

## ADF Centre For Mental Health Second Opinion Clinic – Addiction Medicine Specialist Pilot Project

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We describe the development of an addiction medicine specialist pilot project at the Australian Defence Force (ADF) Centre for Mental Health to provide expert services for serving members of the ADF experiencing substance use disorders and to demonstrate the effectiveness and importance of this specialty to Defence Health.

### Biography:

Dr Wallace is a psychiatrist at the Australian Defence Force Centre for Mental Health, at HMAS Penguin, Sydney. He is also a Commodore in the Navy Reserve.

Major Nikola Ognyenovits is an Addiction Medicine physician. He has a strong interest in the clinical management and research in substance use disorders, behavioural addictions and associated mental health conditions, including developmental trauma, PTSD, depression and anxiety disorders. He is a medical officer in the Army Reserve and a staff specialist at the Metro North Alcohol and Drugs Service

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## Australian Veterans of The Middle East Conflicts 2001–2014: Associations Between Environmental Exposures and Select Reproductive Health Outcomes

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Associate Professor Susan Neuhaus<sup>1</sup>, Professor  
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### Background

Anecdotally, infertility and reproductive health concerns amongst serving female Australian Defence Force (ADF) members and veterans are perceived to be prevalent, but precise data is lacking. This research investigates the association between self-reported exposure to reproductive toxicants and adverse pregnancy outcomes in Australian Defence Force veterans who deployed to Iraq and Afghanistan during the period 2001-2009.

### Methods

Utilising the Middle East Area of Operations (MEAO) Census Study data set, descriptive analyses of participants' self-reported exposure were compared with the occupational environmental monitoring data taken at their reported deployment location. Univariate analyses assessed the significance of unadjusted associations between self-reported exposures and reproductive outcomes. Descriptive statistics (means, frequencies, percentiles) were used to describe the population. And sociodemographic data and clinical data were reported.

### Results

There is no systematic or consistent relationship between deployment to the MEAO and adverse pregnancy outcomes. Overall, self-reported adverse reproductive outcomes were significantly increased in veterans who deployed to both Afghanistan and Iraq ( $p=0.04$ ) compared to those who only deployed to only one of those locations; particularly in women ( $p=0.009$ ). Miscarriage was the most likely of these ( $p=0.008$ ).

### Conclusions

In this historical cohort study, causal inference cannot be made due to a number of methodological constraints. However, the results warrant continued investigation, especially when combined with previous findings related to pregnancy outcomes in this population, the importance of reproductive outcomes, and the potential emergence of new hazards.

### Biography:

*Rachelle Bonner joined the public service as a multitasking ninja, and that pretty much describes her career to date. She has deployed into the Middle East, Iraq and the Philippines, and has some experience in international and operations law, including undertaking health threat risk assessments of new weaponry. Fuelled mostly by caffeine and dogs, she is also a certified geek with a PhD in Reproductive Medicine, designs and makes wedding accessories for pets and cosplay props, and is an expert procrastinator.*

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### Deployable health services to support military and police operations

Dr (PHD) Judy Swann

*1 International SOS, Kingston, Australia*

#### Introduction

International SOS has supported deployed military and police operations across the world since our establishment in 1985. In a range of complex, remote and conflict-affected environments from Solomon Islands to Micronesia, Kosovo to Somalia; we have deployed alongside military and police personnel from the Australian Defence Force (ADF), the Australian Federal Police (AFP), the United States Army and Marine Corps, the New Zealand Defence Force (NZDF), and military and police personnel from Fiji, Solomon Islands, Tonga, Japan, France, Indonesia, Singapore and Papua New Guinea.

#### Discussion

Given the nature of their deployments, military and police forces require medical providers who understand and deliver clinical excellence, but also understand the unique requirements of operational command, and are able to deploy rapidly. International SOS has provided effective medical support with rapid mobilisation for the critical operational requirements of militaries and police forces domestically within Australia, regionally within the Indo-Pacific, and globally. Our diverse support includes:

- Domestic and regional deployed paramedic support alongside ADF training exercises.
- Support to short stand-up operations including Operation AGED CARE ASSIST and Operation TONGA ASSIST through Rapid Antigen Testing and PCR tests of ADF and international troops arriving in Australia, including personnel from Japan and France.
- Dedicated clinics and range of specialised medical personnel in Papua New Guinea to support the Australian Federal Police.
- Provided medical support on-board US military vessels operating in the Pacific, averaging four weeks at sea per mission.
- Designed, deployed, staffed, equipped, and

operated a COVID-19 Medical Treatment Facility to support the UN and the Rohingya refugee crisis.

- Constructed and operated a Role 2 hospital for NATO forces deployed in Kosovo and a Role 2 hospital service in Somalia for the European Union forces.
- Embedded a tactical aeromedical support service within the UN Peacekeeping Mission in Mali, servicing over 12,000 military, 3000 police, and civilian staff.

#### Solomon Islands

There is, however, one experience which exemplifies our ability to rapidly meet operational needs. Solomon Islands suffered serious civil unrest in November 2021. At the request of the Government of Solomon Islands, the Australian Government led a multinational and multi-agency support effort including police and defence personnel from Australia, Fiji, New Zealand and Papua New Guinea. The Australian Defence Force (ADF) contracted International SOS to provide primary and emergency medical support, including dedicated Aero Medical Evacuation (AME) in Honiara for all personnel supporting Operation LILIA. Within four days of contract execution, International SOS deployed a full medical team and 85kg of medical equipment and consumables to Honiara on a Royal Australian Air Force flight. Our medical team provides primary and resuscitative healthcare, medical evacuations to Australia, and has recently supported Rapid Antigen Testing of Solomon Island nationals following a recent COVID-19 outbreak.

#### Conclusion

Leveraging our unique experiences and operational understanding built through many years of supporting militaries and police forces domestically, regionally, and globally; we are able to provide quick and effective health support services suitable to achieving optimal medical and preventative outcomes.

#### Biography:

*Dr. Judy Swann is the Head of Military Health Services at International SOS. Judy is responsible for the Defence, Paramilitary, Naval Maritime and peace-keeping sectors within the Pacific region.*

*Judy has a decorated career with the Australian Department of Defence. Specifically, Judy has been involved with Australia's COVID-19 response, Pacific Islands police and military forces and the Pacific Islands Maritime Security Program. Judy holds an*

*Order of Australia Medal, several official Defence commendations and has completed doctoral studies in the police and military forces of the South Pacific.*

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### Happy Soldiers Soldier-on: Are improved health and wellbeing outcomes associated with improved retention in Soldier Recovery Centre participants?

Major Jeff Kolka<sup>1</sup>

*1 Australian Army, Brisbane, Australia*

Soldier Recovery Centre – Brisbane (SRC-B) delivers return to work programs (RTWP) designed to assist complex wounded, injured and/or ill (WII) personnel recover by improving physical and non-physical health and wellbeing. The primary purpose of the RTWP is to support members to return to a deployable Medical Employment Classification (MEC) in order for them to continue serving within the ADF.

