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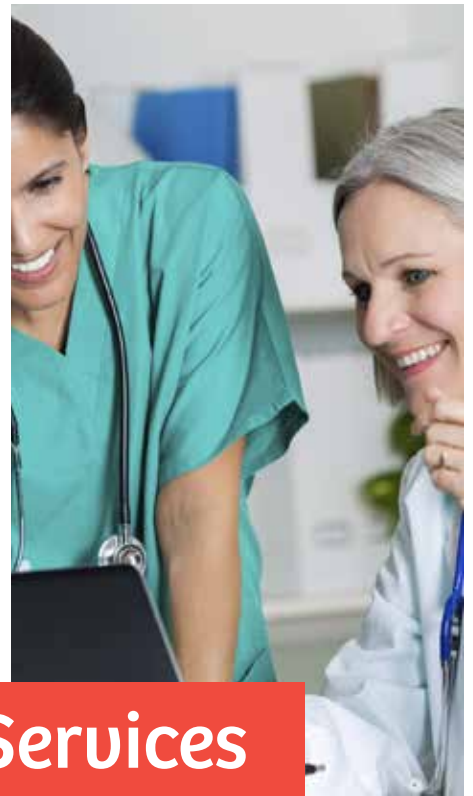
Journal of Military and Veterans' Health



- AMMA 2017 Conference Abstracts
- Primary Health Care in the ADF

The Journal of the Australasian Military Medicine Association





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Front Cover:

Caption: "It all starts here"

Description: Tactical sign indicating the location of 2GHB in the field, Exercise Talisman Sabre 2017, Shoalwater Bay

Photographer: Colonel Murray Hayes, RAADC (Credit to Murray Hayes)

# Journal of Military and Veterans' Health

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## STATEMENT OF OBJECTIVES

The Australasian Military Medicine Association is an independent, professional scientific organisation of health professionals with the objectives of:

- Promoting the study of military medicine
- Bringing together those with an interest in military medicine
- Disseminating knowledge of military medicine
- Publishing and distributing a journal in military medicine
- Promoting research in military medicine

Membership of the Association is open to doctors, dentists, nurses, pharmacists, paramedics and anyone with a professional interest in any of the disciplines of military medicine. The Association is totally independent of the Australian Defence Force.

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# Editorial

This issue is primarily focused on the abstracts for the coming Australasian Military Medicine Conference to be held in Brisbane in October 2017. The abstracts reflect a very diverse and comprehensive overview of military health. As befitting the theme of the conference, there will be a significant number of presentations on all aspects of disaster response, from military and civilian deployments to the management of animals in such events. There are also a range of mental health presentations, with resilience, post-traumatic stress disorder, management of alcohol abuse and support to veterans being particular themes. Clinically, there is a strong focus on the management of acute trauma, infectious diseases and critical care, including in the aeromedical evacuation and submarine escape contexts.

The full gamut of military healthcare is examined, from recruitment and training through deployment and operational service, with a particular emphasis on improving diagnosis and care across this spectrum, to retirement and veterans' health. Military health leadership and management are also considered,

from both a full-time and Reserve perspective, including the support systems required to make them succeed. Finally, there a range of military medical history presentations that provide important lessons for current and future military operations. All of these presentations will be complemented by some excellent poster presentations and the photography competition.

We encourage all our presenters to consider submitting articles based on their abstracts, with a number already in the peer review process. All articles are welcome, from original military health studies to reviews to operational perspectives. All articles are peer-reviewed and available online, and we continue to build the website with all articles online and an increasing range of journal metrics and indexing options available. I look forward to seeing everyone at the Conference and welcome anyone contacting me about current or future contributions to JMVH.

**Dr Andy Robertson, CSC, PSM  
Commodore, RANR  
Editor-in-Chief**

# 2017 AMMA Conference Abstracts Contents

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## A Review of Civil-Military Cooperation and Response During Epidemic and Pandemic Events

**Associate Professor David Heslop<sup>1,2</sup>**

*1 School of Public Health and Community Medicine, University of New South Wales, Australia*

*2 NHMRC CRE Integrated Systems for Epidemic Response, University of New South Wales, Australia*

### Abstract

The risk of a large scale epidemic or pandemic event has been increasing over recent decades. Responding effectively to large scale epidemic events is extremely challenging, as shown by the recent outbreaks in Africa and historically elsewhere in the world. Epidemic and pandemic events cause direct and higher order effects on societies, economies and population health care systems. The pervasive nature of the effects of epidemics necessitates the activation and response of many, if not all, of the population support mechanisms within a jurisdiction. Often international coordination is required to ensure that control measures and scarce resources to respond to infectious disease outbreaks - that do not respect international or national borders - are most effective. Traditionally the remit of national defence forces has not included the management of infectious disease events occurring in the civilian population. However, in the modern era the high degree of economic, industrial and military integration and dependence means that the most effective use of national resources will necessarily require a cooperative civil-military response to large scale epidemic events. Key issues facing both military and civilian leaders during an epidemic are the triggers for involving the military in epidemic response efforts, the nature of the support provided by the military to epidemic response, the risks posed to military personnel working in epidemic environments, integration and interoperability issues between military and civilian systems, and the impact of epidemic response activities on existing military commitments. In this presentation the key interfaces between civil and military health systems, the place of the military in responding to epidemic crises, and the technology and systems that can assist in working in cooperative epidemic response structures will be outlined. Information, analysis and comparison between domestic and overseas civil-military frameworks in responses to epidemic crises that have occurred recently will also be discussed.

### Biography

*Major David Heslop (FRACGP MBBS PhD (Medicine) MPH BSc (Adv) Hons I) is an Associate Professor at the School of Public Health and Community Medicine at UNSW, and retains significant military responsibilities as Senior Medical Adviser for CBRNE to Special Operations Headquarters Australia and to Australian Defence Force (ADF) joint senior leadership. He was appointed as Senior Medical Officer for Special Operations Command for 2014, and was the Officer Commanding and Senior Medical Officer to the ADF CBRN medical incident response element at Special Operations Engineer Regiment from 2012-2015. Dr Heslop is a practicing vocationally registered General Practitioner, an advanced trainee in Occupational and Environmental Medicine with RACP, and a fellowship candidate for the Academy of Wilderness Medicine. He currently has active research collaborations with NSW Ambulance, NSW Health, Defence Science and Technology Group, Australian Defence Force Academy and the Australian Defence Force. His research strengths and interests focus on health systems design and analysis, hybrid and agent based modelling, organisational resilience, operational risk analysis and management, military medicine, emergency and prehospital care and health systems, and clinical governance and risk management.*

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## A Systematic Approach to Ensure Full Preparedness of Medical Support Missions in Disaster and Conflict Scenarios

**Mr Jan Krueder<sup>1</sup>**

*1 Airbus Defence and Space GmbH, Immenstaad, Germany*

### Abstract

Experience shows that the preparedness of a medical response force that deploys to a disaster or conflict scenario is the determining factor for the success and efficiency of the mission. With unpredictability of time, location, and type of crisis as the main challenge, many organisations and most industry partners resort to standard solutions and procedures in an attempt to mitigate this uncertainty. However, for a medical crisis response the "one size fits all" solution does not exist.

Preparedness is a function of the adaptability, resilience, and suitability that is designed into the overall solution. The design of this overall solution is a complex task that is not limited to the selection of state of the art equipment. An effective medical crisis response solution has to be modular and scalable, tailored to the operational concepts and capabilities of the enabling organisation, and provide operational planning and in-theatre support. Budgetary constraints and expected mission scenarios have to be considered to the same extent as training, availability and through-life logistics support management, mission knowledge management, and command and control requirements.

Over the last 30 years, Airbus Defence and Space (Airbus) has been working with governments and Non-Governmental Organisations (NGOs) in the definition, tailoring, deployment, and operational

support of complex deployable health capabilities. Our world recognised solutions include the combat proven “Modulare Sanitäts-Einrichtung” (MSE – modular health capability) of the German Armed Forces with several Roles 1, 2, and 3 facilities, specialist services, and medical evacuation platforms, all jointly managed through a centralised medical C2-system. For the US Army, Airbus developed a modular concept for the Future Combat Support Hospital, and numerous international customers received various multi-role health facilities. With the delivery of well over 500 medical modules, Airbus is one of the most experienced solution providers in this field. This long-term operational and procedural experience, together with an experience based tool repository, has been transferred into a systematic and modular process for the development and through life support of future deployable health capabilities of any size and complexity.

This paper outlines the key components and tools of an holistic, model-based system solution approach. Tailored to individual needs and requirements of the operational user, the described approach facilitates the definition of turn-key solutions, complemented with logistics and training, as well as asset and resources availability management solutions. Building on the operational and system architecture, the process logically prepares the tailored implementation of dedicated health knowledge management and medical C2 solutions, including telemedicine and remote monitoring capabilities.

In discussing selected Airbus example projects, the paper illustrates the key success factors that are required to ensure Medical Support Forces are fully enabled and prepared for uncertainty when deploying into crisis areas. The long term operation

of a deployable Role 3 facility in Afghanistan by the German Armed Forces over more than 5 years is used as an example to demonstrate the stability and resilience of the process. The importance of a tool-based pre-mission planning is discussed by example of a quick-response deployment in support of the Ebola crisis. And the flexibility of the solutions is illustrated by reference of several humanitarian aid missions following the Tsunami in Indonesia, Hurricane Katrina in the US, and the recent support to the European refugee crisis.

As a conclusion, the paper provides an outline of the importance of an experience based model and tool repository that complements the procedural approach and allows a tailored integration of the Airbus solutions for deployment planning, operational support, and the mission medical C2-system that provides live management of capabilities and resources, patient tracking, and facilitates telemedicine/tele-expertise solutions.

### Biography

*Jan is a senior manager with more than 20 years of experience in international business management of operationally diverse, complex, and capital-intensive development and production programs in the aerospace and defense sector. Jan has proven organizational, technical, and people-centered abilities to lead international teams and to drive business in dynamic environments.*

*Airbus Defence and Space, Friedrichshafen, Germany since 01/2016 - Head of Mobile Solutions Leading and managing the newly created Center of Competence for Deployable Infrastructure Systems at Airbus DS. The CoC employs 80 people and includes system engineering and development, hardware integration and testing, and configuration management teams.*

*EADS North America, Russellville, AR, U.S.A. 08/2005 – 03/2010 Head of Operations Integrated Shelter System - Acting General Manager under a dual reporting line into EADS NA and EADS Deutschland GmbH.*

*Full accountability for the manufacturing operation, leading of the local workforce, strategy development & implementation, business development, sales & marketing, customer & supply chain management.*

*EADS Deutschland GmbH, Friedrichshafen, Germany 2003 – 2005 Program Manager Military Medical Systems for the U.S. market.*

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*Mr Jan Krueder*

### Airway and Ventilation Management Following Severe Burns

**Commander Anthony Holley<sup>1,2</sup>**

*1 Royal Brisbane And Women's Hospital, Brisbane, Australia*

*2 Royal Australian Navy*

#### Abstract

The multidisciplinary management of patients with severe burns constitutes a major clinical challenge. Generally, in Australasia, all patients with greater than 20 % body surface area burns are managed in the intensive care unit in conjunction with the specialist burn surgeons. The decision when and how best to perform intubation may be challenging and usually rests with the emergency physician or prehospital provider. The various strategies of initial airway assessment will be considered, including direct laryngoscopy, video laryngoscopy or fibre optic airway evaluation. Significant burn injury is variously reported between 0.3-43% to be complicated by inhalation injury. The reported wide range illustrates the difficulty with both diagnosing and establishing the severity of injury. The value of bronchoscopy and injury classification available is considered. No single ventilation approach has clearly been demonstrated to enhance survival, except for the well-established principle of protective lung ventilation. Ventilation modes employed by various authorities and their reported benefit are reviewed. Many of these patients require prolonged ventilation, ongoing surgery and complex weaning strategies, therefore the need for tracheostomy, appropriate timing and optimal approach are described. Finally, the potential toxicity associated with inhalational injuries are considered.

#### Biography

*Dr Anthony Holley BSc. MBCh. DipPaeds. DipDHM. FACEM. FCICM*

*Anthony is an intensivist working at Royal Brisbane and Women's Hospital. He is a senior lecturer with the University of Queensland Medical School. Anthony serves on the ANZICS National Executive as the Honorary Treasurer. He is an examiner for the fellowship of the College of Intensive Care Medicine of Australia and New Zealand. Anthony has authored six book chapters and 33 peer reviewed publications. He is a supervisor of intensive care training at the Royal Brisbane and Women's Hospital and is an instructor for BASIC and EMST (ATLS). Anthony serves as a representative for the National Blood Authority Critical Care Group in developing the Australian Patient Blood Management Guidelines. Anthony serves in the Royal*

*Australian Navy Reserveshaving deployed to peace keeping operations in Bougainville, East Timor and the Persian Gulf. Anthony served in Afghanistan in 2012 as a force insertion and extraction medical officer with SOTG and then again in 2013 as an intensivist at the American led NATO Role III Hospital in Kandahar. He served in Taji, Iraq at the ANZAC Role 2E hospital in 2016. Anthony has recently returned from serving on Operation Resolute.*

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*Dr Anthony Holley*

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### An Endoscopic Trial of Fibrin/Thrombin Patches, Fibrin/Thrombin Glue and Beta-Chitin Patches for Major Vessel Bleeding

**Dr Alistair Jukes<sup>1</sup>, Dr Jae Murphy<sup>2</sup>,  
A/Prof Alkis Psaltis<sup>2</sup>, Professor PJ Wormald<sup>2</sup>**

*1 Royal Adelaide Hospital, Adelaide, Australia*

*2 Queen Elizabeth Hospital, Adelaide, Australia*

#### Abstract

**Background:** As indications and approaches in endoscopic skull base surgery expand, the potential for major vessel haemorrhage in areas that are relatively constrained from an anatomical perspective increases. These expanded endonasal approaches can carry risks of cavernous carotid injury of up to 5-9%. This study looks at methods to expand the surgeon's armamentarium when dealing with these potentially catastrophic bleeds. This study aims to demonstrate efficacy, ease of application and safety of a fibrin/thrombin patch - Tachosil [Baxter, Deerfield, IL], fibrin/thrombin glue - Evicel [Ethicon, Sommerville, NJ] combined with oxidized cellulose - Surgicel snow [Ethicon, Sommerville, NJ], and a novel squid-derived Beta-Chitin patch [Department of Chemistry, University of Otago, Dunedin, New Zealand] in the acute management of major vessel haemorrhage in endoscopic skull base surgery using a sheep model of carotid artery bleeding and compare these with muscle patch and anastoclip controls.

**Methods:** 18 sheep underwent neck dissection and placement of an endoscopic trainer over the carotid artery. Standardised incisions were made in the artery and the experimental patches used to control the haemorrhage with a 2-surgeon endoscopic technique. Haemodynamic changes, time to haemostasis and volume loss were measured. Animals were recovered for 3 months and underwent Magnetic resonance angiography (MRA) to determine

incidence of pseudoaneurysm formation. Histology and electron microscopy of the site of injury was then performed.

**Results:** Mean time to haemostasis was 124 seconds (95% CI 70.9-177) in the Tachosil group, 79.8 seconds in the Evicel/Snow group (95% CI 69-90.6) and 67 seconds (95% CI 52.3-81.8) in the Beta-Chitin group. Mean blood loss was 281ml (95% CI 106-456ml) in the Tachosil group, 150ml (95% CI 105-196ml) in the Evicel/Snow group and 121ml (95%CI 97-146ml) in the Beta-Chitin group.

**Conclusions:** Tachosil, Evicel/Snow and Beta-Chitin are potentially valuable adjuncts to the control of major vessel haemorrhage in endoscopic surgery. They are able to be introduced and manipulated trans-nasally with endoscopic instruments and have a lower rate of pseudoaneurysm formation than muscle patch. They also have the advantage of being immediately available and do not require harvesting by a second surgeon. These substances may be more widely applicable in trauma settings for first responders as they are easy to apply and control major vascular haemorrhage, especially in relatively constrained areas such as craniofacial and neck trauma.

### Biography

*Neurosurgery Registrar SET Trainee*

*Abbie-Simpson Skull Base Fellow - neurosurgical research foundation*

*PhD candidate - University of Adelaide*

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## An Evaluation of Mental Health First Aid Training with Australian Army Cadets

**Dr Geoffrey Orme<sup>1</sup>, CAPT(AAC) Eloise Dews**

*1 Department Of Defence, Concord West, Australia*

### Abstract

The Australian Army Cadets (AAC) is a national youth organization that is involved in training and adventurous activities in a military setting. It is an integral part of the Australian Army, responsible to Chief of Army for delivery of the Army's premier

Youth Development Program. Under a transformative program, it is now staffed by 62 regular Army and APS members, 218 Army reservists, and 1500 volunteer community members. Currently there are over 16,000 Army cadets ranging from 12 to 19 years in 220 school and regionally-based units across Australia.

Recent developments to bolster the wellbeing and psychological care of Cadets include Mental Health First Aid training for youth leaders, Officers of Cadets, and selected military personnel (Mental Health First Aid Australia Pty Ltd). In this youth-tailored program, Youth Mental Health First Aid (YMHFA) is intended to enhance the capacity of staff and cadet leaders to provide first-line support to individuals who experience emotional difficulties, for example, during Army Cadet annual camps and training activities. To date, over 300 AAC personnel have participated in this training and completed certification as mental health first aiders.

This presentation reports on the outcomes of an online survey and interviews with participants on the YMHFA program from 2015 to 2017. The survey evaluated the utility of the training and its breadth of application across the AAC. Outcomes to improve participant's knowledge, skills and self-confidence to support someone experiencing a mental health problem are also discussed (Davies, Beever, and Glazebrook, 2016).

### Biographies

*Lieutenant Colonel Orme is an Army Reservist and is currently posted as a senior psychologist within Headquarters Australian Army Cadets. He has deployed with psychological support teams on overseas military operations with the Australian Defence Force to Bougainville, Timor L'Este, the Solomon Islands, Middle East (including Iraq), and Afghanistan.*

*Lieutenant Colonel Orme holds undergraduate and post graduate qualifications in psychology and completed a PhD through the Centre for Traumatic Stress Studies and the University of Adelaide. He has published a number of papers in international peer-reviewed journals along with numerous Australian and international conference presentations, in the area of post deployment reintegration.*

*Eloise joined the adult staff of the Australian Army Cadets in 2004 and worked primarily with young people in rural NSW before joining the National Headquarters Training Delivery team in 2012. She is a Youth Mental Health First Aid instructor and is managing and co-ordinating the delivery of YMHFA courses nationally. Eloise is also is a full-time teacher with the NSW Department of Education. She currently*



*leads a specialised distance and flexible learning centre that provides a range of educational services to students with highly complex needs.*

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### An Overview of the Navy Profile of Unit Leadership Satisfaction and Effectiveness (PULSE)

**Ms Vanessa Barone<sup>1</sup>, Ms Jennifer Wheeler<sup>1</sup>**

*1 Directorate Of Navy Health, Defence, Canberra, Australia*

#### Abstract

The Navy PULSE is a climate survey designed to provide Navy Commanding Officers with an objective assessment of a range of factors that impact on job satisfaction, performance, retention, wellbeing and resilience. As a Command intervention tool, the PULSE survey has been developed and validated over the past decade within the ADF environment. The PULSE is a measure of organisational climate, which is dynamic and changeable, and as such is suited to informing tailored interventions which can make improvements to an organisation within a relatively short timeframe.

