramedics were issued trial drugs, Ketamine and Morphine. Both medications were prepared at equal concentrations—1 mg/mL for morphine and 1.5 mg/mL for ketamine—so they could be administered in the same volume, minimising any clues that might unblind the study. When a paramedic encountered an eligible patient, they followed standard protocol for assessing and treating pain, administered the study drug, and recorded the patient's pain score using a visual analogue scale. They also monitored vital signs and documented any side effects or clinical concerns. All data were later analysed by researchers to determine the drugs' comparative effectiveness and safety.

The results showed that both drugs were similarly effective at relieving pain. In fact, ketamine appeared to reduce pain slightly faster than morphine in the early stages, though the overall difference was small. Importantly, both groups of patients showed meaningful pain reduction, suggesting that either drug is a valid choice for trauma analgesia. When it came to side effects, there were some differences. Patients who received morphine were more likely to experience nausea and drowsiness, while those who received ketamine were more likely to report feeling confused, disconnected, or agitated. These symptoms were typically short-lived and did not require any major interventions. No serious or life-

threatening adverse events were reported in either group, which reinforces the safety of both medications in a prehospital setting.

From a clinical perspective, these results are significant. They suggest that ketamine is not only effective but also safe when used by paramedics in the field. For patients who cannot tolerate morphine—for example, those with low blood pressure or opioid sensitivity—ketamine offers a viable alternative that does not compromise pain relief. For paramedics, this widens the scope of practice and encourages more flexible, evidence-based decision making around analgesia. It also supports the idea that paramedics should be trusted to use advanced medications like ketamine when backed by good clinical judgment and protocols.

The credibility of this research is strengthened by the fact that it was published in The Lancet Regional Health – Europe, a peer-reviewed journal that is part of the internationally respected Lancet family. The journal holds a Q1 Scimago rating, placing it in the top quartile of global medical publications. It is indexed in databases such as PubMed and Scopus, and its high impact factor indicates that it is widely read and frequently cited by researchers. These characteristics suggest the study is a high-quality contribution to literature and that its findings are likely to influence both clinical guidelines and paramedic education.

Overall, this article is a valuable addition to prehospital research. It provides strong evidence that ketamine can be used safely and effectively by paramedics to manage pain in trauma patients, offering an alternative to morphine with a comparable benefit and a different set of side effects. It also demonstrates the increasing role that paramedics are playing in evidence-based medicine. Rather than relying solely on hospital-led research, this study was based in the out-of-hospital setting and directly informs real-world paramedic practice. For student paramedics and early career clinicians, this paper highlights how research can directly shape the decisions we make on the road. It also reminds us that paramedic practice is evolving, and that staying current with high-quality research is part of delivering the best possible patient care.

By examining this study, paramedics can gain a deeper understanding of the clinical decision-making behind drug choice, appreciate the value of RCTs in shaping practice, and develop greater confidence in using ketamine when appropriate. With the growing availability of ketamine in Australian ambulance services and international systems, this research supports the safe implementation of its use in line with well-developed protocols.

In conclusion, the study shows that ketamine and morphine are both safe and ketamine is not superior to morphine for acute traumatic injuries. It invites paramedics to think critically about pain relief, tailor treatment to patient needs, and engage with research as a tool for improving practice.

Smyth, M. A., Noordali, H., Starr, K., Yeung, J., Lall, R., Michelet, F., Fuller, G., Petrou, S., Walker, A., Green, Z., McLaren, R., Miller, E., Buckley, D., & Perkins, G. D. (2025). Paramedic analgesia comparing ketamine and morphine in trauma (PACKMaN): A randomised, double-blind, phase 3 trial. The Lancet Regional Health – Europe, 53, 101265. https://doi.org/10.1016/j.lanepe.2025.101265

Emalee Outlaw: Turning Curiosity into Clarity

Emalee Outlaw's journey into paramedicine and research is a story of curiosity, adaptability, and a genuine drive to make science accessible. Now in her third year of paramedicine at a major university, Emalee's path has been anything but linear—but every twist has brought her closer to the work she loves.

Emalee originally set her sights on a different kind of medicine. "I was going down the veterinary pathway," she explains. She was accepted into a Doctor of Veterinary Medicine program, but after some time, she decided to take a break. "I felt like I was burning out," she says. During her year off, she worked as a lab technician—and that's when a chance encounter changed everything. "Paramedics came into the workplace and I was like, you know what? That looks pretty cool." She made the leap to paramedicine and hasn't looked back. "I wish I did it sooner," she admits, laughing.

Emalee's reputation for curiosity and helpfulness led to an unexpected opportunity. "I was surprised that I got thought of by Brian. I was like, ohh, I exist!" she laughs. Brian, a faculty member, recognized her keen interest in research and suggested her for a project: creating a plain language summary of a dense research article for paramedics. Emalee saw it as a chance to challenge the idea that research is only for academics. "Whenever I talk to my peers about it, they always say, 'Oh, it's just so boring. I don't understand it.' I thought this would be a good insight to show that you can simplify these journals and research articles that you read online."

Emalee tackled the project with her usual thoroughness. "I went through each paragraph in that research article and put it in my own words—what I interpreted that as," she explains. She also turned to books, including a paramedic research textbook donated by Elsevier, and sought feedback from her peers. "I got feedback and they said yes, this is a lot better to read compared to the article, because the article uses big words and everything." She wasn't afraid to look up terms she didn't know: "I did Googling. I was like, what does this word mean?"

The process reinforced her passion for research. "I think I've always had a strong passion towards research anyway, so I've just been really happy to be involved, to be honest." The project didn't change her attitude toward research—it strengthened it. "It's just giving me more of a drive to get more involved into it."