Evaluation of the RTWP demonstrates that the program does indeed support recovery, with significant improvements in physical and non-physical health for participants who complete the eight week program. The assumption has been that improving a participant's health would lead to improved retention rates of WII members. However, there is no empirical data supporting the assumption the RTWP improves retention of recovered participants.

A detailed review of retention of RTWP participants completing the program between July 2020 and December 2021 was conducted with the aim of determining the effect of the course on retention rates. Secondary to this was the investigation of health and wellbeing outcomes and their association with likelihood of retention within the ADF. Health and wellbeing in participants was measured using the Functional Movement Screen (FMS), World Health Organisation 5-point Wellbeing Index (WHO-5), Resilience Scale for Adults (RSA) and Brief Resilience Scale (BRS).

This inquiry found that 56% of all complex WII members who complete the RTWP continue to serve within the ADF. Male and female participants with physical injuries only had similar rates of retention within service, however males with a non-physical

component to their injury/illness were far more likely to be retained compared to females with a non-physical component. Further investigation of pre and post RTWP health outcomes indicated there was significant improvements across all measures in both members who have been retained within the ADF and in members who have been medically transitioned.

Despite the lowest retention rate across these four sub-groups, females with a non-physical injury or illness had the largest increase across all four measures following RTWP participation, followed by females with a physical injury only. However females with a non-physical injury or illness had the lowest scores across the FMS, WHO-5 and RSA prior to commencing the RTWP. This indicates females with a non-physical component to their injury or illness generally had poorer health and wellbeing prior to attending SRC-B compared to other RTWP participants, however they also made greater improvements in their recovery.

Deeper analysis showed a substantial and significant relationship between pre-RTWP RSA score and successful retention, as well as smaller yet still significant associations between FMS score pre and post RTWP and WHO-5 score pre RTWP. This indicates that improvements in physical health attained at the RTWP does increase the probability of being retained within the ADF, however the biggest predictor of success is the level of resilience, psychosocial wellbeing and physical capacity prior to commencing the program.

These findings and their implications in aiding recovery and retention of complex WII ADF personnel is an important aspect informing discussion around the future direction of SRC programs. This may include earlier identification of suitable participants, different models of delivery in order to sustain improvements made during programs, and broadening delivery of SRC program concepts to a wider population to improve health and wellbeing across the trained force.

#### Biography:

*Major Jeff Kolka was appointed as a Physiotherapy Officer within the Royal Australian Army Medical Corps following graduation from Griffith University with a Bachelor of Physiotherapy/Bachelor of Exercise Science. He has fifteen years' experience across several countries supporting the recovery of injured and ill personnel in military and civilian environments. Through his experience Major Kolka has recognised the importance of the biopsychosocial approach to overall health and wellbeing in the prevention and*

management of physical and non-physical injury and illness.

Major Kolka is currently the SO2 Health at Headquarters 7th Brigade, where he manages health and wellbeing initiatives across the Brigade. Major Kolka and was previously the Officer-in-Charge of Soldier Recovery Centre – Brisbane.

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### Health Strategy Office - Baseline Report and Benefits Framework

Pahlia Kenny<sup>1</sup>, Mr Payne Li

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The Baseline Report evaluates the alignment of activities within the Defence Health System to the ADF Health Strategy (the Strategy). Prior to the Baseline Report, there was no centralised platform that provided an enterprise wide view of alignment to the ADF Health Strategy. Once finalised, the Baseline Report can be leveraged to inform with enterprise wide decisions and Commander's intent.

Central to the methodology of the Baseline Report, is the strategic alignment score which is also indicative to the strength of activity alignment to the Strategy. The strategic alignment score is comprised of 4 factors: strategic alignment strength, stakeholder impact, organisational criticality and benefits impact. Holistically, these 4 factors combine to form a strategic alignment score out of 4. Currently, this scoring has been leveraged to inform the prioritisation of high priority initiatives across the Health domain. An example is the ADF Family Health Program which is rated as a Tier 1 initiative as it has a strong alignment to the Strategy, high benefit-to-cost value, medium organisation criticality, and medium stakeholder impact, yielding a score of 3.2 out of a maximum of 4.

The baseline report ultimately provides a framework to benchmark how activities across the Defence Health System are progressing and/ or assess ongoing requirements to readjust productivity in line with the Strategy's objectives. This report provides a holistic understanding of how the ADF Health Strategy is being implemented, informing key insights into the operations of the Defence Health System.

The Defence Health System Benefits Framework (the framework) provides a structured approach

to identify, define, manage and realise benefits that Health initiatives throughout the Defence Health System seek to achieve. There is currently no standardised structured methodology for the identification, definition, managing and realising of benefits across the Defence Health System. To assess initiative progress and ensure alignment to the ADF Health Strategy, the Benefits Framework was created to provide guidance on tracking benefits in line with the Strategy. The framework was developed by leveraging the Defence Transformation Office Defence Benefits Management Framework and Toolkit, released in September, 2021.

The framework provides leading practice tools and templates, which can be used to define Benefits, Measures and metrics for projects and initiatives within the Defence Health System. It is underpinned by 8 key principles and the ADF Health Strategy, ensuring that benefits are both aligned with the Strategy and contribute towards achieving the Strategy. Key principles of the framework include:

- SMART: Fundamental to metrics definition is the acronym – SMART (specific, measurable, attainable, relevant and timebound)
- Data: Data is leveraged throughout the measurement of a baseline metric, interim target, and a final target
- Realisation schedule: A realisation schedule can be used by initiative leads to periodically assess progress on benefits and associated metrics

The benefits framework provides a structured approach to assessing benefits and the extent to which a benefit has been achieved in line with the ADF Health Strategy.

#### Biography:

*Payne has extensive experience in complex business transformations. He has successfully delivered several large-scale projects and consulted on projects within various industries ranging from Healthcare to Power & Utilities. Payne current is partnering with Department of Defence include leading a Joint Health Command project on Benefits and baseline reporting, establishing a Benefits Management Framework along with providing procurement and commercial management support for defence materiel projects.*

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### Health Strategy Office - Continuous Improvement and Innovation

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*1 Australian Defence Force, Australia*

The Continuous Improvement and Innovation (CII) stream within the Health Strategy Office (HSO) is a new capability within Joint Health Command (JHC). CII is responsible for the delivery of end-to-end business improvement and innovation activities across JHC. CII aims to foster a continuous improvement culture within JHC and challenge and improve the productivity, efficiency and resilience of healthcare.