The PULSE is based on a theoretical model which posits that there are two basic sets of forces acting on the individual in a work setting. The first set, Job Demands, can lead to physiological and psychological problems for individuals and work groups. Examples include work overload, high tempo, poor conditions, role conflict, and harassment.

The second set of forces acting on the individual is called Job Resources. These are factors within the workplace that help an employee deal successfully with job demands and to develop into a more capable employee. Examples include confidence in leadership, organisational support, a sense of autonomy, a sense of being treated fairly, and satisfaction with communication across the ship.

Job demands put the individual under pressure and job resources help the individual to deal with that pressure. If high job demands exhaust employees' mental and physical resources, burnout and lack of commitment may result. In the model, this sequence of events is called the Health Impairment Pathway.

If, on the other hand, resources outweigh demands, the individual is likely to become more engaged and therefore a happier, healthier and more productive employee. This sequence of events is called the Motivational Pathway.

A Commanding Officer can gain valuable insights into the psychological climate of a ship by examining responses on the various scales that comprise the PULSE survey. In addition to the PULSE's utility for Commanders, aggregated data also provides senior Navy leadership with measures to organisational metrics at a strategic level.

A selection of key findings from the Navy PULSE will be presented, with particular emphasis on findings of relevance to the health field.

#### Biographies

*Ms Jennifer Wheeler is a Psychologist who commenced work with the Department of Defence in 2001. For seven years, Ms Wheeler was a Senior Research Psychologist within the Psychology Research and Technology Group, with particular responsibility for Personnel Selection Research. She was an Australian representative on The Technical Cooperation Program Technical Panel 3 between 2004 and 2010. In 2007, Ms Wheeler undertook the Australian Command and Staff Course and subsequently attained a Master of Arts in Strategy and Management. Her current position is Director Navy Psychology, within Navy Health Services.*

*Vanessa Barone is a Senior Navy Psychologist in Navy Health Services within the Australian Defence Organisation. She joined the Department of Defence in 2007, where she worked on and then managed a longitudinal retention research project in the Directorate of Strategic Personnel Policy Research. In 2012, Vanessa undertook the role of Assistant Director Workforce Intelligence, responsible for culture and diversity research and reporting before undertaking a research manager role at Defence Force Recruiting, then joining Navy Psychology in late 2016. During her time at Defence, Vanessa completed a Master of Clinical Psychology at University of Canberra.*

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### Anger, Stress, and Alcohol-Related Difficulties in the Military: A Brief Group ACT Intervention

Shane Harvey<sup>1</sup>, Helen Moody<sup>1</sup>, David Bimler<sup>1</sup>

<sup>1</sup> Massey University

#### Abstract

The use of alcohol to manage emotion is a common technique seen in military service personnel (MSP). However, investigations into transdiagnostic treatments aimed at addressing the common underlying processes to these problems in military personnel are lacking. This presentation will detail findings from a real-world Acceptance and Commitment Therapy (ACT) – group intervention undergone by 262 military personnel. Data comparing a pre-intervention waitlist control group with the treatment group at 1 month as well as outcomes at 3 months will be presented. The intervention group showed greater improvement in emotion management, and greater reductions in levels of alcohol consumption, aggression, anxiety, stress, and perceptions of others being responsible for their circumstances. These changes were maintained at three months post-treatment. This outcome shows promise for servicing MSP across a range of psychosocial outcomes using a brief group intervention. Further testing with a more rigorous methodology is recommended, as is using a more proactive approach in the promotion, implementation, and generalisation of future courses.

#### Biography

*Dr Shane Harvey is a Clinical Psychologist and Director of the Massey University Psychology Clinic, Palmerston North. The Massey University Psychology Clinic provides psychological services to military personnel and conducts applied research on the various services delivered. Shane's research interests include social emotional practices of different professional groups, health psychology practice, and treatment outcome research. Shane designed and delivered the week long intensive group therapy with soldiers this presentation is based on, treating soldiers with stress and anxiety, alcohol and other drug misuse, anger and aggression, and relationship difficulties.*

*Dr. David Bimler is a Research Affiliate with Massey University in New Zealand. While specialising on multivariate procedures and multidimensional scaling as applied to psychophysics, his research focuses on vision, such as perception of color and facial expressions of emotion.*

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### ANZAC R2E TAJI – Commander's Memoirs, April 2015 to December 2016

Major Sean Kennaway, Major Eron Bottcher,  
Major Rob Jones

#### Abstract

In April 2015 Australia and New Zealand deployed Task Group Taji to Iraq on OP OKRA as part of the US led coalition OP INHERANT RESOLVE Build Partner Capacity (BPC) mission to train the Iraqi Army in its war against Islamic State.

The Health Task Unit, or ANZAC R2E as it became known, consisted of a total of 36 staff with 20 clinicians from the 2nd General Health Battalion, 10 from other Australian units and six New Zealanders. The ANZAC R2E consisted of; an Emergency Department, Primary Health Care Team, Operating Theatre, Intensive Care Unit, General Ward, Diagnostics, Pharmacy, two Armoured Ambulances and Preventative Medicine.

The ANZAC R2E deployed to the Taji Military Complex augmenting the Taji Medical Clinic with Weather Haven Tents and collocating with a US medical team and civilian medical contractors.

In addition to providing Close and General Health Support to the BPC mission the team delivered training to the Iraqi Army by providing staff to the training teams and conducting tailored courses to the Iraqi Army medics and nurses.

#### Task Group Taji 1

The initial establishment of the hospital came with a number of challenges not limited to; moving sensitive medical equipment from Australia to Iraq, establishing a surgical facility in constant 50 degree temperatures, coordinating the resupply of medical supplies including the provision of blood from the US out of Qatar, managing working relationships across various countries medical staff of different cultures and clinical standards, and the first time deployment of a number of personnel away from home support networks for six months.

#### Task Group Taji 2

Building upon the success of TGT 1 was critical. Whilst the focus of TGT 1 was the establishment of the R2E facility, TGT 2 focused on continual development. The key area of interest of this was governance, both clinical and technical. A focus on continued development served two purposes. The first was regarding the betterment of the facility and

the second was regarding the effective employment of 30 plus staff in the face of a low to moderate clinical tempo. The focus for the task element was decided prior to deployment with the latter purpose being the key driver for this direction.

### Task Group Taji 3

The standard of governance and professional development bench marked by the two previous rotations established the platform for the third health rotation to Taji. Unique to Health Company TGT 3 was the diverse work force employed under an Australian Command. TGT 3 deployed with tri-service, reserve and regular personnel from Australia and New Zealand; held authority over British and Canadian personnel and continued to work closely with the civilian and US Health personnel within the Taji complex. Through TGT 3's deployment the clinical dependency expanded from 2500 to 4000 personnel. This growth in dependency, reliance on a mix of established command authority and informal relationships presented as challenges for the Task Group; however, proved to be the strength of a successful deployment.

### Conclusion

This presentation is a collection of three Health Commanders experiences in the leadership and management of deployed field hospital. Sharing the challenges and lessons learnt from the short notice establishment and continued sustainment of force protection to a Coalition dependency and the delivery of training to the Iraqi Army.

### Biographies

*Major Sean Kennaway commissioned into the Australian Army in 1992. He has since served in numerous staff, training and command appointments across Australia and overseas. Major Kennaway has deployed on several operations including: OP TAMAR, OP CITADEL, OP NIUE ASSIST, OP RESOLUTE, OP SLIPPER and OP OKRA, as the inaugural Officer Commanding of the Health Task Unit. He is currently the Operations Officer of the 2nd General Health Battalion.*

*Major Eron Bottcher was commissioned into the Australian Regular Army in 2006. He has held numerous appointments within the Army Health Services. He is currently OC 1st Surgical Company at the 2nd General Health Battalion. He has deployed on OP SLIPPER and most recently on OP OKRA as the OC Health Task Element with Task Group Taji Rotation 2 where he was in command of the Australian and New Zealand R2E facility in Taji.*

*Major Rob Jones enlisted into the Australian Regular Army in 1995 and commissioned in 2010. He has held numerous appointments within Army's Close and General Health Units and the Combat Brigades. MAJ Jones has deployed in support of OP BEL ISI, OP WARDEN, OP TANAGER, OP SUMATRA ASSIST, OP CATYLIST and most recently OP OKRA where he was the Commander of the R2E Taji. MAJ Jones is currently OC 2 Clinical Company at the 2nd General Health Battalion.*

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## Australasian Military Medicine College

Dr Vanessa Weenink<sup>1</sup>

*1 NZDF, Christchurch, New Zealand*

### Abstract

This presentation is an update to last year's introduction to the concept of an Australasian Military Medicine college.

An outline of possible next steps and concrete actions to be taken to bring this idea to fruition will be presented.

Military Medicine is a challenge to medical education and ongoing professional development due to the breadth of environments and clinical scenarios encountered.

Professionalising the training of the Military Medical workforce provides a platform to also improve standards and provides an external credentialing body outside of the chain of command. In addition a College may also develop into a platform for advocating for the profession as well as patients -since it is affiliated with the military but not controlled by it.

### Biography

*Reserve NZDF Medical Officer, ex-regular Army. Currently GP in Christchurch, New Zealand*

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### Australian Dental Support to Operations – Contemporary Experiences from Afghanistan

**CAPT Thomas Fenelon<sup>1</sup>**

*1 Australian Army, Enoggera, Australia*

#### Abstract

In a military setting generally, and particularly in the deployed environment, the health and fitness of soldiers and their readiness to perform their duties is paramount. On operations, the morbidity associated with dental emergencies can have a significant effect on individual and organisational capability, place burden on treatment facilities and can require the removal of soldiers from areas of operation. In the Australian Defence Force dental fitness forms an integral part of a soldier's readiness to deploy and is equally as important as other factors such as medical, weapons proficiency and physical fitness. In the recent history of the Dental Corps there has been relatively limited deployment of dental teams on operations. Since 2015 however, the experience of providing dental support to contemporary operations, in particular Australian dental support to Operation Highroad, has provided renewed insight into the prevalence of disease, challenges in the provision of care and the ongoing requirement for dental care in the deployed health picture. This operation has seen Australian Dental teams deployed as NATO embeds in the Role 2 multinational hospital Kabul Afghanistan where they have provided a range of emergent and routine dental treatment to military personnel and civilians from more than thirty different countries. In this coalition environment it is apparent that there is wide variation in the standard and availability of dental care by nationality. This results in a wide variance in the prevalence of dental disease and therefore the incidence of dental emergencies in the deployed setting. The immediate impact of the availability of dental treatment has been in the maintenance of operational capability of several thousand individuals. Appraisal of the demographics, presenting complaints and the treatment provided enables insight into the dental treatment needs of a modern deployed force. More broadly, Information gained from this experience may be utilised to inform pre-deployment screening processes and shape the type of dental support provided to operations in the future.

#### Biography

*CAPT Thomas Fenelon is an Australian Army Dental Officer currently posted to the 2nd General Health Battalion at Gallipoli Barracks in Brisbane. He*

*graduated from Griffith University in 2012 with a Bachelor of Oral Health with Honours and a Graduate Diploma of Dentistry having completed the final two years of study under an ADF sponsorship. CAPT Fenelon is the most recent Dental Officer to deploy to Kabul Afghanistan having returned home in July this year.*

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### Averting Disaster by Management of Recall and Follow-Up - One Health Centre's Journey to Acquit Referrals and Test Requests

**Dr Felicity Williams<sup>1</sup>, Mrs Heather Sheridan<sup>1</sup>, Dr Helen Mooney<sup>1</sup>**

*1 JHC, Campbell Park, Australia*

#### Abstract

Health practitioners use the Defence eHealth System (DeHS) to generate specialist referrals and test requests for pathology and imaging as required for patient management. Since the implementation of DeHS, there has been an ability to monitor all outstanding referrals and test requests at local, regional and national level, via a regularly produced report which is provided to all health facilities. This allows ongoing oversight of incomplete tests and referrals which, in turn, enhances patient management. It necessitates a completely new procedure for ensuring correct management and acquittal.

The DeHS is a complex eHealth system requiring training in its effective use and this has brought challenges during its implementation across all of ADF health centres. Tracking referrals and test requests is important for patient management and the focus of the process is to ensure that patients undergo appropriate tests and reviews recommended by their clinicians, the results and reports of these are seen by the clinician, added to the medical record and management adjusted as necessary.

The management and acquittal of referrals and test requests is also a complex process requiring good knowledge of both the system and the generated report. Policy and procedures exist to aid this process, but there are ongoing challenges in its consistent implementation.

Key staff in Russell Health Centre recognized that the growing numbers in their report indicated that the process was not working correctly in their centre and that there was potential risk to patients associated

with that. Analysis of the process was undertaken which revealed issues with implementation 'on the ground' and varying levels of understanding regarding the requirements of the process.

Key staff work shopped possible solutions and an intervention strategy was devised.

This presentation will elaborate on the issues identified and the strategies that were then implemented, along with lessons learned.

Recall and follow up are an important part of clinical practice, and the advent of DeHS has meant that there is increased ability to ensure that patients do not miss important tests or reviews,. Along with this comes increased responsibility for monitoring the outcomes of these encounters and this enhances patient care in the very mobile Defence population.

### Biography

*Mrs Heather Sheridan is the health centre manager for Russell Health Centre in ACT. She is a proud ex Army nurse and has worked with Defence as a military nurse, has run a successful health professional contracting business and now manages the Defence health centre at Russell. She has a Masters in Quality improvement as well as tertiary management qualifications*

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## Back to the Future - Immersive Full Mission Profile Training for Health Pers and First Responders at Army School of Health

### Stewart Robertson

#### Abstract

In the quest for continual improvement of training our Defence Health Personnel, the Combat Health Training Team at the Army School of Health (ASH) implements immersive full mission profile scenarios for all Health personnel that undertake training at ASH and during the conduct of pre-deployment training activities. From 2008-2012 the ALTC Environmental Simulation Training Facility (ESTF) was heavily utilised for the conduct of mission specific health pre-deployment training activities that were highly successful in the preparation for operations. The Global War On Terror has seen

a period of intensive kinetic operations, health training must not lose the momentum gained and continue to focus the training of health personnel in the forward battlespace in maintaining "core combat/operational behaviours". At the core of these behaviours are the Tactical Combat Casualty Care principles that encompass Point of Injury care, stabilisation, prolonged field care and the rapid/effective evacuation to the appropriate Medical Treatment facility. High fidelity simulated, immersive full mission profile training is best-practice and is designed to instil confidence in our Defence Health Personnel in order to care for combat casualties in the asymmetric battlespace.

### Biography

*Captain Robertson is the Officer-in Charge of the Combat Health Training Team at the Army School of Health.*

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## Binocular Rivalry Online: An Online Visual Test for Bipolar Disorder for Use In Large Clinical and Genetic Studies

Dr Steven Miller<sup>1</sup>, Dr Phillip Law<sup>1</sup>

*1 Monash Alfred Psychiatry Research Centre, Melbourne, Australia*

#### Abstract

Bipolar disorder (BD; manic depression) is a devastating and costly mental illness characterised by periods of mania and depression. Well-known triggers for BD include sleep deprivation and severe stress, which are common experiences for Defence personnel. Although BD is highly heritable, there are no genetic or biological tests to identify individuals with, or at risk of developing, the disorder. A test (biomarker) for BD, or for a genetic predisposition to the disorder, could aid in preventing triggering of BD and improve diagnosis of mental illness symptoms such as psychosis or depression (by distinguishing BD psychosis from schizophrenia psychosis, and BD depression from major depression). Binocular rivalry (BR) rate satisfies several criteria for being a biomarker for BD. BR involves presenting a different image to each eye which induces perceptual alternations between each image. It is the rate of

this alternation that we have shown to be slow in BD compared with controls, a finding that has since been independently replicated. We have also shown, in a large twin study, that an individual's rate of BR is under substantial genetic control.

To examine the clinical and genetic utility of the slow BR trait requires very large sample sizes in the order of thousands to tens of thousands. A major barrier to meeting such recruitment targets, particularly for clinical subject groups, is the enormous cost and burden of hands-on resources associated with BR testing in a laboratory setting. To overcome this barrier, we have therefore developed an online BR test, with funding from Defence Health Foundation. The test involves the subject looking at their computer monitor through flat, foldable cardboard glasses that have been mailed to them in a mailout package. The mailout includes a unique identifier, raised felt pads for positioning the two main response keys for ease of responding, and the web address for the online BR test ('Binocular Rivalry Online': viewable at [www.binocularrivalryonline.com](http://www.binocularrivalryonline.com)). The 20-minute test involves two test blocks each consisting of 4x100-second trials with short breaks between trials and a long break between blocks (indicated to the subject using screen prompts). Catch trials are interspersed amongst experimental trials and mimic the perceptual alternations during BR. These enable determining whether a subject's responses are reliable. After the test is completed, the subject undergoes an online visual acuity test, answers brief online demographic and clinical questions, and provides online feedback about their experience with the test.

The online BR test has undergone extensive technical development and user-interface testing to ensure: (i) optimal stimulus parameters; (ii) the presentation platform is future-proof; (iii) users can complete the test independently in the absence of an overseeing researcher by readily following provided test instructions; (iv) presented images are consistent across different computer monitors; and (v) de-identified demographic, clinical, and behavioural data are securely collected and stored. Additional user-interface testing is being conducted in BD and control subjects who have previously participated in psychometric BR studies, as well as in a new sample of naïve BD subjects and controls. Roll out of the fully quality-assured and user-tested online BR test will occur in 5,000 genotyped and phenotyped control subjects in Australia utilising a QIMR-Berghofer

twin database, followed thereafter by rollout to large cohorts of genotyped and phenotyped clinical psychiatric subjects.

For the Defence community, identifying prospective recruits at genetic risk of developing BD would be invaluable to avoid exposing them to sleep deprivation and stress (thus preventing triggering of BD). Furthermore, serving and discharged Defence personnel with existing symptoms of mental illness (e.g., psychosis, depression) would benefit from a test that improves diagnosis, so as to reduce misdiagnosis and associated inappropriate treatment choices.