Emalee is clear about the importance of research in her future practice. "Absolutely. Look, I've always liked keeping up to date with it, especially like the whole morphine/ketamine debate. That's a big one back in prehospital, but also like in the trauma guidelines as well." She's fascinated by developments from around the world, such as the US Army training medics to do blood transfusions in the field. "It's always good to read up and see what's going on, and how people do things differently."

Taraneh Ghodsian: Hope and the Power of Plain Language

Taraneh Ghodsian's journey into paramedicine and research is defined by hope, determination, and a desire to make knowledge accessible for everyone. Now a paramedic student at Victoria University, Taraneh's story is shaped by her curiosity and her belief in the importance of sharing information in ways that truly help others.

Taraneh left Iran at 14 and spent several years in Turkey as a refugee. School in Turkey was difficult—not just because of the language barrier, but because the education system didn't encourage real learning. "The only classes I could participate was German language and English language other than that, I was just existing in the class," she recalls. Despite these challenges, Taraneh remained focused on her goals. She learned about possible pathways to other countries and set her sights on Australia, hoping for a place where she could grow and contribute. "We came to Australia 2019. At the time I was very interested to become a clinical psychologist and I found my pathway with the only institute in Australia that would accept me to do a diploma in counselling without a certificate for or year 12."

That diploma opened doors for her, allowing her to begin studying psychology and, later, paramedicine.

Taraneh's interest in research grew from a simple idea: making what we know useful for everyone. She sees research as the foundation of medical practice. "Isn't everything we know in the textbooks is based on research? So it's the research that gave us the data that we know." For her, research is "the core of everything."

When she was invited to help create a plain language summary for a research article, Taraneh saw it as a chance to bridge the gap between complex academic writing and everyday understanding. She worked with her colleague Emalee, reviewing drafts and helping ensure the summary was clear and accessible. Taraneh is modest about her contribution: "Technically, I would say it's all her work rather than mine...she just asked me to read it and save it again, and it was awesome. I could not find any issues at all, no grammar, nothing. And then the last that you told us to edit for the final draft. That's my only contribution, to be honest."

Taraneh's interests go beyond the classroom. She is passionate about organ donation and hopes to contribute to research that can improve care in the field. "A lot of the research I'm trying to get Brian to let me participate is a research about donation like organ donation in pre hospital care," she explains. She is even considering medical school, seeing research skills as a key part of her future

The Complete Manifesto 2023

Special Edition - Volume 7

DOWNLOAD

AWARD WINNING BEST SELLER

PURCHASE HERE

Available Here

Reflective Learning (CPD) Report

Professional clinical practice requires you to reflect regularly on your clinical practice and on all aspects of your professional work. Reflection should occur as soon as possible following the event, to be contemporaneous and meaningful, even though the impact may occur a significant time after undertaking the CPD. This tool can be used to log personal reflection on your CPD activities associated with this publication. Article reviews allow up to one (1) hour of CPD to be claimed.

Article Title

____

What was the outcome of you reviewing the article?

____

____

____

____

What was the learning need or objective that was addressed?

____

____

____

Can you describe any further personal learning needs on this subject?

____

____

____

____

Name	Date reflection completed

Reflective Learning (CPD) Report

Professional clinical practice requires you to reflect regularly on your clinical practice and on all aspects of your professional work. Reflection should occur as soon as possible following the event, to be contemporaneous and meaningful, even though the impact may occur a significant time after undertaking the CPD. This tool can be used to log personal reflection on your CPD activities associated with this publication. Article reviews allow up to one (1) hour of CPD to be claimed.

Article Title

____

What was the outcome of you reviewing the article?

____

____

____

____

What was the learning need or objective that was addressed?

____

____

____

Can you describe any further personal learning needs on this subject?

____

____

____

____

Name	Date reflection completed

THE SHIFT EXTENSION

Whilst every care has been taken to ensure the relevance and accuracy of information, the publishers and editorial team do not accept liability for any error, omission or misrepresentation of the information. Nor does it accept any loss, damage, cost or expense incurred by any person whatsoever arising out of or referable to the information displayed within this publication. Where there is an opinion expressed by the contributors this is not necessarily the opinion of the publishers or editorial team. Also, please understand that whilst advertising and promotional materials are used to fund the publication, its presence it is not indicative of endorsement from the publisher, editor or editorial team. Lastly, the editor has the right to omit or edit contributions for style, space or legal concerns.

All articles published on The Shift Extension - Paramedic Publishing are published under a Creative Commons License.

The Explora Group is the official publisher of The Shift Extension - Paramedic Publishing

© The Explora Group 2024.

Editorial Board

Sunny Whitfield

Nick Abussi

Shelly Whitfield

Dr Sandy MacQuarrie

THE SHIFT EXTENSION

PARAMEDIC PODCAST

S3 Ep3: Overcoming Imposter Syndrome

S3 Ep2: Clinical corner - Haemorrhage control

S3 Ep1: "There are no jobs" - Why they are wrong!

You can find all episodes below

https://open.spotify.com/show/7cQFgPuxd3paneLtmEDYZR

THE SHIFT EXTENSION

PARAMEDIC PUBLISHING

The Shift Extension Industry Journal is a free-to-access, open-source publication that is committed to providing industry-relevant literature and information to enhance the development of the paramedicine profession through the sharing of information.

We welcome articles, anecdotes, drafts and suggestions from paramedics across Australasia and internationally. If you have ever wanted to contribute, write or publish, we want to hear from you!

Send us a message on our website
https://www.theshiftextension.org/

© Copyright Explora Group 2025

Join Australia's only clinical fellowship in Extreme Environment Medicine

www.academyexmedicine.com.au