CII promotes and implements the use of the CII framework across JHC. Improvement ideas move through five distinct steps: (1) Idea Generation through Design Thinking, (2) Idea Assessment, (3) Idea Approval using program management office recommended processes, (4) Initiative Implementation using CI scoping tools to understand the problem and project management methodologies to implement prioritised solutions, and (5) Initiative Evaluation involving CII project benefits measurement and stakeholder impact validation.

This presentation will showcase a number of implemented joint CII initiatives with Bupa, as well as future improvement initiatives identified on the JHC CII register.

#### Biography:

*Jericho is an experienced continuous improvement manager with qualifications in business management (MBA), process engineering, and agile project management. Jericho led both strategic and BAULEAN continuous improvement projects in the automotive industry and eventually leveraged this experience to pivot into health continuous improvement / project management. He is currently the Deputy Director Continuous Improvement and Innovation of Joint Health Command.*

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### Health Strategy Office - Establishing the Program Management Office

Pahlia Kenny<sup>1</sup>

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Defence is committed to ensuring that its health system delivers world class health care to ADF members wherever they serve. To do this, Joint Health Command (JHC) has developed the ADF Health Strategy (Strategy) providing direction, ambition and approach to meet the health capability and service outcomes required over the next 10 year period (2020-2030). It also necessitates the assessment of the relevance and appropriateness of health-related program and project proposals across Defence. Additionally, it will guide resourcing decisions to ensure that activities (including business as usual activities) align with the strategic objectives of the Strategy. The Strategy was signed by the Chief of the Defence in March 2021.

The Health Strategy Office (HSO) has been established as a steward of the Strategy, helping to realise a Defence Health System (DHS) that is ready, responsive and resilient. The purpose of the HSO is to deliver agile, scalable and innovative solutions, learning operational lessons and identifying how best to adapt to pressures and challenges in contemporary and future operating environments, in alignment with the Strategy. The HSO is to provide the intelligence, strategic insights, analysis and governance required to ensure health-related initiatives are aligned and contribute toward Strategy realisation. This DHS transformation shifts JHC toward a command-responsive, member-centric and operationally focused health care model. The HSO acts as a conduit between the ADF Health Select Committee (HSC) of the Defence People Committee and Services and Groups. The HSC's role is to set the strategic direction for the DHS to align with the capability requirements of the ADF. The HSO assists to provide the HSC with information needed to facilitate decisions on the appropriate balance and priority of health project and programs across ADF, and ensures initiatives align with the Strategy.

An opportunity was identified to increase capability in project management and governance as well as provide support to JHC to align project outcomes to the Strategy. Furthermore, there has been unrealised opportunity for project teams to collaborate and synergise with each other to support positive outcomes. The HSO is establishing a Program Management Office (PMO) to realise these opportunities and provide decision support and visibility to the JHC Executive Board. The PMO will produce a view on how programs and projects within JHC are being

governed and delivered in line with the Strategy. As well as this, the PMO will be responsible for defining and managing application of standardised processes, procedures and documentation within JHC as well as supporting project management capability uplift, through training and project management template development.

The proposed presentation will aim to generate an understanding and inform conference attendees about the approach to rolling out the Strategy, the benefits and functionality of the PMO and the lessons learned in the process of establishing the PMO.

### Biography:

*Pahlia has extensive experience in complex business and health transformations. She has led on a number of global, national, state-wide and local projects within various industries ranging from Healthcare to Industrial Strategy, receiving United Nations and Order of the British Empire recognition. Pahlia is currently partnering with Department of Defence including leading on a Garrison Health Smarter Service Delivery program, establishing a Program Management Office for Joint Health Command and developing Strategic Communications and Engagement strategies.*

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## Improving paediatric care in conflict zones: Thematic review of published literature

Dr Kevin McCaffery<sup>1</sup>

<sup>1</sup> Queensland Health, Brisbane, Australia

### Aim

Provision of care to ill or injured children in conflict zones by military healthcare resources is regulated by rules of entitlement, commonly with the intention of preserving life, limb, or vision. A review of recent literature was undertaken to quantify the scope of such intervention.

### Introduction

As the nature of armed conflict has evolved over time in response to geopolitical factors and technological advances, civilians – including children – now comprise the vast majority of casualties. While children in conflict zones frequently suffer extreme morbidity, complexities such as local healthcare infrastructure degradation, constraints on the safe

deployment of humanitarian organisations and the obligations imposed by International Humanitarian Law ensure that a proportion of paediatric care must invariably be met by military health services.

Major General John Pearn, distinguished paediatrician, and former Surgeon-General to the Australian Defence Force (ADF), published extensively over three decades on the paediatric consequence of armed conflict and terrorist action. His advocacy included many case presentations detailing critical aid rendered to injured children by the ADF across numerous deployments.

Given the passage of time, heightened geopolitical tensions and active conflict in Ukraine and elsewhere it seemed timely to review published literature to quantify the scale, scope and nature of care deployed ADF members at all tiers of healthcare provision may be required to deliver. This data will establish a baseline against which to evaluate ADF experience and may identify opportunities for capability improvement.

### Methods

PubMed, Clinical Knowledge Network and Google Scholar were searched using combinations of the following keywords: children, pediatric, paediatric, conflict, war, trauma, Iraq, Afghanistan, and Syria. Identified studies had their reference list searched for additional relevant studies.

Studies were considered for inclusion if they were primarily paediatric, described illness and injury patterns occurring in active conflict zones and detailed management provided by military forces. Reports from humanitarian aid or disaster relief deployments were excluded.

### Results

Sixteen studies meeting the above criteria were selected with the intention of providing a broad overview of the topic. Reports from Iraq and Afghanistan predominated, though one study included data from Syria, Mali, the Central African Republic, and Chad.

Key findings included:

- Children comprised approximately 11% of total admissions but accounted for a greater percentage of bed-days and procedures. All age groups were encountered, and all tiers of care provision were involved.
- Blast injuries and penetrating trauma predominated. Blunt trauma and burns were less common.
- Oxygen administration and vascular access were the commonest interventions, though

some studies identified potential suboptimal management related to procedural difficulty.

- Survival rates in the 90-98% range were reported.
- Reports used a range of databases with no overarching standardisation of dataset.
- Studies frequently concluded a need for improved paediatric-focused training, experience, and equipment.
- Coalition partners have identified and implemented measures to improve paediatric care through enhanced training, equipment, and access to specialised expertise.

### Discussion

Children present commonly to all tiers of military healthcare capability, with bed-days and procedures-per-patient exceeding those required by adult civilians and combatants. Patterns of injury differ from those typically seen in combatants, and from that encountered in civilian practice.

A lack of standardisation of datasets hampers rigorous analysis of the topic. Additionally, failure to capture key metrics leads to distortion of some critical outcomes.

Improving paediatric capability is a common theme in the literature. Recognising this, both the United States and the United Kingdom have already implemented measures including improved training, provision of appropriate equipment and drug formularies, access to specialised paediatric assistance via telemedicine and in some cases deployment of qualified paediatric staff.