### Biography

*Dr Miller is a medical graduate (UQ; 1993) with a PhD in neuroscience and psychiatry (UQ; 2003) and a Masters of Occupational & Environmental Health (Monash; 2009). He is currently a medical advisor to the Victorian Government's Health and Disability Strategy Group (Victorian WorkCover Authority; Transport Accident Commission) and leads a research group at Monash Alfred Psychiatry Research Centre. His research fields are clinical neuroscience, visual neuroscience, brain stimulation and consciousness science. Dr Miller has previously been a Victorian Neurotrauma Initiative Early Career Practitioner Fellowship and has been awarded competitive research funding from NHMRC, Defence Health Foundation, Brain and Behavior Foundation USA, and Monash Institute of Medical Engineering. His science has been published in top-ranked international journals such as Proceedings National Academy of Sciences USA, Proceedings Royal Society of London, Current Biology and Bipolar Disorders. His research findings have led to replication studies and have been highly cited in the literature, as well as covered in general science magazines such as New Scientist and Scientific American. Dr Miller is active in research training, having supervised post-doctoral researchers, doctoral students and honours students. He has an international reputation for both his work on binocular rivalry and his work on vestibular neuromodulation.*

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## Building Regional Disaster Resilience from a Health Perspective

**Assoc Professor Dianne Stephens<sup>1</sup>,**  
Dr David Read<sup>1</sup>, Bronte Martin<sup>1</sup>, Abigail  
Trewin<sup>1</sup>, Rhiannon Wake<sup>1</sup>, Lisa Vermeulen<sup>1</sup>

*1 National Critical Care And Trauma Response Centre,  
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### Abstract

The National Critical Care and Trauma Response Centre (NCCTRC) was an initiative born out of the Australian response to the 2002 Bali bombings. The initial response was launched out of Darwin and Royal Darwin Hospital was the forwarding receiving hospital for more than 60 critically injured victims of this terrible terrorist event.

The NCCTRC was funded to provide a resilient and robust workforce in Royal Darwin Hospital with capacity to respond in a timely fashion to further major incidents in what was perceived at the time to be the arc of instability to the north of Australia.

The NCCTRC has developed over the last decade into a centre of excellence for trauma and disaster response training, research and expertise providing leadership in these areas locally, nationally and internationally. It has developed a nationally recognised Trauma Service with an integrated approach to trauma case management and led the initiative for a nationally consistent approach to deploying medical teams to disasters. The NCCTRC is the coordinating centre for the national AusMAT (Australian Medical Assist Team) capability.

In this context the NCCTRC has been funded by the Commonwealth Department of Health and the Department of Foreign Affairs and Trade to help build regional response capacity through the delivery of sudden onset health emergency training in the Asia Pacific region. This training consists of several key components – assessment of local systems and their needs including Emergo train exercises, HEOC training, MiMMS training, HMiMMS training, clinical trauma management training and mentoring of key local clinicians to provide an ongoing robust framework for response to sudden onset health emergencies.

We will present the key results of our current program and reflect on the successes and the learnings from this diverse regional engagement program.

### Biography

Associate Professor Dianne Stephens moved to Darwin in 1998 as the inaugural Director of Royal Darwin Hospital (RDH) Intensive Care Unit (ICU). She developed the RDH ICU into a nationally respected tertiary level ICU. In February 2017 she took up the role of Medical Director NCCTRC.

Associate Professor Stephens received an OAM for her leadership role in the ICU management of the 20 critically ill Bali bombing victims in 2002. She joined the RAAF Specialist Reserves in 2004 and deployed for 3 months to Iraq in December 2004 where she worked in ICU in the USAF tertiary hospital facility in Balad. In Balad she managed mass casualty events on a regular basis. In October 2005 she deployed with the ADF to Denpasar to evacuate the victims of the second Bali bombings and then cared for them at Royal Darwin Hospital and during their forward evacuation by the RAAF to their home states.

In 2016 Dianne undertook a sabbatical year in Fiji teaching and training regional Anaesthesia trainees in Intensive Care Medicine at CWMH Suva. She was living and working in Suva during Cyclone Winston and its aftermath providing further disaster experience.

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## Civil-Military Cooperation in Disaster and Crisis: The Role of the Private Sector

**Dr Thomas Crabtree<sup>1</sup>**

*1 Aspen Medical, Reston, United States*

### Abstract

Civil-military cooperation is critical to a successful response in any complex humanitarian emergency. The global community has traditionally viewed this as cooperation between state actors (militaries) and the non governmental organizations (NGOs). The private sector however has begun to play an increasingly important role in disaster and crisis response and it is essential that we now include private sector actors in the calculus of humanitarian assistance and disaster relief (HA/DR). To not do so dilutes the power of the collective global response in HA/DR. This paper explores the role of the private sector



in supporting health efforts in HA/DR with specific focus paid to joint efforts between military medical and private sector health concerns. The paper details the evolution of the civil-military medical interface in crisis response with special attention to the recent introduction of private sector health concerns. Challenges presented in bringing these two groups together are identified and pathways to improving cooperative efforts are explored. A common framework for HA/DR operations that recognizes the augmented role of the private sector is discussed as well.

### Biography

*Dr Thomas G Crabtree is the Group Medical Director for Aspen Medical International, LLC, a subsidiary of Aspen Medical Pty Ltd, a global concern with deep expertise in the delivery of remote and outsourced healthcare. He retired as a Colonel from the US Army where he was a plastic and reconstructive surgeon at Tripler Army Medical Center in Honolulu, Hawaii. In addition to his plastic surgery responsibilities, Dr Crabtree served as the past medical director and the senior medical advisor to the Center of Excellence in Disaster Management and Humanitarian Assistance of the US Pacific Command. He now holds the same position with The Naval Postgraduate School's Center for Civil Military Relations Global Health Program. Combat tours include rotations as a trauma surgeon with the United Nations Protection Forces in the former Yugoslavia and as a trauma and plastic surgeon in Baghdad as part of Operation Iraqi Freedom. His military awards include the Legion of Merit, Bronze Star, Defense Meritorious Service Medal, Humanitarian Service Medal with 2 oak leaf clusters and multiple UN and Foreign Service decorations. Dr Crabtree was born and raised in Boston. He's a graduate of Harvard and Stanford.*

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## Confirmatory Factor Analysis and Psychometric Properties of the Clinician-Administered Posttraumatic Stress Disorder Scale (CAPS-5) Within an Australian Vietnam Veteran Sample.

Mr John Gilmour<sup>1</sup>, Dr Madeline Romaniuk<sup>1,2,3</sup>

*1 Gallipoli Medical Research Institute, Greenslopes, Australia*

*2 Institute of Health & Biomedical Innovation, Queensland University of Technology, Brisbane, Australia*

*3 Institute of Resilient Regions, University of Southern Queensland, Springfield Central, Australia*

### Abstract

**Background:** The prevalence of Posttraumatic Stress Disorder (PTSD) is higher among military populations than the general population, with lifetime prevalence rates occurring between 17-21% among Australian veterans. The release of the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), brought a change in the symptom clusters of PTSD (Criterion B through E). In order to effectively assess and treat PTSD within military populations, the use of valid and reliable assessment methods are essential, as is a working understanding of how the symptom clusters of PTSD may uniquely present among veterans. In line with the DSM-5 changes, an updated version of the Clinician Administered PTSD Scale (CAPS-5) was released. This diagnostic tool is widely considered to be the gold-standard method of PTSD assessment; however, the psychometric properties, as well as the factor structure of the scale have yet to be confirmed. The aim of the current study was to assess the psychometric properties and the factor structure of the CAPS-5 within a military sample, through the use of confirmatory factor analysis as well as examination of construct validity and internal consistency.

**Methods:** The sample included 247 male Australian Vietnam veterans who were exposed to traumatic events as defined by Criterion A in the DSM-5. The sample had a mean age of 68.72 years (SD = 4.17). Participants were recruited as a part of larger research project conducted at the Gallipoli Medical Research Institute in Brisbane, Australia. Participants completed the CAPS-5 in person, administered by a registered psychologist, as well as the Depression Anxiety Stress Scale-21 (DASS-21) and the Patient Health Questionnaire (PHQ). The CAPS-5 includes 20 question focussed on the symptomology of PTSD as defined by Criterion B through E in the DSM-5.

These questions are used to assess the presence, severity and frequency of PTSD symptoms. Twenty-six (9.7%) of the participants met the criteria for a current PTSD diagnosis at the time of assessment, with 113 participants (42.3%) meeting the DSM-5 criteria for PTSD across their lifetime.

**Results:** The CAPS-5 was found to have excellent internal consistency overall ( $\alpha = .90$ ), and moderate-to-good internal consistency for Criterion B through E symptom clusters ( $\alpha = .69 - .79$ ). The DSM-5 four-factor model was tested along with another four distinct models of PTSD symptomology based on previous literature and clinical interpretation. Each model was tested for goodness-of-fit, and compared using Chi-squared difference tests. These models included between six and eight factors which will be presented in detail. Results indicated the four-factor DSM-5 model failed to achieve the required goodness-of-fit; however, an eight-factor model achieved strong goodness-of-fit, and was found to fit the symptoms significantly better than other models found in the PTSD psychometric literature. Correlational analysis of the subscales for both the eight-factor model and the four-factor DSM-5 model demonstrated moderate-to-strong relationships with measures of depression, anxiety and stress, demonstrating sound construct validity.

**Conclusions:** The results of this analysis demonstrated that the CAPS-5 is a reliable and valid measure of PTSD symptoms. However, the CAPS-5 failed to achieve an acceptable goodness-of-fit for the DSM-5 four cluster model of PTSD, with an eight cluster model demonstrating the symptom presentations most accurately within the Vietnam veteran sample. This suggests the eight-factor model may provide more sensitive means of evaluating and distinguishing between different presentations of PTSD among veterans, but further evaluation of the CAPS-5 factor structure is needed within contemporary Australian veteran cohorts.

### Biography

*Mr John Gilmour is a Research Assistant in the Veteran Medical Health Initiative at the Gallipoli Medical Research Institute. Mr Gilmour completed a Bachelor of Psychology (Honours) at the University of Southern Queensland in 2016, achieving First Class Honours. He was awarded a ReDTrain Summer Research Scholarship in 2016, and has received numerous awards for his involvement in student representation. Mr Gilmour is currently completing a PhD in Social Psychology at USQ, focused on social media and criticism. He also works as an Academic and Research Assistant at the University of Southern Queensland.*

*Mr Gilmour has worked on projects relating to anxiety, information processing, rural employment, social capital, suicide prevention, information professionals, social inclusion, food security, pain management in children, psychometrics, and PTSD. His research interests are anxiety, social media and psychology, and statistics.*

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## Delivering a Humanitarian Health Effect: Independent Health Services for Civilian Victims of War

**Mr Anton Kuruc<sup>1</sup>**

*1 Aspen Medical, Deakin, Australia*

### Abstract

The commencement of the offensive by the Iraqi Army against ISIS in Mosul led to a significant increase in trauma casualties. Mosul is a city of about 1.2 million people and casualties have been high. Nearly half the casualties have been civilians and this includes a high proportion of children.

In March 2017, Canberra-based Aspen Medical was contracted by the World Health Organization (WHO) to provide healthcare professionals and hospital management at a 48-bed field hospital south of Mosul in northern Iraq. The field hospital was established by WHO at the urgent request of the Ministry of Health in Iraq. WHO coordinated a number of organisations providing trauma care in the conflict zone.

Aspen Medical initially provided a team of over 80 personnel to the facility including emergency physicians, surgeons, anaesthetists, nurses, midwives, neonatal specialists, obstetricians and paramedics. In addition to the clinical team, Aspen Medical provided management, logistics, security, administration and operations specialists to the field hospital. The Aspen Medical team worked alongside 50 national health personnel of different cadres to support trauma care at the hospital.

This may well be the first time a large-scale independent humanitarian healthcare operation for civilian victims of war has been conducted concurrently with a significant military operation.

This paper will describe humanitarian healthcare service operations and how they contribute to the

well-being of civilians affected by conflict. It will explore how these humanitarian healthcare services helped Iraq meet its obligation to protect and respect civilians under International Humanitarian Law. International Humanitarian Law requires combatants to protect civilians who do not fight and to provide for their well-being including healthcare services. The authors will debate whether this humanitarian healthcare operation establishes a precedent under International Humanitarian Law for how States protect civilians affected by conflict.

The paper will describe the outcome of this human healthcare services as a 'Humanitarian Health Effect' and discuss how it might influence the post conflict stabilisation process. The authors will make some observations about the early indicators of how the 'Humanitarian Health Effect' is influencing post conflict stabilisation. The paper will conclude by discussing the possible role of humanitarian health services in future conflicts.

### Biography

*Anton Kuruc is the National Manager of Peak Healthcare Recruitment, a subsidiary of Aspen Medical. Director Strategic Implementation at Aspen Medical.*

*Anton is a former Army Officer and Operational Analyst. He has served in the infantry in a variety of command and operational positions. He deployed as an operational analyst in East Timor and Afghanistan where he was instrumental in embedding social network analysis into operational planning. He also supported a range of social studies and consensus building activities.*

*Since leaving the military Anton has worked in senior management including analysing risk and training journalists to work safely in hostile environments, military simulation and as the senior analyst at the Department of Defence's Rapid Prototyping, Development and Evaluation organisation. In 2011 Anton joined Aspen Medical and was responsible for the company's innovation and improvement programs. He also held the position of Director - Strategic Implementation prior to his role as National Manager at Peak Healthcare Recruitment.*

*Anton is a published author in refereed journals in Australia and Overseas. He holds a Bachelor of Arts, a Masters of Defence Studies and a Masters of Business Administration.*

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## Deployment Stressors from a Royal New Zealand Navy Perspective

**Juliet Battersby**<sup>1</sup>, LT Leonie Carter<sup>1</sup>,  
Delwyn Neil<sup>1</sup>

*1 Royal New Zealand Navy*

### Abstract

The Royal New Zealand Navy (RNZN) conducted qualitative research on a small sample of personnel to investigate the top stressors for personnel whilst on non-combat deployments. This was in recognition of the unique nature of sea-based deployments and therefore the possibility that the stressors vary slightly compared to land-based missions. The ultimate objective was to enable resources and support to be customised for RNZN personnel. A literature review was conducted and then 14 RNZN individuals who had deployed within the last 12 months for more than three months took part in focus groups. Thematic analysis identified the top three stressors as separation from family, overload of work, and frustrations with command/immediate boss. From those results recommendations were made as to how RNZN personnel could be more effectively supported.

### Biography

*Juliet Battersby is currently the Senior Psychologist Navy with the New Zealand Defence Force (NZDF). She joined the NZDF as a civilian psychologist in 2012 and has been primarily located at Devonport Naval Base. Prior to joining the NZDF, Juliet worked as an educational psychology with the New Zealand Ministry of Education. Juliet's role as an NZDF psychologist is in supporting New Zealand Defence Force personnel in the areas of assessment and selection, training and performance, individual readiness and wellbeing, and operational deployments.*

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Leonie Carter



## Developing AUSMAT's Rehabilitation Capability: Applying the Technical Standards to Practice

**Miss Erica Bleakley**<sup>1</sup>

*1 National Critical Care and Trauma Response Centre, Tiwi, Australia*

### Abstract

**Study/Objective:** The objective of this case study is to describe the process undertaken by the Australian Medical Assistance Team (AUSMAT) in developing its rehabilitation capability, and applying the World Health Organization (WHO) Classification and Minimum Standards for Emergency Medical Teams (EMT) to practice.

**Background:** AUSMAT represents the Australian Government's civilian health emergency and medical response capability. In October 2016, AUSMAT achieved classification as a WHO Type-2 EMT. This achievement was the culmination of many months of preparation, by people from a wide range of areas of expertise, and served as the impetus for AUSMAT to address the need for rehabilitation within its broader capabilities.

**Methods:** The development of AUSMAT's rehabilitation capability required the rationalisation of the WHO minimum standards against AUSMAT's core business.

**Results:** AUSMAT's rehabilitation capability is closely integrated with its core clinical activities. AUSMAT rehabilitation professionals will work within a transdisciplinary model of practice between Occupational Therapy and Physiotherapy. The primary goals of the rehabilitation capability are to reduce secondary injury, achieve optimal outcomes post injury, improve patient flow through the field hospital and identify appropriate transfer and referral pathways. In accordance with typical AUSMAT tasking, the focus of the rehabilitation capability is on the acute phases post injury. Rehabilitation currently remains a largely untested capability for AUSMAT, however through the process of addressing the standards for rehabilitation in a Type-2 EMT, AUSMAT is now in a position to deploy rehabilitation professionals alongside medical, nursing, logistical and other team members.

**Conclusion:** AUSMAT has recently developed a rehabilitation capability that is verified by the WHO as meeting the core and technical standards for a Type-2 EMT and field hospital. As such, AUSMAT represents an example of operationalisation of the minimum standards for clinical practice.

### Biography

*Erica Bleakley is a Trauma Occupational Therapist working with the Trauma Service at the Royal Darwin Hospital. She has a background in acute care with experience in the management of burn and scar injuries, upper limb trauma and traumatic brain injuries. Erica is an active and trained member of the Australian Medical Assistance Team and has been involved in the development of AUSMAT's rehabilitation capability.*

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## Dietary Intake and Associations with Cardiometabolic Health in Australian Vietnam Veterans with and without Posttraumatic Stress Disorder (PTSD)

**Ms Rebecca Theal**<sup>1</sup>, Ms Valerie Xin Pei Tay<sup>2</sup>, Dr Ingrid Hickman<sup>3,4</sup>

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*2 Queensland University of Technology, Brisbane, Australia*

*3 Department of Nutrition and Dietetics, Princess Alexandra Hospital, Brisbane, Australia*

*4 Mater Research Institute-University of Queensland, Brisbane, Australia*

### Abstract

**Background:** Posttraumatic stress disorder (PTSD) is associated with both disabling psychological symptoms and significant physical co-morbidities. Individuals with PTSD are at increased risk for various co-morbid diseases particularly cardiometabolic diseases (CMD) such as heart disease, diabetes, and metabolic syndrome. As a result of a higher prevalence of PTSD, Australian Vietnam veterans are at particular risk of developing CMD. Specifically, veterans with PTSD have been found to be at almost twice the risk of developing diabetes and cardiovascular disease. In the general population, dietary behaviours such as high calorie and sugar intake are associated with weight gain and risk of CMD. However, although disordered eating behaviours have been associated with PTSD, current literature has not investigated the relationship of dietary intake on PTSD-related CMD. Therefore, the aim of this study was to investigate the association between dietary intake and CMD outcomes in trauma-exposed Vietnam veterans with and without

PTSD.

**Method:** 214 male Australian Vietnam veterans with and without PTSD were recruited as part of a cross-sectional study investigating physical and psychological health. Participants underwent a battery of psychological and physical assessments completed by a medical officer and registered psychologist. PTSD status and symptomology were determined by the Clinician-Administered PTSD Scale for DSM-5 (CAPS-5) and confirmed by psychiatrist diagnosis. CMD risk factors and outcomes were collected by self-report questionnaires and medical screening including blood pathology. Lifestyle factors including sleeping, smoking status, alcohol intake, and dietary intake were assessed by self-report questionnaires. Dietary intake was converted to daily frequency and grouped by food type. CMD outcomes, lifestyle factors, and dietary intake were compared between PTSD and control groups using Fisher's exact test and unpaired Student's t tests. Regression analyses, controlling for confounders, were performed to determine the relationship between dietary intake, PTSD, and CMD outcomes.

**Results:** Preliminary results confirm the association between PTSD and CMD. Veterans with PTSD were found to have increased CMD risk factors including increased BMI, high triglycerides, and low HDL cholesterol compared to trauma-exposed controls. Additionally, significantly more veterans with PTSD reported a history of cardiovascular disease and met the criteria for metabolic syndrome. There were no significant differences in food intake frequency between the PTSD and control groups. However, in the PTSD group, increased PTSD symptomology was significantly associated with decreased discretionary food intake and decreased sugar intake. Further details of the particular associations of dietary intake and PTSD-related CMD outcomes will be presented and discussed.