### Biography:

*Kevin is a Paediatric Intensive Care Specialist based full-time in the Queensland Children's Hospital, Brisbane.*

*After graduating from Aberdeen University, initial training as a Paediatrician was followed by subspecialty accreditation in Paediatric Intensive Care medicine in both the UK and Australia.*

*Longstanding interests in healthcare delivery in austere and extreme environments led to the completion of a Fellowship in Wilderness Medicine and more latterly in joining the Australian Defence Force as an Army Reserve officer.*

*Current research interests revolve around improving the care of patients of all ages in medically austere environments.*

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## Improving respiratory support in combat zones and other medically austere environments: The McCaffery circuit

Dr Kevin McCaffery<sup>1</sup>, Coll McCaffery<sup>2</sup>,  
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<sup>4</sup> CSIRO, Brisbane, Australia

### Aim

To develop a simple, efficacious non-invasive respiratory support device designed for use in medically austere environments.

### Introduction

Hypoxaemia in combat zones typically involves lung injury from blunt or penetrating trauma from any cause or directly from blast overpressure.

First-line management involves the provision of supplemental oxygen to breathing patients. However, optimal management would utilise positive end-expiratory pressure (PEEP) once pneumothorax is excluded or adequately managed.

Desirable features of a device designed for use in medically austere environments, including combat zones, would comprise: efficient provision of variable fraction inspired oxygen (FiO<sub>2</sub>) up to high concentrations; provision of reliable, titratable PEEP; simplicity of use; modularity (utilising commonly available parts and with the ability to replace components or reuse after cleaning); broad applicability across age groups; low weight and bulk; low cost.

This study aimed to develop a respiratory support device with the above characteristics.

### Methods

A rapid prototyping methodology generated six manifold variants which accepted standard respiratory circuit components to construct a Mapleson C-variant breathing circuit. Manifolds were 3D printed by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and subjected to a human-factors-based review process.

The most capable variant (Prototype 5) proceeded to clinical pilot study testing.

Following Institutional Ethics committee approval, the circuit was evaluated in ten healthy volunteers breathing quietly at rest. Oxygen inflow (0, 3, 5, 10, 15L/min) was varied every ten minutes in a randomised order with the volunteer blinded to gas flow rate. Continuous monitoring comprised respiratory rate, FiO<sub>2</sub>, end-tidal CO<sub>2</sub>, transcutaneous pCO<sub>2</sub> (TCpCO<sub>2</sub>) and SaO<sub>2</sub>. The first two minutes on each gas flow allowed equilibration to the new baseline, with values recorded every minute for the final eight minutes. The protocol was undertaken twice, once with a 0.5L reservoir and once using a 1L reservoir bag, again in randomised order.

### Results

The McCaffery circuit delivered increasing FiO<sub>2</sub> with increasing oxygen inflow, up to 91.5% at 15L/min oxygen flow with a 1L reservoir bag. At any given oxygen flow, FiO<sub>2</sub> using a 1L reservoir exceeded that provided by a 0.5L reservoir configuration. Volunteers breathing from a 1L reservoir circuit demonstrated small but statistically significant increased transcutaneous partial pressures of carbon dioxide (TCpCO<sub>2</sub>) under conditions of no oxygen inflow up to inflow rates of 10L/min when compared to breathing on a 0.5L reservoir circuit. TCpCO<sub>2</sub> did not significantly increase at any gas inflow rate throughout the study period. The complete circuit weighs 135g, has a packaged size of 15x12x10cm and costs less than \$20 (excluding reusable 3D printed manifold).

### Discussion

The McCaffery circuit met the desired design characteristics and functioned safely and efficaciously in the pilot study. Though not explicitly examined in this study, the circuit is capable of considerable sophistication in respiratory support with simple bedside modification, allowing variation in the duration of PEEP applied in expiration, augmenting FiO<sub>2</sub> deliverable and rendering the device suitable for use in children. Future studies aim to quantify device operating characteristics definitively.

### Biography:

*Kevin is a Paediatric Intensive Care Specialist based full-time in the Queensland Children's Hospital, Brisbane.*

*After graduating from Aberdeen University, initial training as a Paediatrician was followed by subspecialty accreditation in Paediatric Intensive Care medicine in both the UK and Australia.*

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*Current research interests revolve around improving the care of patients of all ages in medically austere environments.*

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## Introducing the Health Strategy Office

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Defence is committed to ensuring that its health system delivers world class health care to ADF members wherever they serve. To do this, Joint Health Command (JHC) has developed the ADF Health Strategy (Strategy) providing direction, ambition and approach to meet the health capability and service outcomes required over the next 10-year period (2020-2030). It also necessitates the assessment of the relevance and appropriateness of health-related program and project proposals across Defence. Additionally, it will guide resourcing decisions to ensure that activities (including business as usual activities) align with the strategic objectives of the Strategy. The Strategy was signed by the Chief of the Defence in March 2021.

The Health Strategy Office (HSO) has been established as a steward of the Strategy, helping to realise a Defence Health System (DHS) that is ready, responsive and resilient. The purpose of the HSO is to deliver agile, scalable and innovative solutions, learning operational lessons and identifying how best to adapt to pressures and challenges in contemporary and future operating environments, in alignment with the Strategy. The HSO is to provide the intelligence, strategic insights, analysis and governance required to ensure health-related initiatives are aligned and contribute toward Strategy realisation. This DHS transformation shifts JHC toward a command-responsive, member-centric and operationally focused health care model. The HSO acts as a conduit between the ADF Health Select Committee (HSC) of the Defence People Committee



and Services and Groups. The HSC's role is to set the strategic direction for the DHS to align with the capability requirements of the ADF. The HSO assists to provide the HSC with information needed to facilitate decisions on the appropriate balance and priority of health project and programs across ADF, and ensures initiatives align with the Strategy.

The HSO focuses its effort into three key workstreams; strategic advisory, transformation and continuous improvement and innovation (CII). The strategy workstream includes activities such as initiating and developing long term strategy and driving critical strategy programs or projects that will deliver significant benefit. Transformation involves coordinating decision making and helping to manage the program with governance bodies. The CII stream involves providing intelligence on emergent strategy and embeds a learning/continuous improvement culture across the organisation.

This poster will be useful to inform conference attendees about the Strategy, the benefits of the HSO and the work that is ongoing in realising the Strategy through the HSO. It will provide background to why and how the HSO was established and the role it plays in realising the Strategy. It will also detail the various functionalities of the HSO as well as articulate the objectives and how HSO will achieve them.