**Conclusion:** These initial findings contribute to the growing evidence of the relationship between PTSD and CMD. Diet is potentially an important mediator of the development of PTSD-related CMD. Understanding how diet and other risk factors contribute to disease risk is essential in order to establish effective interventions specific for PTSD and veteran communities.

### Biography

*Rebecca Theal is a research coordinator at Gallipoli Medical Research Institute (GMRI) with the Veteran Mental Health Initiative. She graduated with Honours from the University of Guelph in Biomedical Toxicology and is completing her Master's in Experimental*

*Medicine with McGill University where she was awarded the Frederick Banting and Charles Best Canada Graduate Scholarship. From her research on the role of insulin in skeletal muscle protein breakdown, Rebecca was a finalist for the Nestle Student Competition with the Canadian Nutrition Society.*

*Rebecca's current research interests include veteran mental and physical health, physical activity, and nutritional health.*

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## Dimensions of Resilience among Australian Vietnam War Veterans: Exploratory Factor Analysis of the Connor-Davidson Resilience Scale and Relationship with Psychopathology

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*2 Institute of Health & Biomedical Innovation, Queensland University of Technology, Brisbane, Australia*

*3 Institute of Resilient Regions, University of Southern Queensland, Springfield Central, Australia*

### Abstract

**Background:** Resilience is a malleable, multidimensional construct referring to an individual's ability to recover from adversity. Research has demonstrated that resilience can act as a protective factor against psychopathology following exposure to traumatic events. Individuals with greater resilience may still experience some distress following trauma, but are less likely to be significantly impaired or develop posttraumatic stress disorder (PTSD), anxiety, or depressive disorders. As such, a better understanding of the role of resilience among trauma exposed military populations is vital in the development of informed preventative treatment strategies. The Connor-Davidson Resilience Scale (CD-RISC) was developed to measure resilience and has been utilised in various populations including Australian university students, OIF/OEF U.S. military veterans, Chinese

military personnel, natural disaster survivors, primary care patients and psychiatric outpatients. The psychometric properties of the scale and ability to predict psychopathology have been outlined in previous research. However, the original five factor structure has lacked robust replication with many researchers proposing alternate factor structures and removal of poor functioning items. Further, the CD-RISC has not been used to investigate resilience among an Australian veteran population. The aim of the current study was to determine the factor structure of the CD-RISC within an Australian veteran sample, as well as determine the relationship of specific factors of resilience with psychopathological outcomes.

**Method:** Three hundred and two male Australian Vietnam war veterans completed a battery of psychological assessments as part of a larger clinical investigation including the CD-RISC, Depression Anxiety Stress Scale-21 (DASS-21), and the Patient Health Questionnaire (PHQ). Participants also completed the Clinician-Administered PTSD scale for DSM-5 (CAPS-5) with a registered psychologist. Exploratory factor analyses with oblique rotation were conducted to examine one to six factor solutions, as outlined in previous literature, to determine an optimal model to represent resilience in this cohort. Following this, multiple regression analyses, controlling for age and marital status, were run to determine the relationships between resilience factors and symptoms of mood and anxiety disorders as well as PTSD and stress.

**Results:** Due to inconsistent loading and poorly defined factors, an optimal model with the original 25-items could not be identified. Removal of three problematic items, related to religion and interpersonal support, yielded excellent internal consistency ( $\alpha = .94$ ). A four factor solution with revised 22-items produced the strongest and most consistent loadings, explaining over 50% of variance. The four factors were Adaptability, Self-Efficacy, Determination, and Tolerance of Negative Affect.

Scores on the Adaptability and Self-Efficacy factors uniquely predicted psychiatric symptom severity. Lower scores on Adaptability and Self-Efficacy significantly predicted PTSD symptoms (CAPS-5), depression symptoms (PHQ), and anxiety and stress symptoms (DASS-21). Interestingly, only lower scores on Self-Efficacy significantly predicted depression symptoms on DASS-21. Determination and Tolerance of Negative Affect did not significantly predict any outcomes.

**Conclusion:** The results of this study suggest the revised 22-items CD-RISC provides valuable insight

into how resilience presents among an Australian Vietnam war veteran cohort and identified unique relationships between factors of resilience and psychopathological outcomes. Overall, levels of Adaptability and Self-Efficacy uniquely predicted symptoms of PTSD, anxiety, depression, and stress.

These findings were similar to previous literature. Future research should continue to evaluate these factors of resilience to ascertain how they could be developed and strengthened to reduce negative outcomes following trauma exposure among military populations.

### Biography

*Ms Chloe Kidd is a Research Assistant for the Veteran Mental Health Initiative at the Gallipoli Medical Research Institute. Ms Kidd has completed a Bachelor of Psychology with First Class Honours at Griffith University, Queensland. During her studies, she was awarded five Academic Excellence awards including the University Medal, and was a Griffith Futures Scholarship recipient in 2015. In 2016, she was awarded the Australian Psychological Society Prize for gaining first place at the end of a four-year psychology program. Ms Kidd also completed a research internship hosted by University of Queensland at the Centre of Youth Substance Abuse Research. In addition to her research efforts, Ms Kidd has volunteered her time working with children and young adults with intellectual and developmental disabilities, students transitioning to University, and tutoring psychology research methods and statistics. Her research interests include: maladaptive eating behaviours including food addiction, substance abuse, posttraumatic stress disorder, and veteran mental health.*

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## Directorate Navy Health, Professional Development Organisation – a Journey of Opportunity

CMDR Kate Tindall, LCDR Ian Richardson

### Abstract

The mission of the Directorate Navy Health, Professional Development Organisation (PDO) is to

meet the clinical readiness requirements of the Navy Health Services workforce. The PDO does this by facilitating professional development opportunities, external courses and remediation, to ensure credentialing compliance in producing a workforce that is appropriately trained to meet capability. The introduction of reflective practice and mentorship schemes are a few examples of the more recent, broader initiatives that the organisation is currently involved with developing and implementing for the Navy Health Services. The PDO presentation will aim to take the audience on an historic journey of opportunities from inception to present day, highlighting some of the hurdles and achievements of the organisation in facilitating professional development within a capable maritime health workforce.

### Biographies

*CMDR Kate Tindall, Senior Clinical Advisor to the Director of Navy Health:*

*CMDR Kate Tindall is the Senior Clinical Advisor to the Director of Navy Health. Her previous role was as the Deputy Fleet Medical Officer, and has also worked as the Senior Medical Officer at HMAS Waterhen and Coonawarra. She has deployed multiple times including operational deployments to the North Arabian Gulf and Operation Resolute.*

*LCDR Ian Richardson, National Professional Development Officer, Directorate Navy Health:*

*Lieutenant Commander Ian Richardson joined the Royal Navy in 1988, as a Junior Medical Assistant. Following a typical career path to Chief, he was commissioned in 2008 as a Medical Services Officer. Fulfilling a number of singleton health, training, practice management, healthcare governance and assurance positions, his operational experience in clinical, diving support, health planning and liaison roles has included: First Gulf War, Northern Ireland and Afghanistan. Lateral transferring to the RAN in 2014 as a Medical Administration Officer; he has occupied a number of strategic roles in the Directorate Navy Health, the latter of which is as the National Professional Development Officer.*

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## Disaster Response: Providing Medical and Security Assistance to Expatriates and Travellers Affected by the 2015 Earthquake in Nepal

Dr Craig Stark<sup>1,2</sup>

*1 International SOS, Singapore, Singapore,*

*2 International SOS Australasia, ,*

### Abstract

**Introduction:** Earthquakes can have a rapid and dramatic impact on the health and safety of individuals caught up in the seismic event and its aftermath. In addition to causing injuries and fatalities, the infrastructure can suffer major damage resulting in the breakdown of communications and disruption to transportation, power supplies and healthcare services. Food, water, fuel and hard currency quickly become scarce and there is an increased risk of disease outbreak and the breakdown of law and order. Foreign nationals involved in natural disasters while abroad can face unique challenges that require specialised medical and security assistance.

**Discussion:** On April 25th, 2015, a magnitude 7.9 earthquake struck Nepal, fifty miles north of Kathmandu. This was the most powerful earthquake to hit the area in over 80 years killing more than 8,000 people and injuring nearly 22,000 others. Subsequent aftershocks caused rock falls, avalanches and buildings to collapse resulting in thousands more deaths and injuries. Besides the local population, at least 300,000 foreign nationals were in Nepal at the time of the earthquake. Hundreds of leisure travelers, expatriates and other foreigners were affected with multiple deaths, injuries and individuals unaccounted for.

Soon after, International SOS deployed a Rapid Response Team (RRT) to Nepal to set up a crisis management center and coordinate rescue efforts, international evacuations and repatriation of mortal remains. The team worked around the clock to provide medical and evacuation support in the setting of an overstretched healthcare infrastructure that had sustained significant damage and increasing shortages of food, drinking water and medical supplies.

The main objectives of the RRT were to 1) Support and provide up-to-date, real time advice to organizations with staff residing and travelling in Nepal; 2) Have a structured outreach to local hospitals where injured expatriates and travellers had been admitted and provide any assistance that might be required; 3) Support missing persons searches and work with



the Nepalese authorities in coordinating helicopter rescue efforts; 4) Assess the medical necessity for international evacuation and conduct air ambulance transfers to the next level of medical care for injured patients; 5) Facilitate the repatriation of mortal remains for individuals that passed away as a result of the earthquake.

The Rapid Response Team consisted of a deployed International SOS physician, a local Nepalese physician, a security specialist, a paramedic, an Operations Manager and an interpreter. Over a 15-day period, the Rapid Response Team worked closely with impacted organizations and individuals to provide advice, emergency assistance and aeromedical evacuation support in addition to coordinating communication between the crisis management center and local providers.

**Conclusion:** In the immediate aftermath of the earthquake; food, water, shelter, communication, personal safety, hygiene, disease outbreak and transportation became major concerns. To support victims of the disaster, International SOS deployed a Rapid Response Team to establish an on the ground presence and coordinate communication and rescue efforts. During the deployment, the Assistance Center and Rapid Response Team provided assistance to over 300 individuals with direct support to four in country medical cases, twelve uninjured people requiring assistance to leave the country, two helicopters evacuations from remote airstrips and one repatriation of mortal remains. While on the ground, the team provided medical and security support and liaised with military and government first responders along with various NGOs responding to the crisis. In the weeks following the earthquake and subsequent aftershocks, International SOS set up a clinic to support expatriate workers affected by the disaster who had remained in the country.

### Biography

*Dr. Stark is the Regional Medical Director, Government Services- Asia Pacific, Eastern Europe, Middle East and Africa.*

*Dr. Stark received his Medical Degree from the Tufts University School of Medicine in Boston and completed his Internal Medicine specialization at the Walter Reed Army Medical Center. He is a board certified Diplomate in Internal Medicine through the American Board of Internal Medicine and a Fellow of the Faculty of Travel Medicine at the Royal College of Physicians and Surgeons of Glasgow. Dr Stark specializes in Aviation Medicine, Disaster Response, International Health, Travel Medicine and is an expert on Pandemic Planning. During the Ebola outbreak in West Africa,*

*Dr Stark worked with military, NGO and government organizations to maintain cross border medical evacuation capabilities from Ebola affected countries. Since then he has been invited to speak in front of the United Nations, World Health Organization, NATO, European Regional Medical Command, Australian Defence Force and the U.S. Department of State.*

*Prior to joining International SOS, Dr Stark served as the NATO Supreme Allied Commander Europe (SACEUR) Flight Surgeon and was in charge of the Internal Medicine and Aviation Medicine program at the Supreme Headquarters Allied Powers Europe (SHAPE) Healthcare Facility in Belgium.*

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## Do Not Use a Loaded Rifle for a Splint

Andrew Gordon

### Abstract

The Australian military medical service, MMS, went to the Boer war reasonably well prepared medically, they went to Gallipoli poorly prepared, and they went to WW2 reasonably well prepared.

I am concerned that the MMS is walking into the next war with its eyes closed. Recent presentations at USI ACT have emphasised the increasing likelihood of war.

The ADF has been described as a "boutique" military service. The same probably applies to the MMS.

We must reconstitute the MMS such that it:

- a) is independent
- b) has its own Command and Control
- c) initiates and leads

It should be commanded and led by military medical officers, not just medical officers in uniform. These military medical officers must be well rounded and well trained in clinical and military medicine, as well as being qualified as a military officer (perhaps via the University Regiment Officer Training Scheme). A promotion to Captain via the Arms and Services Training Programme may then be suitable - similarly for promotion to MAJ and to LTCOL.

The MMS must be prepared for war with a War Establishment and a Peace-time Establishment with medical units which are capable of operating with competence and confidence independently, attached to other units e.g. Battalions and Brigades or unattached i.e. in the middle of "no-where".

The MMS must have a requirement of Command and Control experience for the military medical officers. This should include doctors at the relevant level of command because their responsibilities are, overall, the preservation of manpower by providing good quality clinical medicine, preventative medicine and occupational medicine. Military RMOs, and indeed their equivalents in the Navy and Air Force, are occupational health specialists. They are also the Commanders' military medical advisors in individual patient care, preventative medicine, planning for major calamities such as floods, cyclones, earthquake, tsunamis or war.

Relevant Command and Control structures include:

- The Medical Platoon in the Administration Company of an Infantry Battalion, and its equivalents
- The Medical Company in a Field Ambulance
- The Field Ambulance

The Commander, Lieutenant Colonel, should be a doctor in his or her own right, have mobility, a doctor's pack, and is the Brigadier's medical advisor.

The Colonel, CDMS, Commander of Divisional Medical Services should know all the medical officers under their command before the calamity.

The military medical officers must be commanders and leaders and must be appropriately trained, supported and led.

This is achieved by:

- Relevant Command and Control training
- Care for our young colleague doctors at all levels of command starting while they are military medical students (in or independent of the Military Medical Scholarship Holders programme). Ideally they should be matched with a local Unit or, preferably, the local officer training unit (University regiment). They should be doing most of their officer training while undergraduates
- Linking with senior Reserve military medical officer(s) in the public hospital system

Perhaps the Navy and Air Force doctors could attend the officer training and gain a knowledge about the military as a whole.

We must care for these people as junior doctors and allow them time to be utilised not used, supported, trained, and given freedom. They should be allowed to attend relevant courses, promotion courses, specialist military courses, specialist military medical courses, and specialist civilian medical courses.

If we are not well prepared in terms of command, control, leadership and training then MMS and the ADF is in danger of suffering the consequences of using a load rifle for a splint.

### Biography

*Dr Gordon is totally committed to patient care and has a one-track mind - patient care, followed by patient care, followed by patient care.*

*He gained a wealth of experience in terms of medicine at the University of Melbourne and Royal Melbourne Hospital as well as military experience in Aviation. This included cockpit resource management, crew resource management and pathology.*

*He has served as:*

*Recruit, MUR Melbourne University Regiment 1969,*

*Lieutenant Royal Australian Infantry via MUR,*

*Captain RAAMC on graduation 1975,*

*Dr Gordon served in many places including: Victoria, NSW, Western Australia, Northern Territory, Qld, Irian Jaya, Biak, England, Scotland, and Denmark. He delivered a presentation at the Uniformed Services University in Health Sciences in Bethesda, Washington, USA.*

*He is widely read in military medicine and is currently reading about Military Medicine at Gallipoli. The early days at Gallipoli were horrible, medically as well as militarily.*

*His current commitment is to support the junior military medical officers so that in subsequent years we will (not just shall) have senior military medical officers in Campbell Park and Russell, and provide good quality advisors to the Arms and Services Commanders in Campbell Park and Russell.*

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### Dunk, Dunk, Sunk: The Role of the Medical Allowance List in Response to a Submarine Escape and Rescue

LT Jenny Frasco<sup>1</sup>

*1 United States Navy/Royal Australian Navy, Sydney, Australia*

#### Abstract

Seven years prior to the tragic events of September 11th, 2001, Tom Clancy wrote a book titled *Debt of Honor*. In this novel, a passenger airliner is deliberately flown into the US Capitol building. In a 2002 episode of the BBC program *Panorama* titled "September 11th – a warning from Hollywood" Steve Bradshaw asks Tom Clancy how he came up with the scenario of a plane, full of fuel, flying into a government building. Mr. Clancy responded, "Well first you identify the vulnerability and then you try to see how you can address that particular problem." The idea of exposing vulnerabilities is limited only by what we fail to imagine.

The maritime environment does not lack events from which to identify vulnerabilities. An article published in *Military Medicine* details the 2005 high speed collision of the USS SAN FRANCISCO (SSN 711) with a seamount. The force of impact resulted in injuries to ninety percent of the 138 crew onboard. Upon initial assessment, two were severely injured; twenty-two required prompt medical attention and thirty-two others had notable injuries. Adverse weather and sea state precluded medical personnel, from a surface vessel that arrived eighteen hours post collision, from boarding. Approximately twenty-four hours post collision; a medical team arrived via helicopter and made the transfer to the submarine. Medical response to the crisis was considered outstanding, with adequate medical supplies and appropriate care given to all casualties.

One of the roles of the Royal Australian Navy (RAN) Fleet Health Division (FHD) is to address medical vulnerabilities in isolated maritime environments. This is done by ensuring those entrusted with providing medical care at sea have the necessary medical capabilities including pharmaceuticals, medical equipment and consumables, otherwise known as Class VIII materiel at their disposal. The essence of being prepared for a disaster starts with having a list of the right tools necessary to treat a variety of medical casualties.

The Medical Allowance List (MAL) is a pre-authorised inventory of Class VIII material developed and continually reviewed by medical subject matter

experts, through effective communication, collaboration and dedication of active duty, civilian and contract personnel. Items on the MAL are deemed necessary and required to be held onboard Fleet vessels. The MAL enables a rapid deployable platform for the provision of routine and emergency medical care to shipboard personnel for approximately thirty days. It is a fluid document with considerations given to the role and size of the platform; skill set of the medical personnel deployed; the quantity of crew onboard; and the ever-changing advancements to medical equipment, products, and training. In perhaps the most isolated of seagoing environments, RAN submarines not only have a MAL but they also have separate medical stocks specifically designed to respond to submarine escape and rescue scenarios. The sole purpose of these stores is to allow for a quick response to the unpredictable.

Utilising research from unclassified submarine events around the world and personal observations from *Black Carillon 2016*, the 15th iteration of the annual submarine escape and rescue exercises, this presentation reflects upon three key principles: the importance of trust, communication, and building the essential relationships necessary for planning medical logistic responses during a submarine escape and rescue event. In addition, these key principles demonstrate the practicality of planning for the unpredictable and the evolution of the preparedness cycle from a medical logistics perspective, while offering participants a greater understanding of the overall benefit of MAL utilisation.