### Biography:

*Anika has comprehensive experience in design and marketing, and, workshop facilitation for the public and private sectors. Anika has worked on numerous projects within the NGO and human services sector, creating communication artefacts using a human centred design approach. Anika is currently engaged with the Department of Defence as a Lead Communications officer, developing strategic communications for the Health Strategy Office - an office created to provide strategic insights and execute the ADF Health Strategy - as part of Joint Health Command.*

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## Investigating the effects of martial arts-based breath-control training on respiratory muscle fatigue, spinal compression and pelvic floor dysfunction during heavy load carriage

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2 Martial Arts Research and Testing Laboratory, Toowoomba, Australia

3 School of Medicine and Dentistry, Griffith University, Gold Coast, Australia

4 School of Human Movement and Nutrition Sciences, The University of Queensland, Brisbane, Australia

5 Discipline of Sport and Exercise Science, Faculty of Health, University of Canberra, Bruce, Australia

Military personnel are regularly required to carry heavy loads on their bodies during training and operations. These loads have increased over time and the average load carried by soldiers engaged in international conflicts is now close to 50 kg. Heavy loads place increased strain on muscles and skeletal structures, often leading to fatigue and injury.

The representation of women in the military is currently increasing, and female soldiers have a higher risk of serious injury during heavy load carriage compared to male soldiers. Heavy load carriage places increased downward pressure on the pelvic floor. This may result in an increased risk of pelvic floor dysfunction in women in military occupations, and 30% of active-duty female soldiers reported urinary incontinence in a self-administered questionnaire.<sup>1</sup>

Previous research has demonstrated that heavy loads carried on the trunk result in impaired respiratory function and lead to fatigue of the respiratory musculature including the diaphragm. Intra-abdominal pressure acts to support postural control and stabilise the spine, and is generated and constrained by the diaphragm, pelvic floor and abdominal musculature. The back is the leading site of load carriage-related injuries, with the greatest prevalence of injuries occurring in the lumbar region.<sup>2</sup> This high occurrence of injury in the lumbar region during heavy load carriage may be a result of fatigue and reduced function of the diaphragm and pelvic floor musculature, leading to reduced levels of intra-abdominal pressure and increased compression of the spine.

Inspiratory muscle training has been found to improve heavy load carriage performance. However, studies have not shown a reduction in diaphragmatic fatigue following heavy load carriage after inspiratory muscle training interventions. Due to the significant role that the diaphragm plays in the generation of intra-abdominal pressure to support and stabilise the trunk during heavy load carriage, interventions which target the control and generation of intra-abdominal pressure may have additional benefits beyond inspiratory muscle training alone.

Breath-control training, which is a component of martial arts training, may provide a greater stimulus than inspiratory muscle training to improve diaphragm strength and endurance due to its functional, whole-body nature. An investigation performed at our laboratory compared a group of nine trained martial arts practitioners with nine untrained controls to determine their ability to produce and resist forces close to their body and the associated levels of intra-abdominal pressure, pressure in the thoracic cavity and neuromuscular activation. We found that the trained martial arts practitioners produced and resisted higher normalised forces, produced higher levels of intra-abdominal pressure with respect to pressure in the thoracic cavity, had an earlier onset of intra-abdominal pressure with respect to the onset of force produced or resisted, and had greater activation of the group formed by the transverse abdominal and internal oblique muscles and the diaphragm.<sup>3</sup> These findings indicate that martial arts training may result in an improved ability to generate and control intra-abdominal pressure to aid in force production and stabilisation of the spine.

This presentation will introduce current research, including methodology and preliminary findings, investigating whether a program based on traditional martial arts-based breath-control training can improve force production and reduce spinal compression, diaphragmatic fatigue and pelvic floor dysfunction during heavy load carriage in military personnel.

### Biography:

*Mrs Sherrilyn Walters is a PhD candidate at the University of Southern Queensland (UniSQ) and co-founder of the Martial Arts Research and Testing Laboratory in Queensland. Mrs Walters completed her Master of Science (Research) at UniSQ on the control of respiratory pressures and neuromuscular activation to increase force production in trained martial arts practitioners. Her current PhD project involves investigation of the effect of martial arts-based breath-control training on the control and utilisation of intra-*

*abdominal pressure to reduce spinal compression and pelvic floor dysfunction during heavy load carriage, and improve force production in military personnel. Mrs Walters also owns and runs the Chinese Martial Arts and Health Centre Australia with her husband, and has been practicing traditional martial arts for nearly 20 years. Her research interests involve exploring the physiological mechanisms involved in traditional martial arts training and the practical applications of this training to improve performance, health and safety in physically demanding occupations.*

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## JP2060-3: The Deployable Health Support Centre. A facility to sustain the Australian Defence Force (ADF) Deployable Health Capability

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No consent to publish abstract

### Biography:

*Major Jesenkovic was appointed as Regimental Sergeant Major of the 1st Health Support Battalion; Army School of Administration and Health; Army Logistic Training Centre; and as the Regimental Sergeant Major Joint Ceremonial Central Region. He has had postings as an Instructor at the Warrant Officer & Non-Commissioned Officers Wing, Canungra and was appointed as the Command Sergeant Major - Training, Forces Command since 2014. He has held the appointment as the Regimental Sergeant Major of the Royal Australian Army Medical Corps and was commissioned in 2018 and conducted the role as ADF Senior Officer at International Policy Division prior to his current position as SO2 JP2060 Phase 3, Deployable health in 2020.*

*Mrs. Amany Wahba trained and worked as a Medical Laboratory Scientist for 10 years in the areas of haematology, biochemistry and transfusion medicine in private pathology in Melbourne. She has held sales and diagnostics management roles within the scientific industry for 20 years and now works for Saab Australia as the Sales Director for Medical Solutions. Her current role is to provide support for the deployable health capability project JP2060- phase*

*3 and managing the strategic framework for Saab's Centre of Excellence to help promote Australian Industry Capability.*

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### Old wine in new bottles: A fresh approach to medical readiness

Major Peter Zimmermann<sup>1</sup>, Lieutenant Colonel Trent Kirk<sup>1</sup>

*1 1st Health Battalion, Australian Army, Darwin, Australia*

#### Introduction

Medical readiness is complex. It is complicated by circular, confusing and at times contradictory policy frameworks. Providing clarity on 'who needs to be ready; and what they need to be ready for' is key to achieving medical readiness.

This article demonstrates the utility of a series of tools developed by 1 HB to convert data within Defence e-Health System (DeHS) reports into understandable and actionable information at the command, formation, unit, and individual level. They replace the manual interrogation of DeHS of 10-20 minutes per person; with industrial scale that can generate individual and collective data for the entirety of Army in an hour.

#### Background

At its core, baseline medical readiness is defined as a combination of: Military Employment Category (MEC); Dental Fitness Class (DFC); and Service-specific baseline vaccinations. Additional requirements for specific contexts are identified in respective Health Support Orders.

PMKEYS individual readiness (IR) is the only tool to communicate readiness to commanders. Analysis demonstrates a significant mismatch between PMKEYS readiness and actual medical readiness due to IR only utilising MEC and DFC.

The current process to achieve medical readiness is passive. It relies on self-identification, opportunistic engagement, or – in most cases – last minute remediation during force preparation. This leads to surging workforce requirement, confusion and higher risk for error that is compounded by inefficient means of analysing and communicating individual and collective medical readiness.

#### Data

Sampling conducted by 1HB over the last twelve months has revealed that the problem of medical readiness is twofold. Firstly, and primarily, it is a problem of data integrity within DeHS. Secondly, it

is a problem of absent readiness measures. Of those members reporting as not baseline ready, three data sets reveal themselves:

- a. absent data (false negative – requires data remediation to fix),
- b. incorrectly entered data (false negative – requires data remediation to fix), and
- c. correct data (true negative – requires medical readiness measures to fix).

Initial analysis indicates that greater than 80% of those members reporting baseline 'not ready' are false negatives. Using this analysis, targeted and proactive data remediation for the false negatives, coupled with active medical readiness measures for the true negatives will provide a path to achieving greater actual and reported medical readiness across the ADF. Further, it is likely that the efficiencies created in communicating and remediating this information will create capacity in Joint Health Command. This will benefit both readiness and care models.

#### Analyse, Engage, Organise, Deliver

It is proposed that remediation of medical readiness can be achieved via a period of analysis, engagement, organisation and delivery.

- a. Analyse. This is the tools primary purpose. It provides proactive analysis that enables rapid, force wide analysis, essentially industrialising the process. It then transforms data into actionable information via collective and individual feedback.
- b. Engage. Deliberate engagement between Services and JHC will achieve a collaborative approach to directed readiness.
- c. Organise. Using the analysis from above, JHC can undertake targeted data remediation of false negatives.
- d. Deliver. True negatives are remediated through medical action, supported by command directed priorities. The 1HB tools can be used to determine the workforce requirements to achieve this.

#### Conclusion

Medical readiness is a composite of MEC, DFC and vaccination requirements. The current process for calculating and communicating medical readiness is passive, mandraulic and inefficient. The 1 HB Medical Readiness Tool can analyse data from within DeHS on any scale to communicate medical readiness and turn the data into actionable information. Fixing medical readiness requires data remediation and

delivery of medical services. Through analysis, engagement, organisation and delivery, medical readiness can be dramatically improved across ADF.

### Biography:

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*Major Zimmermann is currently the Senior Medical Officer of 1 HB. He was appointed to the RAANC in 2001 as a Nursing Officer. He subsequently completed his medical degree and transferred to the RAAMC as a Medical Officer. He has served with 8 CSSB, 1 HSB, 1 CSSB, 7 RAR, the Army School of Health, 1 CHB and 1 HB. He has performed numerous clinical, instructional, administrative and command roles.*

*Lieutenant Colonel Kirk B. Pharm, MPH, MBus, M Mil & Defence Studies*

*Lieutenant Colonel Kirk is the Commanding Officer of the 1st Health Battalion. He has completed postings at the 1HB, 1 CSSB, DMO, JHC, 1 CHB, HQ 7 BDE, US Army Medical Department Center and School, CMA and HQ 1 BDE. Lieutenant Colonel Kirk completed Australian Command and Staff College in 2019 as a distinguished graduate and is a graduate of the United States Army Medical Strategic Leadership Program.*

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## The Australian Defence Force Health Strategy – A Pathway to a Ready Responsive and Resilient Defence Health System

Lieutenant Colonel Fred Parker<sup>1</sup>

*1 Joint Health Command, , Australia*

The Australian Defence Force (ADF) Health Strategy (the Strategy) is a little over a year old. Much has happened over that period; the pandemic and associated response, uncertainty in the geopolitical world, regional and global security and stability issues, rising user expectations and increasing financial pressures. These are some of the drivers that will influence how the ADF and its health services operate in across the spectrum of cooperation, competition and conflict.

The Defence Health System (DHS) must display agility in adapting to the strategic environment and meeting Government priorities. The Strategy is our

response to the challenge of delivering world class health care to our people wherever they serve.

Over the next decade, Joint Health Command will lead a collaborative effort across the services, groups, health partners, industry and academia to deliver the Strategy. This will require a united approach to align the breadth of work undertaken across the enterprise to enable ADF capability through a joint health effect.

Covering multiple dimensions from research, policy, service delivery, capability and operations, the Strategy's scope encompasses health effects across the entire care continuum of Defence members from recruitment, training, deployment and transition from service.

Six interconnected pillars form the foundation of the Strategy. Supporting the pillars are seven enabling functions which, when combined with the pillars, provide a road map that will guide the custodians of the Defence Health System to prioritise and harmonise delivery of health effects.

The DHS relies on connectedness and shared responsibility. This means that members are empowered to manage their own care; Service chiefs are responsible for the health and wellbeing of their members; and the Services, Joint Operations Command and Joint Health Command (JHC) deliver care, regardless of where the member serves. This partnership between individuals, command and health elements enables a proactive DHS.

The first half of 2022 created an opportunity for JHC to breath, look back at its significant achievements, enduring and emerging challenges and focus on what is needed looking out to 2030. The result was a refresh of Strategy.

The review confirmed that the Strategy remains relevant and fit for purpose, but would benefit from adjustment to strategic objectives across horizons 2 and 3.

The ADF Health Strategy provides the direction, ambition and approach to meet directed health capability and service outcomes now and into the future. It will ensure we deliver a DHS that is ready, responsive and resilient.

### Biography:

*Lieutenant Colonel Fred Parker is a General Service Officer within the Royal Australian Army Medical Corps. On completion of university in Sydney he graduated as a Registered Nurse. Following a few years employed in acute care environments, he joined the Army 'just to have a look'. Over the last*

28 years, he has undertaken variety of appointments across all military environments. He is currently the Deputy Director, Health Strategy Office at Joint Health Command.

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### The curious case of the PCCM and the missing Medical Technician protocols

Major Peter Zimmermann<sup>1</sup>, Warrant Officer Class One Robert Cuttler<sup>1</sup>, Warrant Officer Class One Christopher Owen<sup>2</sup>

<sup>1</sup> 1st Health Battalion, Australian Army, Darwin, Australia

<sup>2</sup> 4th Health Battalion, Australian Army, Townsville, Australia

#### Introduction

The Primary Care Clinical Manual (PCCM) was adopted by the ADF in 2012. For ADF Medical Technicians (Medics), this replaced the Advanced Medical Assistant Emergency Manual. There were many good reasons for this transition, chief amongst these was the ability to curate and maintain its own high-quality, evidence-based clinical guidelines.