#### Biography

*Lieutenant Frasco holds a Bachelor of Art from Michigan State University, a Master of Public Administration from Grand Valley State University and a Master of Business Administration from the University of Michigan-Flint.*

*LT Frasco commissioned as a direct accession into the Medical Service Corps in 2010. She reported to Officer Development School in Newport, Rhode Island on September 11, 2010 and in October reported to Naval Health Clinic Quantico, VA. Frasco served as a business operations liaison to the Medical Home Port and later as Department Head, Materiel Management. She led the effort for the clinic to become the first Military Treatment Facility in the Military Health System to obtain Level III Medical Home Port recognition from the National Committee on Quality Assurance.*

*In August 2012, she transferred to U.S. Naval Hospital Guantanamo Bay and served as Department Head, Materiel Management. She earned recognition as the*



*Bureau of Medicine and Surgery Junior Logistician of the Year 2013.*

*February 2015 Frasco was selected as a Personnel Exchange Program Officer, Fleet Health Division, Sydney where she currently manages all aspects of the medical allowance list for the Royal Australian Navy.*

*Lieutenant Frasco is a Fellow of the American College of Healthcare Executives.*

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### Enhancing Legislation Protecting ADF Reservists

Lieutenant Colonel Chris Grigsby<sup>1</sup>,

Ms Linda Jelfs

<sup>1</sup> Reserve Youth Division, VCDF Group, Canberra, Australia

#### Abstract

Defence Reserve Service Protection Act 2001

Defence Legislation Amendment Bill 2017

The Defence Reserve Service (Protection) Act 2001 (the Act) commenced in April 2001, the Act received bipartisan support in its passage through parliament. After 6 years of successful operation, in 2007 the Government directed a review of the Act.

The focus of the review was to make sure that the Act was working well and still achieving its objectives of enhancing the capability of the ADF.

The terms of reference for the review were based on, the Act's effectiveness, perceptions of Reservists, employers and stakeholders, areas for possible improvement, meeting Defence capability and the administration of the Act.

The Review was completed in 2008 after considerable consultation with peak body employer groups, higher education institutes, unions, employers of Reserves, Commonwealth and State and Territory departments.

The review proposed a number of changes to ensure delivery on future Defence requirements and to safeguard and enhance the protections afforded to ADF Reserve members.

The key recommendations of the review are:

- The removal of unprotected status for some periods of continuous full time service. The current system of some service protected and

other service being unprotected was confusing, complex and administratively cumbersome to implement. Having all service protected provides more security for Reservists when they volunteer for service.

- An extension to employment, partnership and education protections to all types of voluntary continuous full time service. Once again this will create a higher degree of protection for Reservists volunteering, which in turn increases the capability and availability of the Reserve Force.
- An extension of the current scope of education protection, to include reimbursement or deferment of fees and charges. Also a non recording of a failure on a Reservists record as a result of absence on ADF service.
- An extension of financial liability and bankruptcy protections for those Reservists serving on continuous full time service that is operational service. Previously, the service was only protected following a call out.
- Clarification of the language used in the Act, avoiding excessive technical language and to use examples where appropriate, to make the Act easier to understand.
- Inclusion of new definitions for operational service and Defence service, to make things clearer.
- Introduction of civil penalties which will add strength to the penalty system. This is based on the Fair Work Act penalties system, which is concerned with the promotion of a fair workplace and the protection of the rights of employees.
- Extension of the existing discrimination protection to include bullying, harassment and a new section to cover victimisation. This is to protect Reservists subject to adverse or objectionable behaviour because they volunteered for or undertook Defence service.

The objective of these amendments as previously stated are to enhance the availability of reservists for Defence service. By strengthening the protections afforded to Reservists, this will enhance Defence capability derived from the Reserves.

The simplification of the current provisions relating to protected and unprotected service will streamline administration and remove any ambiguity for not only the ADF but also employers and their Reservist employees.

The Bill has now been read in Parliament and we now wait. We are hoping that by June we should have an indication of its acceptance and we can then move onto the next phase of communicating the changes.

With the high proportion of ADF Reservists and Full Time ADF who administer Reservists the AMMA conference presents an ideal opportunity to update Reservists and refresh their knowledge of the protections currently available.

### Biography

*Lieutenant Colonel Chris Grigsby has served in both the Regular Army and the Reserve for some 42 years. He commenced his Reserve service in 1969 and after a few years joined the Regular Army completing his officer training at Officer Cadet School, Portsea (Scheyville Wing) in 1973. He served in the Royal Australian Armoured Corps from 1974 to 1980 and then moved into the corporate world.*

*Chris re-joined the Reserve in 1984 and in 1986 as a Captain he won the Prince of Wales' Award and travelled to the United States to study US Army Reserve tank units. He went on to command 4th / 19th PWLH for three years from 1997 to 2000. Chris' appointment is as Deputy Director of the Office of Reserve Service Protection. Chris investigates cases of discrimination against Reservists and educates both Reservists and employers with respect to their obligations under the Act. He has been awarded VCDF Gold and Silver Commendations for his work in the Office over 15 years.*

*In Chris' civilian life he is Chief Executive Officer of the Defence Health Foundation which supports research into Defence related medical issues. He has a Master of Business Administration and a Masters in Dispute Resolution.*

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## Evaluation of the 'Post War: Survive to Thrive' Online Program for Ex-Service Personnel

**Dr Justine Evans<sup>1</sup>**, Dr Madeline Romaniuk<sup>1</sup>

<sup>1</sup> Gallipoli Medical Research Foundation, Brisbane, Australia

### Abstract

**Background:** Evidence for the effectiveness of online therapy interventions for the treatment of PTSD has been published over the past fifteen years. However, there has been limited research using veteran specific populations. There have been identified barriers to

face-to-face psychotherapeutic treatment in military populations including geography and stigma. Given these barriers there is a critical need for accessible mental health treatment and education. The Post War: Survive to Thrive online program integrates an understanding of the military experience into cognitive behavioural, mindfulness and positive psychology techniques, and was developed and facilitated by ex-infantry soldier Dane Christison. A pilot study was conducted to evaluate the efficacy of this program.

**Aim:** The aim of the pilot study was to evaluate the effectiveness of the Post War: Survive to Thrive online program across the outcome domains of depression, anxiety, stress, posttraumatic stress symptoms and happiness.

**Methods:** Participants were former Australian Defence Force members (N = 29; 22 males and 7 females). The program was advertised through veteran organisations and those interested self-referred. The program was offered through an online platform and had eight self-paced modules with ongoing access to peer support forums. The pilot study utilised a non-controlled, within-subjects longitudinal design with assessment at three fixed time points: pre-intervention (i.e., prior to commencing the online program), 3 months post commencement (post intervention) and six months post commencement (follow up). At each time point, participants completed the following self-report measures: the Depression Anxiety Stress Scale-21 (DASS-21), the Posttraumatic Stress Checklist-5 (PCL-5), and the Oxford Happiness Questionnaire (OHQ).

**Results:** Results of a series of repeated measures ANOVAs indicated that there was a significant main effect between time periods for all measures. Post-hoc comparisons were conducted. Depression, anxiety, stress and posttraumatic stress symptoms were significantly lower at post-intervention compared to pre-intervention, and significantly lower at follow up compared to pre-intervention. Happiness scores were significantly higher at post-intervention compared to pre-intervention, and significantly higher at follow up compared to pre-intervention. Across the outcome domains there were no significant differences between post-intervention and follow up indicating reduction in symptoms and improvements in happiness remained stable.

**Conclusions:** The results demonstrated overall positive benefits for participants of the Post War: Survive to Thrive online program. Psychological symptoms of depression, anxiety, stress and posttraumatic stress symptoms reduced significantly

between pre-intervention and post intervention and this change was maintained at follow up. Happiness significantly improved between pre-intervention and post-intervention and was maintained at follow up. Given the limited research examining the effectiveness of online therapy interventions in veteran populations this pilot study is an important contribution to the international literature. A waitlist controlled trial, with a larger sample size, would help determine if the Post War: Survive to Thrive online program is an effective intervention for the treatment of PTSD and associated mental health symptoms.

**Keywords:** PTSD, mental health, trauma, veterans' health

### Biography:

*Dr Justine Evans is a Clinical Psychologist who currently works as a Research Officer at Gallipoli Medical Research Foundation (GMRF). She completed a Bachelor of Behavioural Science and a Bachelor of Criminology and Criminal Justice and went on to complete an honours year in Psychology. She was awarded the Australian Psychological Society Prize for 1st Place at the end of a four year Psychology program. Dr Evans completed a Doctor of Philosophy in Clinical Psychology in 2012 at Griffith University. Since 2014, Justine has worked at the Greenslopes Private Hospital, Keith Payne Unit (KPU), providing individual and group clinical psychology assessment and intervention to patients with Post Traumatic Stress Disorder (PTSD) and associated comorbidities. In 2016, she was part of the Keith Payne Unit (KPU) multidisciplinary team that was awarded a GMRF Innovation Grant to conduct a pilot study examining the efficacy of Cognitive Processing Therapy as an individual treatment approach within the hospital's Trauma Recovery program. Dr Evans has presented research on the topics of trauma and PTSD at national and international conferences. Her research interests include: clinical intervention efficacy research, PTSD, veteran mental health and the mental health of war affected civilians and refugees.*

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## Ex SEA HORIZON 2017: Learning to "Be Amphibian"

**Dr Neil Westphalen<sup>1</sup>**

*1 RAN Reserve, Palmerston, Australia*

### Abstract

The ADF has undertaken multiple amphibious operations throughout its history. Examples included the capture of German New Guinea in 1914 and the Gallipoli landing the following year during WWI; the recapture of Borneo in 1945 at end of WWII; and numerous disaster relief and other operations since, both domestically and overseas.

The last 40 years have seen a gradual escalation in ADF amphibious capability, commencing in the mid-1970s with six LCHs, followed by the LSH HMAS TOBRUK (II), and then the LPAs KANIMBLA (II) and MANOORA (II), to its current iteration in the form of the LSD CHOULES, and the LHDs ADELAIDE (III) and CANBERRA (III).

During this time, amphibious operations have moved from the periphery to the forefront of ADF operational capability. Simultaneously, the scope of this capability has expanded from limited single-ship operations, to a variety of highly complex multi-ship Task Group operations. It is expected that the ADF will take some years to fully understand all the new capabilities and limitations that will be inherent to these operations.

This presentation will focus on the capabilities and limitations inherent to providing health support to ADF Task Group amphibious operations.

### Biography

*Dr Neil Westphalen graduated from Adelaide University in 1985, and joined the RAN in 1987. He is a RAN Staff Course graduate, and a Fellow of both the Royal Australian College of General Practitioners and the Australasian Faculty of Occupational and Environmental Medicine. He also has a Diploma of Aviation Medicine and a Master of Public Health, and was admitted as a Foundation Fellow of the new Australasian College of Aerospace Medicine in 2012.*

*His seagoing service includes HMA Ships SWAN, STALWART, SUCCESS, SYDNEY, PERTH and CHOULES. Deployments include DAMASK VII, RIMPAC 96, TANAGER, RELEX II, GEMSBOK, TALISMAN SABRE 07, RENDERSAFE 14, SEA RAIDER 15, KAKADU 16 and POLYGON 17. His service ashore includes clinical roles at CERBERUS, PENGUIN, KUTTABUL, ALBATROSS and STIRLING, and staff positions as J07 (Director Health) at*

*the then HQAST, Director Navy Occupational and Environmental Health, Director of Navy Health, Joint Health Command SO1 MEC Advisory and Review Services, and Fleet Medical Officer (January 2013 to January 2016).*

*Commander Westphalen transferred to the Active Reserve in July 2016.*

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*Neil Westphalen*

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### Facing the Past to Face the Future: Facial Disfigurement from the First World War to Afghanistan

Dr Kerry Neale<sup>1</sup>

*1 Australian War Memorial, Canberra, Australia*

#### Abstracts

The Great War changed the lives of thousands of men through disfiguring facial wounds. For the majority of British and Dominion cases, their treatment would take place at the Queen's Hospital, Sidcup – a specialist hospital established, through the efforts of New Zealand surgeon Harold Gillies, to treat severe facial wounds. Between the hospital's opening in 1917 and its closure in 1925, the surgeons there treated over 5,000 servicemen and carried out more than 11,000 major operations.

A century on and the medical innovations made by Gillies and staff at the Queen's still serve as the foundations for facial reconstructive surgery. How did such innovations come about? What was daily life like at the hospital – how did the nursing and surgical staff interact with men with such devastating wounds? A number of artists were also attached to the Queen's and produced stunning portraits of patients – how do these contribute to the broader representation of war's brutality, or does society shy away from such images?

While their wounds were highly visible, this group of men have been largely unseen in histories of the Great War until recent years; their stories hidden behind the more 'acceptable' wounds of amputee or shell-shocked veterans. Why has this been the case? Indeed, what were their lives like after they left the relative security of the hospital wards? The release in Australia of Great War pension files provides new insights into the post-war lives of disfigured veterans. While some men understandably struggled with their disfigurement when returning to civilian life, others demonstrated incredible resilience in adapting to their altered appearance, and society's

response to them.

In recent years, military personnel from Iraq and Afghanistan presenting with face and neck wounds make up close to 25% of wounded – almost double the percentage of facial wounds sustained by servicemen during the Great War. In these conflicts, approximately 75% (others estimate as high as 87%) of wounds are caused by improvised explosive devices – the characteristics of which mirror those of the shrapnel wounds of the First World War, with rough, jagged and torn entry and exit points. The major difference now is an increased frequency of facial burns from the heat of the blast. While medical treatment continues to advance, is society any better prepared for the return of disfigured veterans? Can looking at the experiences of Great War veterans and those who treated them help us to better understand the needs and concerns of today's war disfigured?

The centenary of the Queen's Hospital's opening provides an opportunity to recognise the remarkable legacy of the patients and staff of the Queen's – stories of innovation, resilience and compassion that have been too long overlooked. It also provides an opportunity to question and address the social stigma still surrounding wartime facial wounds and disfigurement today.

#### Biography

*Dr Kerry Neale is a curator at the Australian War Memorial in Canberra, with a particular interest in the social history of war, medicine and disability. She completed her doctorate at the University of New South Wales, examining the experiences of British and Dominion Great War soldiers who sustained facial wounds, as well as the men and women who treated them. She is currently working on the publication of her thesis.*

*Dr Neale has undertaken research and presented papers in the United Kingdom, New Zealand, Canada and the United States. She has been the recipient of several awards including an Australian Bicentennial Scholarship from the Menzies Centre for Australian Studies, King's College, London, and grants from the Australian Army History Unit, the Wellcome Trust in London and the International Council for Canadian Studies. She graduated with First Class Honours and the University Medal in History from the Australian National University.*

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### Far-Forward Operations: Current Gaps and Challenges in Treating Hemorrhagic Shock and Traumatic Brain Injury

Dr Hayley Letson<sup>1</sup>, Professor Geoffrey Dobson<sup>1</sup>

*1 James Cook University, Townsville, Australia*

#### Abstract

**Background:** Non-compressible torso haemorrhage/shock (HS) and traumatic brain injury (TBI) are leading causes of potentially survivable trauma in far-forward operations, civilian war-zones and terrorist attacks. New drug therapies are urgently required for battlefield medicine. Our aim was to examine the efficacy of small-volume adenosine, lidocaine and Mg2+ (ALM) IV therapy on survivability, cardiac function and coagulopathy after TBI and HS in a lethal rat model.

**Methods:** Male Sprague-Dawley rats were anesthetized and randomly assigned to: 1) sham, 2) no-treatment, 3) NaCl controls, and 4) ALM-treatment. Animals were ventilated and HS was induced by liver resection after mild-TBI (fluid-percussion). After 15 min, a single-bolus of 3% NaCl±ALM (0.7 ml/kg) was given and after 60 min (Phase 1), 0.9% NaCl±ALM stabilization 'drip' (0.5 ml/kg/hour) was commenced and continued for 3-hours (Phase 2). Coagulopathy was assessed using ROTEM and cardiac function using 2-D-echocardiography.

**Results:** Mortality in shams was 25% (212 min); no-treatment, 100% (104 min); 3% NaCl, 100% (136 min); and 3% NaCl ALM, 50% (166 min). Death was associated with decompensated shock and cardiovascular collapse. At 60 min Phase 1, MAP for shams, no-treatment, 3% NaCl or 3% NaCl/ALM treatment was 71±5 mmHg, 42±10, 53±20, 63±7 respectively. At the end of Phase 2, MAP in ALM survivors was 40±1 mmHg (n=4). Estimated internal blood loss for no-treatment, 3% NaCl and 3% NaCl ALM was 17±1%, 24±3% and 12±1% (p<0.05). At Phase 1, ALM-treated animals had improved cardiac function. Untreated animals and controls developed a profound hypocoagulopathy, which was corrected in ALM-treated animals.

**Conclusions:** In a lethal rat model of combined TBI and internal hemorrhage, ALM therapy led to 50% survival, greater hemodynamic stability, corrected hypocoagulopathy and 50% less blood loss compared to controls. 100% of controls died. Small-volume ALM fluid therapy may have wide applications for SOF medics/corpsman in far forward environments.

**Support:** This work was supported by USSOCOM, IACUC protocol A2118, USAMRMC proposal SO13004 under Award No. W81XWH-15-1-0002. The opinions, interpretations, conclusions are those of the authors and are not necessarily endorsed by the US Department of Defense.

#### Biography:

*Dr Geoffrey P. Dobson holds a Professorial Chair in the College of Medicine and Dentistry, James Cook University. He received his undergraduate BSc and MSc degrees at Monash University and a PhD at the University of BC, Vancouver, Canada. He then spent 8 years specializing in cardiac research at the National Institutes of Health. Dr Dobson's research philosophy is to tap into hundreds of millions of years of animal adaptations and develop new therapeutics for cardiac surgery, trauma and sepsis. Dr Dobson is an elected fellow of the American Heart Association, and is currently working with US military on far forward resuscitation, traumatic brain injury and burns.*

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### Focus on civilians: Planning and Sustaining Multiple Trauma Hospitals in a Conflict Zone in Support of Humanitarian Efforts

Mr Leo Cusack<sup>1</sup>

*1 Aspen Medical, Deakin, Australia*

#### Abstract

The commencement of the offensive by the Iraqi Army against ISIS in Mosul led to a significant increase in trauma casualties. Mosul is a city of about 1.2 million people and casualties have been high. Nearly half the casualties have been civilians and this includes a high proportion of children.

In March 2017, Canberra-based Aspen Medical was contracted by the World Health Organization (WHO) to provide healthcare professionals and hospital management at a 48-bed field hospital south of Mosul in northern Iraq. The field hospital was established by WHO at the urgent request of the Ministry of Health in Iraq. WHO coordinated a number of organisations providing trauma care in the conflict zone.

Aspen Medical initially provided a team of over 80 personnel to the facility including emergency physicians, surgeons, anaesthetists, nurses, midwives, neonatal specialists, obstetricians and paramedics. In addition to the clinical team, Aspen Medical provided management, logistics, security, administration and operations specialists to the field hospital. The Aspen Medical team worked alongside 50 national health personnel of different cadres to support trauma care at the hospital.