The ADF determined that ADF Medics would operate under the Isolated Practice Area Paramedic (IPAP) Health Management Protocols (HMP). The election by the ADF not to identify ADF Medics as a separate entity within the PCCM, despite their very unique training and skill set, has had lasting ramifications. This article will identify key issues and will propose courses of action to provide certainty about the capability and Scope of Clinical Practice (SoCP) of ADF Medics.

#### Half the equation

The PCCM was developed for the delivery of primary health care in rural, remote, and isolated contexts by clinical groups who do not normally practice independently. For paramedics however, the PCCM is an extended SoCP manual. It adds to the core clinical practice documents of Queensland Ambulance Service (QAS) paramedics: Clinical Practice Guidelines (CPG), Clinical Practice Procedures and Drug Therapy Protocols (DTP).

This is reflected in the very deliberate absence of IPAP from some PCCM HMP. This ensures QAS paramedics only utilise one DTP for their pharmacological options, providing obvious safety and quality benefits.

The impact for ADF Medics is that several key PCCM HMPs are not available to them. This poses

significant risk to ADF capability and is highlighted by the following two examples:

1. PCCM HMP – Anaphylaxis adult / child (p82). IPAPs are not authorised to administer adrenaline. This is because QAS paramedics would administer as per QAS DTP Adrenaline and the QAS CPG Anaphylaxis.

Note that an IPAP may administer hydrocortisone after consulting a Medical Officer or Nurse Practitioner. This is due to hydrocortisone being an extended SoCP.

2. PCCM HMP – Acute Pain adult / child (p.32-40). IPAPs are not authorised to administer methoxyflurane, morphine or fentanyl. QAS paramedics would administer these as per the relevant QAS DTPs and QAS CPG Pain Management.

Some of these issues have been recognised by the ADF since introducing the PCCM. Many have not been successfully addressed or remain unknown. This lack of clarity is because neither Queensland Health nor the ADF publish a clear craft group summary of SoCP based on PCCM HMPs and CPGs.

#### Military context

Compounding this issue is that the PCCM does not meet all of the operational requirements of military clinicians. This has resulted in the development of a number of supplementary documents such as TCCC guidelines, CBRN and Army DTPs.

These in turn create confusion as to when they are applicable and how they complement the PCCM. Specific examples would be differences in TXA dosage and needle thoracocentesis anatomical landmarks.

#### Solutions

We propose the following as potential solutions to remediate this situation:

1. Add an appropriate term to identify ADF Medic within PCCM HMP nomenclature to make it a core practice manual.
2. Develop a Military Medicine chapter to specifically address the practice of military medicine in operational contexts.
3. Develop a SoCP matrix for each ADF clinical group that clearly maps HMPs, DTPs and other CPGs
4. Consider an alternate clinical practice manual without these issues such as the CARPA Remote Primary Health Care Manuals.

### Conclusion

Military medicine is complex and chaotic. To empower ADF Medics to provide consistent, safe, and high-quality health care - clear communication is required. A single, complete clinical reference adapted for the range of military contexts will provide clarity, and give confidence to, our ADF Medic workforce.

### Biography:

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*Major Zimmermann is currently the Senior Medical Officer of 1 HB. He was appointed to the RAANC in 2001 as a Nursing Officer. He subsequently completed his medical degree and transferred to the RAAMC as a Medical Officer. He has served with 8 CSSB, 1 HSB, 1 CSSB, 7 RAR, the Army School of Health, 1 CHB and 1 HB. He has performed numerous clinical, instructional, administrative and command roles.*

*WO1 Cuttler WO1 Cuttler is currently the Senior Medical Technician of 1 HB. He has served with 1 CSSB, 8/12 MDM REGT, Army School of Health, 2 HSB, 2 CAV REGT, 1 CHB, NORFORCE, EC&TD Gp, ASLO, SCMA and 1 HB where he has performed numerous clinical, instructional and staff roles.*

*WO1 Owen WO1 Owen is currently the Senior Medical Technician for 4 HB. He enlisted in 1998 as a Medical Technician and has completed a range clinical and instructional posts serving in the following units: JHC, 3 RAR, 6 RAR, ASH, EC&TD 1 HSB, SOI, 1 CHB and 4 HB. WO1 Owen has served as a Medical Technician on numerous international and domestic operations.*

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## The operationalisation of clinical credentialing: a command led, clinically informed approach to capability in 1 HB

Major Peter Zimmermann<sup>1</sup>, Major Rohan Kain<sup>1</sup>  
*1 1st Health Battalion, Australian Army, Darwin, Australia*

### Introduction

Critical to governance and assurance is a robust clinical credentialing system. All ADF personnel who deliver health effects are required to undergo regular credentialing. We argue that current approaches to credentialing lack an operational focus, particularly in the pre-hospital environment. Credentialing

should enable operational capability, which requires Command engagement, decision and delivery.

This article presents the actions taken by the 1st Health Battalion (1 HB) to transform its clinical credentialing system to refocus on military capability and mission success. The premise of the 1 HB credentialing system is that it is more than just clinical readiness or a retrospective box ticking process. It is a health capability management process that is command led, technical chain informed, data driven, and future focussed.

### The 'Why'

It is important to understand the why in order to develop logical, coherent systems. Quite rightly, credentialing has sought to adopt contemporary civilian practices; however, has lacked rationalisation, adaptation or contextualising to the operational environment.

Military purpose. Accepting that 'health is not the mission' (usually) provides the impetus to refocus thinking to ensure combat power and tempo is maintained. Through the lens of military purpose, Commanders and clinicians are empowered to make sound military decisions. This also enables reflection on where health may be constraining combat operations in an attempt to achieve optimal over suitable.

Command led. In a military context, the responsibility for the delivery of safe, high-quality healthcare rests with the Commanding Officer. Clinicians provide options for command decision, and through credentialing, inform a part of readiness and capability. As a whole, military health capability is greater than just credentialing, and requires an appreciation and management of tempo, tasking, training and resources – key command responsibilities.

Outcomes focused. After analysis of extant ADF policy and contemporary civilian practices, we have formed the view that clinical credentialing of military clinicians distils into four components:

- a. Verification of qualification / knowledge / skill.
- b. Endorsement of an individualised Scope of Clinical Practice (SoCP).
- c. Assurance of suitability for employment within specific roles of the Combat Health Operating System (CHOS), including supervision requirements.
- d. Development of agreed individual learning plans to maintain readiness to deliver health effects as part of the Combat Health Operating System (CHOS).

### **The 1 HB system**

Through understanding the why, 1 HB developed a new credentialing system that matches the purpose and required outcomes. This process culminates in the six-monthly Credentialing Board of Study.

By empowering Commanders with information that is capability focused, they are able to seek resources, manage tempo, and professionally develop their personnel. They are better able to ensure that the right individuals and teams are assigned to tasks to achieve the required health effect.