In this abstract Leo Cusack will outline how the facility was set up. How the systems, processes and logistics were created to enable a team of clinicians from around the world to perform their duties in Mosul. He will outline the importance of training and creating a multicultural team capable of building capacity. He will also discuss the collaboration with many other agencies that was required to ensure the success of the mission.

### Biography

*Leo Cusack is an independent Project Manager who has a long association with Aspen Medical. During the West Africa Ebola crisis 2014-2015, he was the Program Manager for Aspen Medical. He was responsible for Aspen Medical's deployments to Sierra Leone in support of the Australian, New Zealand and UK Governments and also the four Ebola Treatment Units in support of USAID in Liberia.*

*Currently, he is responsible for the company's trauma centre deployment south of Mosul, Iraq.*

*Leo's career has seen him complete his Bachelor's degree at ANU, post graduate studies in Project Management from UNSW and he is a graduate of the Royal Military College, Duntroon, and served in the army as an Infantry Officer until 2005.*

*Upon leaving the ADF, Leo has had a broad business career including the General Manager of a multinational company in the region and now concentrates on project consulting and commercial property interests.*

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## Forensic Odontology (FOd) in Disaster Victim Identification - its History and Importance

CAPT Sam Osborn<sup>1</sup>

*1 Enoggera Dental Centre*

### Abstract

A major disaster is defined as an often unexpected event with damages of unexpected magnitudes, frequently resulting in large numbers of injuries and deaths to people, and a concomitant inability of mortuaries to manage the human remains. Disasters may be classified as either open or closed. A closed disaster, such as MH17, involves a known number, or list, of victims. Open disasters, such as the Boxing Day Tsunami, are where the number and names are not known. The Lockerbie disaster was a mix of the two types. To identify the victims of a disaster, a Disaster Victim Identification (DVI) team is generally deployed, comprising rescue teams, recovery teams, forensic pathologists, anthropologists, and forensic odontologists.

Forensic odontology (FOd) is the correct collection, management, interpretation, evaluation and presentation of dental evidence for criminal or civil legal proceedings. It is one of three primary identifiers designated by Interpol to identify victims of mass casualty events; the other two being fingerprint and DNA identification. Additionally, FOd is comparably inexpensive when compared to DNA analysis, allows for rapid identification, and is easily accessible to people with the requisite skills; such as dental officers. FOd is involved in all five phases of DVI - Scene, Post-mortem, Ante-mortem, Reconciliation and Debrief.

In instances where there has been decomposition, fragmentation, incineration or substantial damage to bodily remains, such as during mass disasters or conflicts, DNA and fingerprint identification is generally impracticable, or not possible. Consequently, with teeth being composed of the hardest substances in the human body and being able to survive in most of the conditions encountered at death and during decomposition, FOd has proven remarkably successful in identifying victims in mass casualty events; 77% of Lockerbie air disaster victims were identified with the aid of FOd, more than 60% during the Bali bombings, 79-87% during the Thailand tsunami, and a majority during the Victorian Bushfires.

DVI operations, especially for open disasters, are typically more technically and environmentally

challenging when compared to single identifications since the 'burden of proof' is much higher during reconciliation; because if a mistake is made, it affects the families of two individuals. Consequently, deployed personnel require training in their professional area of expertise, as well as specialised training to contribute safely and effectively as a member of the DVI team in often austere environments. DVI personnel must be able to live and work in situations where the provision of basic services may be intermittent/non-existent and where occupational and environmental risks may be high. Military personnel, by virtue of their training, are ideally suited to operating in such conditions, and as a result, several allied nations have classified DVI training in FOD as mission essential.

However, despite the overwhelming suitability of military personnel, and utility of FOD, in identifying victims in mass disaster and conflict situations, the Australian Defence Force does not have a dedicated FOD response team ready to provide a coordinated forensic odontological response to a mass disaster or conflict. Canada has an odontological response team operating with 48 hours NTM, pre-packed, with a rotational 6 month roster, and individual/collective training every 6-12 months.

The establishment of an ADF Forensic Odontology Response Team (ADF-Fort) is what the ADF needs to prevent events like the misidentification of PTE Jacob Kovco in 2006 from ever happening again!

### Biography

*Captain Osborn commenced a Bachelor of Arts and a Bachelor of Laws at The Australian National University in 2004. Upon completion Captain Osborn studied towards his Bachelor of Dental Science at Charles Sturt University, and entered the Australian Defence Force in 2013 at the start of his final year of dental school as a Lieutenant.*

*Upon graduation, and prior to marching into the 2nd General Health Battalion, Captain Osborn completed a locum posting with Northern Territory Health in Alice Springs. Since arriving in Brisbane, Captain Osborn has enjoyed several specialty postings within the 2nd General Health Battalion as a Dental Officer. In 2016, Captain Osborn has also commanded the Dental Team on Exercise Puk Puk 2016 in Papua New Guinea, providing dental care to ADF, PNGDF and British military personnel. With regards to Disaster Victim Identification, Captain Osborn recently completed the International Military Mission Essential Forensic Training (IMMEFT) in Vancouver, Canada.*

*Captain Osborn is married to Alexandra, with two dogs, and plans to start a family in the near future.*

*Captain Osborn enjoys maintaining his fitness, and is an avid football player (AFL) and traveler.*

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## From Concurrent to Integrated: Innovatively Challenging Traditional Paradigms of Aeromedical Evacuation Interoperability - Exercise Cope North 17

**FLTLT Shaun Robertson**<sup>1,2</sup>

*1 Royal Australian Air Force, Amberley, Australia*

*2 Queensland Health - Retrieval Services QLD, Kedron, Australia*

### Abstract

Exercise Cope North 2017 (CN17) is an annual trilateral exercise between Australia, United States of America (USA) and Japan which is primarily centered on Air Combat Training and Large Force Employment scenarios with an associated combat support exercise mission theme.

For RAAF Health Services Wing (HSW) Cope North represents a key opportunity for RAAF Aeromedical Evacuation (AME) teams to conduct interoperability training with the United States Air Force (USAF) and Japanese Self Defence Force (JSDF) on a recurring annual basis in an established exercise environment. In 2017, the combat support exercise mission theme was focused around a Humanitarian Assistance (HA) scenario set incorporating multiple aeromedical evacuation support requirements.

Having matured the role of AME throughout previous Cope North participation, CN17 presented a unique opportunity to challenge the idea of interoperability. With this in mind, combined planning was commenced to develop a trilateral Aeromedical Evacuation System (AES) capable of receiving and validating AME requests, subsequent mission tasking and, coordination and conduct of AME mission sets.

In addition to this, the developed AES concept would require the combining of personnel resources at an AME team level to test each nations ability to integrate into multiple trilateral AME teams for mission conduct and clinical care.



Essentially, this concept would attempt to mirror what is already achieved on a number of current combined and coalition operations within the ground based expeditionary health environment.

This presentation will look to explore the steps taken to trial moving from concurrent to integrated AME operations and how this concept when effectively implemented can not only increase operational effectiveness but can also act to improve overall efficiency not limited to health resources.

Importantly and in keeping with this year's conference theme, this concept has the potential to improve our ability to respond to both disaster and conflict with greater efficiency, effectiveness and flexibility.

The numerous lessons learned and the many challenges faced will also be discussed and identified with the view to providing insight for potential future operational and exercise AME deployment into the combined or coalition environment.

### Biography

*FLTLT Shaun Robertson is currently posted to Headquarters Health Services Wing as the Health Operations Officer.*

*A Nursing Officer by specialisation, he holds a Master of Nursing (advanced practice), Post Graduate Certificate of Aero-Medical Evacuation. He is currently completing the Master of Traumatology program with the University of Newcastle.*

*He has previously been deployed on both Operation RESOLUTE and Operation HIGHROAD.*

*His professional interests include aero-medical evacuation system and clinical care development and was a co-author of the RAAF Manual of Aero-Medical Evacuation.*

*Previous to his current posting he was a lead instructor on all RAAF Fixed and ADF Rotary Wing Aero-Medical Evacuation courses.*

*He is currently on leave without pay from Air Force working for QLD Health's Retrieval Services QLD (RSQ) as a Clinical Nurse.*

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## Garrison Health Clinical Governance - Consumer Engagement

Ms Madeline Makeham<sup>1</sup>, Ms Janine Fletcher<sup>1</sup>

*1 Garrison Health Operations, Bonner, Australia*

### Abstract

The Joint Health Command (JHC) mission is to provide a joint health effect that enables Australian Defence Force (ADF) capability and provides care for our people. JHC is a key military enabler through the provision of a world-class military health system to maintain the fitness of individuals to meet ADF preparedness requirements and ensure wounded, ill and injured personnel receive timely, high quality health care when required.

The Director General Garrison Health Operations (DGGHO) is responsible for providing assurance to SGADF/CJHLTH of the integrity of the Garrison Health Clinical Governance (CG) system and reporting to CJHLTH the risks and quality improvement activities across GHO. DGGHO achieves this through information provided to the GHCGB via defined reporting requirements from GHO Directors and the Chairs of subordinate CG Committees.

The purpose of the GHCGB is to provide direction on strategic level GHO Clinical Governance. This will be done through directing clinical governance activities to subordinate GHCGB Committees. This committee structure provides the quality improvement framework for CG within GHO. The GHCGB ToR details the criteria for consumer representatives.

The Directorate of Operational Clinical Governance and Clinical Services (DOCG&CS) have undertaken an assessment of GHO compliance with National Health Standards including the National Safety and Quality Health Service Standards (NSQHS) and the Victorian Quality Council (VQC) to determine how well we engage and partner with our consumers.

DOCG&CS used an assessment tool developed by the VQC that assesses a health services effectiveness of partnering with consumers. This was done against 10 key elements. GHO were only fully effective in two elements. Whilst GHO have some consumer engagement processes in place, the extant processes needed either enhancement or development. The following four areas were identified as requiring the most development for Garrison Health:

- Protocols are in place in health centres to enable consumers to fully participate in their care, including flagging safety issues
- Consumer and community participation in

improving safety and quality is an accepted part of the organisations culture and functioning

- Consumers are made aware of the processes for participating in their care
- Sufficient information and opportunity are provided for consumers to participate meaningfully in their care

It was recommended that to enhance and develop these areas of partnering with consumers, we should seek to appoint consumer representatives on the GHCGB. This recommendation is currently pending implementation. The process followed and results of the implementation will be detailed in the presentation.

### Biography

*Madeline Makeham is a Registered Nurse who has been working in Garrison Health Operational Clinical Governance over the last five years. In that time Madeline has been involved in developing and implementing a Clinical Governance system for garrison health. Part of her role has that has been to assist with setting up the Garrison Health Clinical Governance Board. Most recently this has seen the addition of consumers sitting on the Board to provide more direct and timely feedback into this clinical safety and quality forum.*

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## Garrison Health Planning for International Disaster Relief - Operation FIJI ASSIST 2016

**Captain Colin Strachan<sup>1</sup>**

*1 Joint Health Unit - South Queensland, Birkdale, Australia*

### Abstract

On 20 - 21 February 2016, Tropical Cyclone Winston made landfall on Koro, a small Pacific Island of the Republic of Fiji, bringing with it utter devastation and destruction. In response, the Australian Government committed a number of resources including the formation of a Humanitarian Assistance/Disaster Relief (HADR) force consisting of members of the Australian Defence Force. In response to the Cyclone, Headquarters 1st Division (HQ 1 Div) deployed the Support and Response Team (SRT) and a Joint Task Force (JTF) Minor Headquarters (HQ) with a C2 node. As 7 Combat Brigade (7 Cbt Bde)

were in the Readying Phase of the Force Generation Cycle, they were assigned with the planning of the follow on forces to provide relief and assistance. The 6th Battalion were designated the Ready Battalion Group (RBG) and were already on a reduced notice to move for contingency operations, including potential HADR missions and consisted of support elements from 7 Cbt Bde and logistical elements from 17 Combat Service Support Brigade (17 CSS BDE). The garrison based mounting health unit was Enoggera Health Centre (EHC), Joint Health Unit - South Queensland (JHU-SQ) located on Gallipoli Barracks, Enoggera.

The notification that JHU-SQ were to prepare the follow on force from 7 Cbt Bde came from the presentation of three 2 CER personnel to the Enoggera Dental Centre on 19 February 2016 to "get ready" for a potential HADR Mission to Fiji. Upon investigation, HQ 7 Cbt Bde had not issued any formal direction to have personnel prepared and had not commenced the planning cycle to ascertain the manning that would be required. The HADR mission had been allocated to name OPERATION FIJI ASSIST and designated Joint Task Force (JTF) 635.

By 22 February 2016, JHU-SQ had thrust themselves into the JTF 635 planning cycle to better prepare 7 Cbt Bde personnel for HADR operations in Fiji and neighbouring islands. This was the first time the JHU had attempted to be embedded within a JTF planning group which had with it a number of conflicting priorities such as, OMD management, Operational Health Support Planning and the requirement to prepare a fluctuating number of personnel with a contracted workforce that has limited contracted hours. Whilst these issues proved challenging and no formal tasking was issued, the end result was the preparation of over 450 personnel in 48 hours for a HADR mission. On 25 February 17, HMAS Canberra, with the Amphibious Task Force, set sail for Fiji with all personnel medically prepared for HADR missions IAW the directed Health Support Plan.

Following Operation Fiji Assist JHU-SQ were invited to the After Action Review conducted by 7 Cbt Bde and performed its own internal review of the activity. While successes were praised, there were a lot of improvements that needed to be raised with regards to the medical preparations prior to the Force Elements sailing. Key recommendations included the allocation of personnel deploying at short notice on HADR missions and the utilisation of an RBG that had been prepared for short notice deployments; the allocation of personnel to a manning document who did not meet the criteria of the Health Support Order; and, liaison between Garrison Health Operations, Mounting Headquarters and JHUs to allow for the

provision of support to conduct extended hours of operations to meet HADR preparedness timelines.

Since Operation Fiji Assist, there have been many inroads into the formulation of communication channels between JHU and Brigade HQ. This is not limited to the formal tasking avenues that exist but involve regular face to face meetings that result in transparency in planning and actions.

### Biography

*Captain Colin Strachan enlisted in the Australian Army in 1996 and was allocated the Royal Regiment of Australian Artillery and posted to the 1st Field Regiment. Captain Strachan commenced his officer training in 2002 and in 2004 Captain Strachan was medically discharged and commenced a Bachelor of Applied science (Sport and Exercise Science) with honours majoring in musculoskeletal rehabilitation.*

*In 2009 CAPT Strachan recommenced his officer training at the Royal Military College and upon completion was allocated the the Royal Australian Army Medical Corps. Captain Strachan has since been posted as the Operations Lieutenant at 8 Close Health Company, Darwin, Second in Command, Trainee Rehabilitation Wing and is currently the Operations Captain and Second in Command of the Enoggera Health Centre, Joint Health Unit - South Queensland. Whilst at Enoggera Health Centre, Captain Strachan has been responsible for the planning and execution of pre-deployment medicals for over 4,000 personnel over an 18 month period including planned and short notice deployments.*

*Captain Strachan is married and has two children and Captain Strachan is a strong supporter of of rugby union.*

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*Captain Colin Strachan*

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## Global Emergency Medical Team Classification & Standards

**Ms / WGCdr Bronte Martin<sup>1</sup>**

<sup>1</sup> National Critical Care & Trauma Response Centre, Casuarina, Australia

### Abstract

The World Health Organization (WHO) Global Emergency Medical Team (EMT) Initiative aims to reduce the loss of lives and prevent long-term disabilities as a result of sudden onset disasters and outbreaks through the rapid deployment and coordination of quality assured Emergency Medical

Teams; Preserving Health, Protecting Dignity and Saving Lives. The EMT Initiative supports member states, NGOs and international organizations by identifying best practice and minimum standards in clinical care, operational field logistics and coordination in austere environments.

The Australian Medical Assistance Team (AUSMAT) program is funded by Australia's Department of Health to maintain a standby national and international EMT deployment capability to sudden onset disasters (SODs) and medical emergencies throughout the Asia-Pacific region, including a fully self-sufficient, Type 2 Surgical Field Hospital. Recent deployments include 2013 super-typhoon Haiyan (Philippines) and Tropical Cyclones Pam in 2015, (Vanuatu) and Winston in 2016 (Fiji) respectively.

There has been significant progress and transformative changes implemented in the quality and coordination of EMT responses to sudden onset disasters following the global lessons noted in Haiti Earthquake. International response operations in the Philippines, West Africa, Vanuatu and more recently Nepal have highlighted the need for flexible and effective coordination mechanisms that take into account the local context and operational environment.

The Global EMT Classification, Verification and Mentoring program was introduced by WHO in 2015, ensuring a transparent, equitable and supportive process for validated, quality assured international Emergency medical care is delivered in response to Sudden Onset Disasters.

### Biography

*Bronte Martin is the Director of Nursing (Trauma & Disaster) and founding member of the National Critical Care Trauma Response Centre.*

*Bronte is currently both Australian Medical Assistance Team (AusMAT) Mission & Clinical Team Leader and Australian representative for UN Disaster Assessment Coordination Teams (UNDAC); recent deployments Tropical Cyclone Pam, Vanuatu and Philippines super-Typhoon Haiyan.*

*Bronte is also a Wing Commander in the Royal Australian Air Force Specialist Reserve; previous operational experiences include deployments to Solomon Islands and Afghanistan.*

*Throughout her career Bronte has been active in the establishment of key clinical, acute healthcare partnerships in Emergency & Disaster Management response within the Asian-Pacific region and is the current Regional representative Chair for WHO Emergency Medical Teams.*

Most recently, Bronte returned from secondment undertaken with the World Health Organisation (WHO) Emergency Medical Teams (EMT) Secretariat in Geneva to develop and establish the Global Classification, Mentorship & Verification program; ensuring validated, quality international Emergency medical care is delivered in response to sudden onset disasters.

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### Health Response to Conflict and Disaster: Can We Learn Lessons From Disaster Response in Other Industries?

Dr Isaac Seidl<sup>1</sup>

*1 Joint Health Command, Canberra BC, Australia*

#### Abstract

In 2009, the volcano Eyjafjallajökull erupted in Iceland, throwing the flight schedules of thousands of travellers into disarray. This presentation will contrast the experiences of two travellers, including the author, and propose a number of lessons that health disaster managers can apply.

The lessons are:

- Lesson 1. There is a need to make decisions early, often with incomplete or inconsistent information.
- Lesson 2. Communicate early, communicate often and communicate factually.
- Lesson 3. Engage the media.
- Lesson 4. Plan for surge capacity.
- Lesson 5. Address basic comforts.

Each lesson is applicable regardless of the kind of disaster and can be quintessential in the success of the response.

Health disaster managers should look to learn lessons from the responses to other disasters, assimilate the relevant lessons and turn learning into action in order to enhance our own responses.

#### Reference:

- 1 Seidl, Daly, Johnson, Aitken (2011). A tale of two cities: responses to the Eyjafjallajökull eruption and lessons for health disaster management. *AustHlthRev* 35:294-6.