This system empowers individual clinicians through engagement and reflection on their professional development. It clearly communicates 1 HB's requirements of them as military clinicians – not just health professionals

Digital efficiency. The 1 HB system leverages the power of computers to gain significant efficiencies and eliminate the divergent truths that exist in the innumerate spreadsheets managed across health. Gone are the laborious 19th century mandraulic, paper-based processes. PMKEYS is the single source of truth. Further efficiencies are possible through adopting digital pathways to access and then batch upload data en masse.

### **Conclusion**

The 1 HB system is centred on a shift in thinking regarding clinical governance from a staff-led, retrospective analysis to a command-led, future focused process. This re-imagining enables capability, supports endorsement of individual SoCP and facilitates development of individualised professional learning plans. The operational focus paired with increased transparency and quality of data has improved assurance both tactically and strategically.

### **Biography:**

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*Major Zimmermann is currently the Senior Medical Officer of 1 HB. He was appointed to the RAANC in 2001 as a Nursing Officer. He subsequently completed his medical degree and transferred to the RAAMC as a Medical Officer. He has served with 8 CSSB, 1 HSB, 1 CSSB, 7 RAR, the Army School of Health, 1 CHB and 1 HB. He has performed numerous clinical, instructional, administrative and command roles.*

*Major Kain B Ed*

*Major Kain is currently the Operations Officer of the 1st Health Battalion. He graduated from the Royal Military College – Duntroon in 2012 to the Royal Australian*

*Army Medical Corps and has subsequently completed postings to 1 HB, RMC-D, HQ JOC, 1 RTB and 1 CHB, performing a mixture of command, instructional, operational planning and administrative roles.*

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## **The ReVive Ketamine Program – Addressing Gaps in Military and Veteran Psychiatry**

Dr Alexander Lim<sup>1</sup>

*1 Zedthree Medical Group, Canberra, Australia*

Over the last four decades, more than 1200 Australian Defence Force veterans and serving personnel have died by suicide. While psychiatric treatments are available, their efficacy in these populations, that is, those with Treatment Resistant (TR-) Depression, PTSD and Suicidality are extremely low. Psychological therapies are seen to have significant rates of partial response and drop out, and pharmacological treatments including SSRI's produce small effect sizes. More recently, research has suggested efficacy for using Ketamine treatment in psychiatric populations due to its enhancement of neural connectivity. Hence, the ReVive Ketamine Program offers an innovative approach to address this clinical gap in the treatment of TR- PTSD, Depression and Suicidality in Military and Veteran populations. Since 2019, over 130 current serving personnel and Veterans who have been screened as suitable have received intravenous Ketamine infusions in a medical-surgical hospital under the eye of nurses, anaesthetists, GP's, psychiatrists and psychologists. Baseline and ongoing data including inflammatory markers, neuroendocrine and psychometrics have been tracked over these infusions providing us with the largest longitudinal data set on Ketamine treatment for psychiatric diagnoses in Military and Veteran populations. The program aims to now engage with clinical research and international trials to identify possible blood-based biomarkers and neurological fingerprints (structure and function) in the brain associated with response to Ketamine treatment. Fully funded by the Department of Veteran Affairs and Bupa, and with pending DDVA HREC approval, results will be analysed to support the advancement of precision psychiatry. With now over 2000 infusions performed, the ReVive Ketamine Program provides hope for those current serving personnel and Veterans with TR- Depression, PTSD and Suicidality.

### Biography:

*Dr. Lim is a Consultant Psychiatrist in Psychotraumatology and the Chief Medical Officer of the Zed3 Medical Group, which includes the ReVive Ketamine program and multidisciplinary centre with specialists in Paediatrics, Nursing, Psychiatry and Psychology. His main responsibilities are to develop and maintain an evidence-based approach for the centre which has resulted in the construction of an integrative model of administrative and clinical care for current and former serving Military members and Emergency Services.*

*Dr. Lim's main area of research interest is in 'Next Step Treatments' where conventional psychotherapeutics have failed to produce functional gain. His current investigation is in the area of ketamine augmented by an integrated multidisciplinary approach. Zed3 Medical Group started the ReVive Ketamine Program which has been ongoing in clinical delivery since November 2019. Dr. Lim leads the ReVive Ketamine program which brings together a number of core disciplines for the safe delivery of the medication, and supported by a collaboration of domestic and international experts from well-known institutions including UQ, Yale, Baylor and ESTSS. On the basis of excellent patient care, attention to safety protocols, interdisciplinary work with Physicians, and exceptional patient outcomes, Dr Lim has been invited to brief several senior clinicians and ministers.*

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## Vector Surveillance and its application in the Australian Defence Force – does it have a Future?

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Maintaining the health of Defence personnel is at the core of every member in every department of Military Medicine. This is no different for the strange few amongst us, who have chosen a path of Vector-Borne Disease Research in which to dedicate our careers. So often have our fellow serving members raised their eyebrows in disbelief when we explain that we were employed within defence to operate as

an entomologist or a parasitologist. During moments of self-reflection, we often ask ourselves if scientific research in the ADF has its place now and into the future and how do we sell our specialty to the younger generation to ensure continuity in our profession in the ADF. During this presentation, we will share our experiences as research scientists within the ADF and discuss our true belief of its applicability into the future not only as a means of Force Health Protection, but also as capacity builders for our nearest allies.

ADFMIDI currently has projects to undertake vector-borne disease surveillance in PNG, Sabah in Malaysia and potentially a new project in Timor-Leste in the near future. ADFMIDI also partners with the US-DOD to trap mosquitoes on ADF training areas where US troops regularly deploy on exercises. Currently, capacity building with neighbouring Defence forces is occurring in PNG and the Solomon Islands with plans to increase this to Timor-Leste.

### Biography:

*Major Lisa Rigby enlisted in the Australian Army as a Scientific Officer in 2012. Major Rigby has over ten years' experience in mosquito research and has used this to strengthen the collaborative efforts between the Australian Defence Force Malaria and Infectious Disease Institute (ADFMIDI), other Australian Defence Force (ADF) units and Vector Control Officers in the Solomon Islands, Papua New Guinea and New Zealand. Major Rigby is the lead instructor on Vector-Borne Disease Surveillance and Control courses for international Force Health Protection units and government-employed Vector Control Officers across Australia and the Pacific. Major Rigby is currently posted to 2nd Health Battalion as Battalion Second in Command.*

*Major Chris Peatey enlisted in the Australian Army as a Scientific Officer in 2013. Major Peatey has over 17 years' experience in Malaria research and has recently been involved in mosquito research. In his 10 years working in Defence, Major Peatey has worked collaboratively with PNGDF, Malaysian Defence Force as well as the Timor Leste Defence Force, to build capacity and strengthen cooperation between these groups. Major Peatey is currently posted as the Head of Vector and Surveillance Control Department at ADFMIDI.*

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