#### Biography

Dr Isaac Seidl is a specialist medical administrator and general practitioner. He completed his medical degree at UWA, then undertook a variety of Army appointments across all military environments, before being appointed to Qld Health. Following a period of study sabbatical, he returned to the Australian Army. He holds the rank of Colonel. Dr Seidl has published in the literature and presented at national and international conferences. His academic interests include crisis leadership, clinical governance and ethics. He is Director Garrison Operations at Joint Health Command. Dr Seidl lives in Canberra, Australia with his wife and two children.

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### Health Workforce Governance Framework

GPCAPT Paula Ibbotson<sup>1</sup>

*1 Joint Health Command, Canberra, Australia*

#### Abstract

Completing individual readiness requirements within the military provides a baseline for the deployment of Australian Defence Force personnel. For military health practitioners complementary to this requirement is the conduct of health credentialing. Credentialing of this nature is like individual readiness for military health practitioners and ensures they are professionally ready to undertake their role. In 2015 Defence initiated the credentialing of all military and Australian Public Service health practitioners as part of a health workforce governance framework (HWGF). This framework aims to meet minimum national standards, deliver a credentialed workforce, and deliver quality and safe health care effectively and efficiently.

In essence HWGF ensures all health practitioners have the skills and knowledge to fulfil their role and deliver quality and safe health care. Accordingly, the HWGF provides a method for ensuring that all health practitioners are competent, current and authorised to fulfil their clinical or professional role. The HWGF comprises competency and currency criteria, scope of clinical practice statements, credentialing processes, professional development and information management.



Defence, through Joint Health Command and under the technical authority of Surgeon-General ADF, is conducting a phased and centrally coordinated roll out of in service credentialing. Credentialing is a formal process to verify the qualifications, experience, professional standing and other professional attributes of health practitioners for the purpose of forming a view about their competence, performance and professional suitability to provide safe, high quality healthcare services within specific organisational environments.

The endorsed vision for the framework is: Defence health workforce governance = competent, current and credentialed.

Defence Health Manual Volume 2 – Part 17: Health Workforce Governance provides the authority and basis for the roll out of the HWGF and establishes the information management requirements underpinning the practical application of the HWGF.

Existing Defence information management systems, PMKeyS and Objective, provide the mechanism to enable HWGF. Using current information management systems builds on existing knowledge of PMKeyS and Objective and ensures processes are simple and easy to follow, and benefits Defence through effectively capturing the requisite data.

The presentation covers the progress of credentialing health practitioners to 1 October 2017, the impact of establishing a single portal for the data by establishing a baseline capability with a phased approach to achieving a mature capability and the expected benefits for effective health workforce governance.

### Biography

*Group Captain Paula Ibbotson joined the Royal Australian Air Force in 1987 as commissioned as a Nursing Officer. GPCAPT Ibbotson has had postings to various health and non-health positions in both the Single Service and Joint health environment. Group Ibbotson's postings have included No 6 RAAF Hospital at RAAF Base Laverton Health Centre, Support Unit Melbourne as the Senior Nursing Officer, instructional roles at Health Services Training Flight, RAAF Base Laverton and as the OIC of the same unit. She has occupied Staff Officer Roles at various ranks both in and out of specialisation in Air Force Headquarters, Defence Health Services Branch/Division and Joint Health Command. GPCAPT Ibbotson has deployed to East Timor as the Senior Health Officer in the United Nations Peace Keeping Headquarters (UN PKF) and she is a graduate of the Australian Command and Staff College. GPCAPT Ibbotson is currently the Director*

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## Holistic Rehabilitation of Wounded Ill and Injured Trainees in a Military Context

Major Allison Gillam<sup>1</sup>

*1 Royal Military College Duntroon, Campbell, Australia*

### Abstracts

The longer-term rehabilitation of injured trainees remains a challenge for Defence Forces. In Australia, longer term rehabilitation at the Royal Military College - Duntroon (RMC-D) presents as a unique challenge due to the restrictive portals for reintegration into training, with training cycles of a 6-month duration.

In 2007, a Physical Conditioning Optimisation Review (PCOR) identified limitations in the rehabilitation processes at Sir Neville House VC platoon (NHVC PL the rehabilitation platoon at RMC-D) making a series of recommendations to improve rehabilitation outcomes. These recommendations included improving accommodation, formalised programs for duty during the day, and improving clinical pathway meetings to include the OC Bridges Company and the RMC-D medical officer. The outcomes of the PCOR led to an increase in return to training from 0% in 2007 (with 22 cadets medically discharged) to 42% in 2008 (3 cadets were medically discharged and another 9 were on schedule to return to training later that year).

Since this initial review, NHVC PL has been made a permanent establishment at RMC-D. However, despite purpose built accommodation for the rehabilitation platoon opening in 2011, with capacity to house 45 cadets; NHVC PL was still faced with several challenges including; no dedicated rehabilitation facility, lack of dedicated SoPs, ensuring adequate staffing with the right qualifications, secondary depressive presentations in many cadets, and an increase in class sizes putting a strain on finite resources. Considering these challenges, the two biggest risks identified at RMC were a culture of isolation, shame and worthlessness among injured

cadets; coupled with a lack of consistency or cohesion in rehabilitation management and support. As such two primary lines of effort were established to combat these risks: Changing the culture to one of acceptance, empowerment and opportunity; and the establishment of a holistic, cohesive approach to rehabilitation.

Strategies include: 1) Dedicated fortnightly medical management conferences including a medical representative, physiotherapist, padre, psychologist, PTI, rehabilitation case manager, and NHVC PL staff in order to constantly evaluate the cadet's clinical and military pathway; 2) Cadet engagement in the medical management conference where the cadet briefs the rehabilitation team on their rehabilitation journey and is encouraged to ask questions and discuss their needs and goals thus empowering each cadet through proactive management of their own rehabilitation and opportunities; 3) Individualised six-week training programs with the culminating sixth week – test week – undertaking numerous physical fitness assessments including IFA and PESA serving as both motivation and a means of monitoring clinical progression; 4) Constant military engagement through the daily provision of military lessons common to RMC cadets (e.g. service writing, tactics, etc), 5) Dedicated personnel management and character development / resilience sessions with both the psychologist and padre from RMC-D to ensure cadets remain engaged and positive in their physical rehabilitation; and 6) Empowering the cadets to become rehabilitation advocates by teaching them about the medical, rehabilitation and welfare management systems in detail so that when they became junior commanders they could more effectively manage their soldiers.

Recent indicators of success have seen no secondary presentations of clinical depression (only those who came here for existing mental health issues); and for the first time the cadets are not ashamed of their rehabilitation journeys (having designed and produced a NHVC PL T-shirt that they wear during PT, and in their own time).

All rehabilitation must take a holistic approach beyond that of interprofessional treatment by not only focussing on rehabilitating the physical injury but just as importantly supporting the psychological and psychosocial needs of injured cadets and educating them as a means of empowering them to take ownership of their injury and rehabilitation.

### Biography

*MAJ Allison Gillam; an AUSTINT Corps officer, sustained a back injury during training at the Royal Military College in 2001. This led her to seek*

*alternative ways to rehabilitate and manage her injury so she could go on to graduate, and continue to serve. In 2008 she sustained an injury to her left knee while deployed to Afghanistan; requiring subsequent corrective surgery. This in turn exacerbated her back injury requiring surgical intervention. Receiving inconsistent and poor quality support; and observing others in a similar situation, she again sought her own program and began engaging in research in the rehabilitation and prehabilitation space. MAJ Gillam wrote submissions on preconditioning at ARTC and started shaping her career so she could eventually be selected as Officer Commanding Bridges Company at RMC. Her goal was to improve the quality and consistency for SCDTs undergoing rehabilitation; and shift the negative culture around injured trainees in Army.*

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*MAJ Allison Gillam*

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## How Telemedicine is Transforming Remote and Aero Medical Medicine

Dr Neil Nerwich<sup>1</sup>

*1 International SOS, Sydney, Australia*

### Abstract

Technological developments are progressively improving remote patient management capability, ranging from the enhancement of diagnosis and treatment at remote locations to live clinical monitoring of a patient inflight. International SOS and its subsidiary MedAire are involved in the development and utilisation of bespoke telemedical devices for remote and inflight use across a range of industries and settings.

MedAire provides ground to air medical assistance to commercial airlines globally. Since 2003, MedAire has supported a capability to stream vital sign data via an onboard telemedical device to emergency medical personnel on the ground. The device can be applied to the unwell passenger by non-clinicians on the aircraft and, through the transmission of diagnostic data to ground based emergency physicians, acts as a diagnostic tool for management of emergency events in the air. MedAire manages over 4,000 inflight cases per year using this device.

For commercial aviation, the remote evaluation of potential cardiac cases is of particular importance. In an analysis of 200 ECG traces transmitted inflight to MedAire, a total of 84% were rated as either "readable", "very good", or "excellent" in quality. In 92% of the tracings, STEMI was ruled out. 4%

of tracings indicated the presence of STEMI, thus optimising the medical care advice by MedAire's emergency physicians and the recommendation regarding the need for diversion of the aircraft to seek emergency treatment.

Leveraging the inflight experience, International SOS participated in the development of a 2nd generation telemedical device designed specifically for clinicians operating in remote environments with limited bandwidth. The device can stream a multiparameter array of live patient data from a remote medic to centralised medical teams and supporting specialists. This device has been deployed to locations globally, including Greenland, Iraq and offshore Western Australia. This has improved the capability to diagnose and manage patients at such remote sites, positively impacting the requirement for urgent aero medical evacuation and enhancing continuity of care and clinical supervision when an aero medical evacuation is indicated.

### Biography

*Dr Nerwich joined International SOS some 15 years ago where he undertook the Regional Medical Directorship in Sydney, establishing medical assistance, air ambulance and healthcare management services across Australasia.*

*For the past 10 years, Neil has overseen the dynamic and greatly expanding International SOS assistance services across Europe, the Middle East, Central Asia, Southern Africa and Americas, including the development of the multiple assistance centre platforms and medical transportation services. While Neil was based in London for most of this time, he has recently returned to live in Sydney.*

*Dr Nerwich has a background in emergency medicine and general practice with postgraduate qualifications in aviation medicine and tropical medicine. He has extensive experience and expertise in international medical evacuation both by air ambulance and commercial carrier, establishing multiple of these transport systems.*

*He has a great interest in international health and medical risk management and is committed to ensure the provision of the highest standard of assistance services in an increasingly complex and challenging global environment.*

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Dr Neil Nerwich

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## Human Decomposition and Taphonomy: Understanding these Principles to Aid in Conflict and Humanitarian Death Investigations

**FLTLT John David North<sup>1</sup>**

*1 Royal Australian Air Force, RAAF Base Williamtown, Australia*

### Abstract

When unexpected conflict and humanitarian incidents occur, a primary medical response is provided to all affected persons. Combined with these events may be significant loss of life. The question is, how are military personnel able to assist with death investigations and the process of recovery of human remains?

Coronial investigations, as well as scenes involving death, require forensic investigators to establish a possible time frame since death and factors associated with the death. The emphasis in this process is recording and documenting the incident and being able to effectively provide this information to investigators to reconstruct what may have occurred to cause the death. Consideration must be given to factors affecting the environment in which the deceased is located. These factors may include temperature, vegetation, water, insect or animal activity, geological formations in urban and rural areas. Attempting to accurately answer these questions is greatly affected when an individual is not located for an extended period of time.

This presentation will examine various death scenes from relevant case studies and the human decomposition process, as observed in bodies donated to the University of Tennessee, Forensic Anthropology Center, also known as "The Body Farm". The intent of this presentation is to provide an understanding of the factors contributing to the decomposition process and taphonomy of human remains.

### Biography

*FLTLT David North is a RAAF Reservist with 2 Expeditionary Health Squadron (2EHS) squadron base at RAAF Williamtown. He has been a police officer for 16 years, serving with the Queensland Police Service (QPS) and currently with Tasmania Police. FLTLT North holds a Master of forensic science with specialties in crime scene examinations and recovery of human remains.*

*He is a member of the Australia and New Zealand Forensic Sciences Society (ANZFSS) and regularly contributes at forensic symposium.*

*FLTLT North is an avid bagpiper and is a member of the Tasmania Police Pipe band who, in recent years, has played at the Royal Edinburgh Military Tattoo in Scotland 2014 and in Melbourne 2016.*

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### In Disasters and Conflict There is Always an Animal Dimension: a Need for Deployable Military Veterinary Personnel in the ADF

**Major Kendall Crocker**<sup>1,2,3</sup>

*1 Directorate Of Army Health, AHQ, Russell Offices, Australia*

*2 Australian Veterinary Association, Artarmon, Australia*

*3 School of Military Engineering, Holsworthy, Australia*

#### Abstract

In disaster and conflict there is always an animal dimension. Animals are ubiquitous in human societies around the world, whether it be production animals for meat, fibre, milk, eggs or draught; companion animals for pets, assistance or security; or pest species such as rats and feral cats and dogs that spread disease. Disaster preparedness planning must include the animal dimension. Failing to do so can have catastrophic consequences for human health, safety and economic security as well as distressing animal welfare outcomes. It is estimated, for example, that 40-60% of the 1800+ human deaths associated with Hurricane Katrina (New Orleans 2005) were as a result of people refusing to leave their pets or going back into floodwaters to get them. Less than a year after Katrina the US had passed the Pet Evacuation Transport Standards (PETS) Act 2006 which demands state and local authorities factor pets into emergency plans: a requirement that the Centre for Disease Control and Prevention acknowledges helps people as well as animals.

In developing countries, animal survival after disasters or conflict can play a major role in economic and social recovery; from individual family to national government levels. Expert veterinary input is essential if sick and injured animals are to be given the best chance of survival and animal-based industries put back on their feet. However, during and in the immediate aftermath of disasters or conflict, civilian veterinary support is often

lacking due to logistic and security issues. Military veterinarians can insert into dangerous or remote environments to conduct assessments of veterinary need and contribute to the coordination of the civilian veterinary response through the lens of Civil-Military Cooperation (CIMIC).

Veterinary input into One Health is extremely valuable in minimising the impact of the zoonotic diseases and stray/feral animal threats that often follow natural disasters and conflict. This includes both the deployed force and indigenous populations.

The value of maintaining a deployable veterinary capability to support Humanitarian Assistance/Disaster Relief (HA/DR) operations is well recognised by militaries around the world. To be effective in supporting HA/DR, military veterinarians need to be trained in its specific requirements and exposed to austere veterinary medicine through regular participation on HA/DR exercises. The ADF is currently establishing a sustainable veterinary capability which, with targeted preparation, will provide a valuable additional asset for Australia's medical responses to disaster and conflict.

#### Biography

*MAJ (Dr) Kendall Crocker has extensive experience in civilian and military veterinary medicine. He has a background as an Army Reserve Infantry Officer and civilian veterinary surgeon, mainly in rural practice. For the last six years he has been a leader in the development of ADF veterinary capability, working as a Veterinary advisor to HQ JOC, the School of Military Engineering and the Directorate of Army Health. He has deployed in a veterinary role on a number of domestic and international operations and exercises, with several being specifically focused on humanitarian assistance/disaster relief. His military interests include MWD Health and Welfare policy, advancing MWD capability, international veterinary liaison and developing ADF Veterinary capability generally.*

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### Incidence of Suicide Among Serving and Ex-serving Australian Defence Force personnel 2001–2015

Ms Michelle Gourley<sup>1</sup>, **Ms Tylie Hodder<sup>1</sup>**,  
Dr Lynelle Moon<sup>1</sup>, Ms Anna Reynolds<sup>1</sup>, Dr Phil  
Anderson<sup>1</sup>, Ms Mardi Ellis<sup>1</sup>, **Ms Kym Connolly<sup>2</sup>**

<sup>1</sup> Australian Institute Of Health And Welfare, Canberra,  
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<sup>2</sup> Department of Veterans' Affairs, Canberra, Australia

#### Abstract

There is strong and increasing public interest in, and concern about, the incidence of suicide among serving and ex-serving Australian Defence Force (ADF) personnel. While the incidence of suicide among current serving full-time ADF personnel is known, there has been limited information available about ex-serving personnel.

The Department of Veterans' Affairs (DVA), with support from the Department of Defence, commissioned the Australian Institute of Health and Welfare (AIHW) to calculate, for the first time, accurate numbers and rates of suicide deaths among current and former members of the ADF, who have transitioned out of full-time or reserve service. The AIHW published preliminary findings from that analysis, based on 2001–2014 data, in November 2016.

That report showed that the comparative rate of suicide when compared to the age-matched Australian male population was statistically significantly lower among current serving (53% lower) and reserve (46% lower) male ADF personnel. The comparative rate was observed to be 13% higher, though not statistically significantly, among ex-serving males. Further, it was shown that the comparative rate of suicide was statistically significantly higher among ex-serving males aged 18–24 (nearly 2 times as high) and 25–29 (1.5 times as high) compared with Australian males of the same age.

The AIHW has undertaken further detailed analysis, building on the preliminary results described above and incorporating an additional year of cause of death data (2015), to: determine if there are service-specific characteristics that appear to be associated with the increased rate of suicide among ex-serving males; and to further characterise those ex-serving males at greatest risk of suicide.

Service-related factors examined include: service, rank, service experience, length of service, and reason for discharge. Additionally, an analysis of

the timing of suicide death in relation to the date of separation is presented.

This presentation will summarise the key findings of the extended and updated analysis of the incidence of suicide among the serving and ex-serving Australian Defence Force personnel. It will also describe: the background and purpose of the study, a summary of methods including how the study population was defined, the strengths and limitations of the study and the assumptions underpinning the key findings.

#### Biography

*Tylie Hodder is a Senior Analyst with the Burden of Disease and Mortality Unit at the Australian Institute of Health and Welfare (AIHW). Tylie has 5 years' experience in data collection, analysis and reporting at the AIHW across a range health and welfare subject areas including homeless support service use, mental health service use and mortality.*

*Tylie currently oversees the mortality work program at AIHW and is a lead author of the Incidence of suicide among serving and ex-serving Australian Defence Force personnel 2001–2015.*

*Kym Connolly is the Director of Mental and Social Health Policy at the Department of Veterans' Affairs (DVA). Kym leads the team that develops and implements policy in relation to a variety of veteran mental and social health issues, including suicide prevention. Kym is the policy lead on the Incidence of suicide among serving and ex-serving Australian Defence Force personnel 2001–2015 report and will oversee the translation of this research into policy outcomes for the ex-service community.*

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### Increasing Interoperability Through Preparedness

**Lieutenant Colonel David Bullock<sup>1</sup>**

<sup>1</sup> Joint Health Command, Canberra, Australia

#### Abstract

The ADF is increasingly involved in the delivery of humanitarian aid both at home and abroad. When this aid relates to 'natural' disasters, particularly in a domestic context, it is rarely contentious. Since the end of the Cold War however, the increasing use of the military as a 'humanitarian' strategy, including

in complex emergencies and armed conflict, as well as the increased use of private, for-profit security contractors has drawn criticism in some circles. In particular, critics have argued that the increased presence of military actors in humanitarian activities is eroding the humanitarian space underpinned by its concept of an apolitical 'agency space', underpinned by principles of neutrality, impartiality and independence. Others have argued that in some contexts, without the presence of the military some humanitarian interventions simply could not be delivered safely. Regardless of these different views, the military are now part of the humanitarian landscape, making the space in which humanitarian is delivered a complex, highly political, dynamic and contested space.

The military while often aware of the mandates of the International Committee of the Red Cross and the United Nations agencies, they do not always appreciate how this affects how they work in the field in a humanitarian disaster. The military typically have less understanding of the role of non-government organisations and the diversity of non-government actors. Non-government actors on the other hand, often feel that the presence of the military hampers their ability to effectively deliver humanitarian aid and reject the military as legitimate humanitarian actors in a disaster, highlighting the negative consequences for impartiality and community involvement.

This presentation looks at how interoperability can be improved across all agencies involved in disaster response through collaboration and improved preparedness. It will look at a leading US collaboration model known as the Coyote Crisis Collaboration, the Canadian model of Defence Assistance Response Teams, the most recent UK Defence White Paper which places military personnel into civilian OGAs as a permanent posting, contrasted with the AUS Civil Military Centre model and personal experiences as an embed into Qld Health during the 2011 floods. I intend to argue that bringing military and civilian actors together is essential, provide examples of how this can be improved and suggest a framework of civil military interoperability through preparedness.

### Biography

*Lt Col Bullock joined the RAAMC as a Lateral Transfer from the British Army in 2007 as a Health Services General Support Officer. 35 Years of military service have witnessed him deploy with, in support, and in command of combat health units to Northern Ireland, the Balkans, North Africa, Iraq, Afghanistan and other Middle East countries, providing health support to the complete spectrum of operations.*

*Within the ADF he has been employed as a Coy Comd at 2 HSB, lead health planner HQ 1 Div, OPSO 2 GHB, DCI at the Land Warfare Centre and SO1 Joint Health Capability Joint Health Command where he is currently the lead for JP2060 Ph4 (Health Knowledge Management).*

*LTCOL Bullock is a keen academic with a passion for the professionalisation of ADF health services management. He has a Masters in Public Health, Health Management, Business Administration and an MSc and holds a lecturing position at the UQ School of Public Health.*

*He is the founder and chair of the Australasian College of Health Services Management Defence Special Interest Group. As the College's only Defence Fellow, he is currently and is mentoring two College Fellowship candidates in 2017.*

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*Lieutenant Colonel David Bullock*

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## Injuries Suffered by Australian Army Recruit Completing Basic Training

**Dr Benjamin Schram<sup>1</sup>**, Dr Robin Orr<sup>1</sup>,  
Dr Rodney Pope<sup>1</sup>

*1 Tactical Research Unit - Bond University, Robina, Australia*

### Abstract

**Introduction:** Musculoskeletal injuries are a major problem in military personnel as they detract from force readiness, are of high financial burden and may lead to an inability to deploy. Injuries during basic training have been shown to occur at three times the rate of any other time, thought to be due to low initial levels of fitness, prior injury history and a sudden increase in physical activity. In addition, injury rates of part time personnel are reportedly higher than those of full time personnel; although unexplored in recruit training populations.

**Aim:** The aim of this research was to investigate injuries sustained by recruits undergoing basic recruit training and to explore potential differences between full-time (Australian Regular Army [ARA]) recruits completing the 80-day basic recruit course and part-time (Army Reserve [ARES]) recruits completing the 28-day reserve recruit course.

**Methods:** Reported injuries were obtained from the Department of Defence Workplace Health, Safety, Compensation and Reporting database covering the period July 2012 to June 2014. Outcomes of interest

included natures of injuries, injury mechanisms, activities being performed at the time of injury and bodily location of injury both as a complete cohort and by employment status. Ethics approval for this project was granted by the Australian Defence Human Research Ethics Committee (LERP14-024) and the Bond University Human Research Ethics Committee (RO1927).

**Results:** There were 1,479 incidents reported over the two-year period during basic training with 89.5% occurring in ARA and 10.5% in ARES personnel. Of the ARA incidents, 1,192 (90%) were Minor Personal Injuries and 43 (3.2%) were Serious Personal Injuries. In the ARES personnel 147 Minor Personal Injuries were reported (94.8%) and 3 Serious Personal Injuries were reported (1.9%). In both ARA and ARES personnel the most common activity in which injury occurred was Physical Training (ARA=41.5%; ARES=32%). The knee was the most commonly injured site (ARA=13.4%; ARES=14.6%) followed by the ankle (ARA=11.5%; ARES=8.2%) and the lower leg (ARA=10.3%; ARES=11.6%). These injuries were predominately soft tissue injuries (ARA=60.9%; ARES=69.3%) due to muscular stress with no objects being handled (ARA=41.7%; ARES=36%).

**Conclusion:** These results are in agreement with other published studies which have found injuries during military training are most commonly at or below the knee, that physical training is the highest activity in which injury occurs. The activities in which injuries occur, the anatomical location in which injuries occur, the type and nature of injuries in basic training are similar amongst both ARA and ARES recruits when attending their respective recruit training courses. Therefore, interventions aimed at decreasing injuries in basic training amongst Australian Army Personnel would be beneficial for both service types.

### Biography

*Ben has experience in officer training with the army reserve to complement his Exercise Science, Doctor of Physiotherapy, and PhD degrees, enabling unique insight into the demands of tactical personnel. He is extensively involved in most aspects of the Bond University Doctor of Physiotherapy program including musculoskeletal physiotherapy and research supervision. He is part of the Tactical Research Unit at Bond University, conducting research with tactical personnel such as firefighters, military personnel and police. He has presented his research both nationally and internationally and continues to be extensively involved with investigation the unique occupational demands of tactical personnel.*

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## International Military Social Work: A Multi-national Comparative Analysis of Social Work Service with Military Personnel, Veterans, and their Families

**Ms Karen Green**<sup>1</sup>, Professor Mary Ann Forgey<sup>2</sup>

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*2 Fordham University - Graduate School of Social Service,  
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### Abstract

Internationally, uniformed and civilian Social Workers are employed by numerous countries to work directly, and indirectly, with military service members, veterans and their families. However until recently there has been little research undertaken that meticulously compares the variety of roles and the scope of social work practice within the international military context. This paper will report on the findings of an exploratory study led by Professor Mary Ann Forgey, Graduate School of Social Services, Fordham University, New York, and her research team to identify and analyze the similarities and differences of military social work practices in all countries that employ social workers to support the military mission. An overview of the preliminary findings of this innovative international comparative study will be presented and the factors found in the analysis to explain the similarities and differences will be presented. A snapshot of the ethical challenges encountered by Military Social Workers will be outlined, with a focus on those that arise from multi-loyalty conflicts to the individual client and organisational mandates.

### Biography

*Ms Green is an accredited Australian Social Worker with over 25 years of professional experiences in clinical, organisational and executive leadership roles. She holds a Master of Public Health, postgraduate qualifications in Couple Therapy, Research Methods and Design, and management and mental health qualifications. Since 2001, she has specialised in the provision of mental health and well-being services*

for military personnel, veterans and their families. Karen is passionate about developing the global and Australian Military Social Work identity and ensuring that the Defence and veteran communities receive the highest quality programs and services. In her role as the Regional Mental Health Team Manager, she coordinates the Australian Defence Force tri-Service Mental Health services in North Queensland for a dependency of over 7,000 Army, Navy and Air Force personnel. Karen has presented at regional, national and international conferences in Canada, United States of America, Paris and Italy on topics relevant to her chosen specialisation. Her career highlights include receiving a 'Commonwealth Endeavour Executive Fellowship' in 2016 which she undertook at Fordham University, New York, and in 2014 she was awarded the Mount Sinai Hospital (New York) 'Enhancement of International Social Work Leadership' scholarship.

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### Is the Trauma 'Golden Hour' Really Fool's Gold?

**Colonel Michael Reade<sup>1</sup>**

<sup>1</sup> Australian Defence Force, Brisbane, Australia

#### Abstract

The Australian Defence Force plans its deployed trauma service to meet the NATO '10-1-2' performance standard, by which a patient with life-, limb- or eyesight- threatening wounds is attended by skilled prehospital clinicians in the first 10 minutes, reaches 'non-surgical resuscitation' in the first hour, and surgery in the first two hours after wounding. The appropriateness of this doctrine was first questioned based on military data in 2016, when a retrospective review (1) found US military casualties in Afghanistan had a lower case fatality rate after June 2009, when the 10-1-2 metric was changed to one that aimed to transport combat casualties to initial wound surgery within 60 minutes.

The evidence underpinning the military 10-1-2 metric is obscure, but originates in an era prior to the introduction of several modern features of hospital trauma care such as the 'damage control' approach, haemostatic resuscitation, and sophisticated deployed intensive care and critical care retrieval. Furthermore, systems lacking modern aggressive prehospital care will allow many patients to die

prehospital. These modern potential survivors will have a very different delay / mortality relationship compared to patients in earlier times who survived despite receiving few prehospital interventions. The delay / mortality relationship has particular relevance to the military because unlike civilian systems, military medical and retrieval assets can be placed virtually anywhere – making time to surgery much more open to influence, and time-targets an essential feature of health planning.

The 10-1-2 metric resembles the civilian concept of a trauma 'golden hour'. However, the notion of an inflection point in the relationship between delay in reaching surgical care and mortality, adopted in the 1970s despite an almost complete lack of evidence, is now questioned. What evidence exists suggests that shorter response time and transport time is associated with improved mortality, but paradoxically that longer on-scene time and perhaps even total prehospital time are also beneficial. Most studies find no clear inflection point in case fatality rate at one hour total prehospital time. In part, this is likely to be due to the heterogeneity of trauma patients included in such studies. Logically, time will be critical for some and unimportant for others, with important associations missed when all are grouped together.

Time goals are important for trauma system planners. However, no health system should be complacent simply because it meets any arbitrary metric – 10-1-2, the 'golden hour', or whatever emerges from studying the 'big data' accumulating in military and civilian trauma registries. A better performance goal might be constant improvement in prehospital times as the trauma system develops. Real-time monitoring of the relationship between shorter prehospital times and mortality as a system improves will, at some point, identify a plateau in falling severity-adjusted case fatality rate. Only at this point will a 'golden' metric have been reached.

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#### Biography

Colonel Reade is an anaesthetist, intensivist and clinician scientist in the Australian Defence Force, seconded to the University of Queensland as the Professor of Military Medicine and Surgery to lead a program of research relevant to military trauma



medicine and to guide implementation of modern trauma care into ADF practice. He holds a DPhil in applied molecular biology from Oxford, and an MPH from the University of Pittsburgh focussed on clinical trials. He is the Director of Clinical Services of the Australian Regular Army's only field hospital and has completed eight overseas operational deployments, most recently to Iraq in 2015 and 2016. His research interests are fluid resuscitation and coagulopathy in trauma, clinical trials of cryopreserved blood products and tranexamic acid, and the management of delirium. He holds >A\$12M research grants, has published >100 papers and delivered >140 lectures.

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Colonel Michael Reade

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### JP2060-4 Health Knowledge Management - The Key to a Digitized Defence Health Capability

**Lieutenant Colonel David Bullock<sup>1</sup>**

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#### Abstract

JP2060 is the overarching Joint Project for the modernisation of the Deployed Health Continuum for the ADF. Having completed Phases 1 & 2, which were both incremental and evolutionary improvements to deployed health equipment. The remaining Phases include: Phase 3 (Health Clinical Care) and Phase 4 (Health Knowledge Management), both of which cover the complete spectrum of the Deployed Health Continuum (DHC).

Phase 4 (Health Knowledge Management) has been sanctioned by VCDF and the Parliamentary Investment Committee to investigate the feasibility of developing one "harmonised" solution to support Garrison and Operations. The outcome is the most optimal model representing best e-clinical practice. There are few e-health systems across the globe which included such a wide clinical practice and geographic scope. As such, the development of this capability represents leading edge technological capability development.

The first stakeholder workshop has been completed in Mar and Apr 17, whereby the HKM lead staff conducted a series of workshops across all stakeholders to ascertain the level of understanding across defence of e-health systems including e-health data, e-health information systems and e-health knowledge management including what systems are currently available and utilised across the ADF

including the deployed health continuum (DHC). The second component of this inaugural workshop is designed to allow stakeholders to express 'what it is that they want' which informs the project team of defence needs and wants in achieving digitised clinical best practice.

The intent of this presentation is to provide feedback from the series of first workshops, displaying trend analysis of the current level of e-health knowledge / awareness and common emergent threads that are informing future capability and project development. I intend to work with KPMG to build a smart phone app facilitates a live interactive educative session.

#### Biography

*Lt Col Bullock joined the RAAMC as a Lateral Transfer from the British Army in 2007 as a Health Services General Support Officer. 35 Years of military service have witnessed him deploy with, in support, and in command of combat health units to Northern Ireland, the Balkans, North Africa, Iraq, Afghanistan and other Middle East countries, providing health support to the complete spectrum of operations.*

*Within the ADF he has been employed as a Coy Comd at 2 HSB, lead health planner HQ 1 Div, OPSO 2 GHB, DCI at the Land Warfare Centre and SO1 Joint Health Capability Joint Health Command where he is currently the lead for JP2060 Ph4 (Health Knowledge Management).*

*LTCOL Bullock is a keen academic with a passion for the professionalisation of ADF health services management. He has a Masters in Public Health, Health Management, Business Administration and an MSc and holds a lecturing position at the UQ School of Public Health.*

*He is the founder and chair of the Australasian College of Health Services Management Defence Special Interest Group. As the College's only Defence Fellow, he is currently and is mentoring two College Fellowship candidates in 2017.*

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Lieutenant Colonel David Bullock

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### Load Carriage: Carry on Soldier

**Dr Robin Orr<sup>1</sup>, Dr Rodney Pope<sup>1</sup>**

*1 Tactical Research Unit - Bond University, Robina, Australia*

#### Abstract

The requirement to carry loads has challenged military soldiers as far back in time as the Assyrian

spearman of antiquity (circa 800 B.C.), who experimented with their shield weights in order to reduce their combat load. The impacts of these carried loads on the soldier have reduced army size and impacted on warfare tactics. As such, it is not surprising that soldiers have gone to great efforts to reduce the load weight that they must carry - from the Roman Legionnaires employing mules and slaves to carry their loads, to Confederation soldiers in the American Civil War throwing away equipment; an action mimicked by Australian soldiers in Vietnam. However, recent research suggests that, even acknowledging the impacts of load weight and dedicating resources to minimising these loads, load weights carried by soldiers are increasing. For the Australian soldier during the Great War, the external carried loads were estimated to weigh between 27 and 33.5 kg. In the Second World War these loads ranged from 20 to 41 kg and in the Vietnam War, loads increased again from between 30 to 40 kg for rifleman, up to 56 kg for radio operators. In more recent conflicts in East Timor, Iraq, and Afghanistan, loads were reported to have averaged around 50 kg to 56.7 kg (the latter being mean marching order loads) for all soldiers, regardless of platoon role. On this basis, load weights continue to present as a challenge for the Australian Army soldier and 3 millennia of history suggests that this will not change in the near future.

On this basis, a new approach is needed if the impact of load carriage on the soldier is to be managed. A real-time risk management approach – following the Army Risk Management Framework – presents as an opportunity to achieve this aim. A real-time risk management approach will allow for contextual factors, apart from the load weight itself, that increase risk to be considered and mitigated prior to a load carriage task commencing. Factors like speed of march and terrain serve as examples, whereby an increase in speed by 0.5km/h has been found to have the same physiological impact on the soldier as an additional 10 kg of load – as has an increase in incline by 1%. Through this approach, achievements like those of Sherpa load carriers, who can carry over 100% of their body weight, daily, over rigorous terrain, can be understood and some potential translation to the Australian soldier can be achieved.

It is through a real-time risk management approach, underpinned by a clear understanding of the impacts of contextual factors (like speed of march, terrain grade and type and training and injury history), that commanders at all levels can manipulate the load carriage context to meet mission requirements while also managing risks. Through this approach, the

essential load weight required for a mission, even when extreme, can be carried at a level of risk that is as low as reasonably possible, allowing the soldier to carry on.

### Biography

*Rob served for over 20 years in the Australian Regular Army as an infantry soldier, physical training instructor, physiotherapist and human performance officer. Still serving in the Army Reserve on various human performance projects, Rob took up an appointment at Bond University where the majority of his teaching is on maximising human potential. With a PhD in occupational load carriage for military personnel, Rob has over 40 peer reviewed publications specialising in tactical populations alone and has been invited to present his research both nationally and internationally for a variety of tactical organisations.*

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*Dr Robin Orr*

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## Malaria-Associated Mortality in the ADF during the Twentieth Century

**Prof G Dennis Shanks<sup>1</sup>**

*1 Army Malaria Institute, Brisbane, Australia*

### Abstract

Malaria has been a military problem throughout history capable of causing epidemics that stop military operations. Individual mortality was examined from records of the three major wars of the 20th century that involved Australia in which 133 (1914-19), 92 (1943-45) and 2 (1965-67) soldiers are known to have died with malaria. Those dying were predominately enlisted soldiers with a mean age of 29y often complicated by other infections such as influenza pneumonia or scrub typhus. Lethal epidemics of falciparum malaria occurred in Palestine / Syria in October 1918 and New Guinea in September 1943 to March 1944. Although no Australia soldier has died in nearly 50 years from malaria, there were three serious falciparum infections in soldiers in East Timor 1999-2000 who might have died if intensive care had not been provided. Recent military deployments into Africa including United Nations contingents still show falciparum malaria's lethality despite the availability of effective malaria chemoprophylaxis.

### Biography

*Prof Shanks has been the Director of the Australian Army Malaria Institute (AMI) in Brisbane for the last*

10 years and is an adjunct professor at the University of Queensland, School of Population Health as well as James Cook University. He directs militarily relevant medical research on infectious diseases capable of stopping tropical operations such as malaria, dengue and influenza. For the previous 20 years Prof (then COL) Shanks had been a US Army medical officer who spent the majority of his military career conducting field trials of new antimalarial drugs in the tropics. His assignments included service at the Walter Reed Army Medical Center and the Australian Army Malaria Research Unit in Ingleburn, Australia (a fore-runner of AMI). Concerned mostly with malaria prevention studies, Prof Shanks has conducted field studies in various rural populations including gold miners in New Guinea, Thai border militia on the Cambodia border, displaced persons in camps along the Thai-Burmese border, tea estate workers of the Kenyan Rift Valley and Kenyan villagers near Lake Victoria. He performed one of the pivotal efficacy trials for atovaquone proguanil which led to its licensure as a chemoprophylactic combination and has tested most antimalarial drugs in use today.

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### Measuring the Effectiveness of the In-Hospital and On-Base (P.A.R.T.Y.) Programs on Reducing Alcohol Related Harms in Naval Trainees: P.A.R.T.Y. Defence

**LEUT Jason Watterson<sup>1,2,4</sup>, Professor Belinda Gabbe<sup>2</sup>, Professor Paul Dietze<sup>2,3</sup>, CDRE Elizabeth Rushbrook<sup>4</sup>, Professor Jeffrey Rosenfeld<sup>1,5</sup>**

1 National Trauma Research Institute-Alfred Health, Melbourne, Australia

2 Department of Epidemiology and Preventive Medicine - Monash University, Melbourne, Australia

3 Centre for Population Health - Burnet Institute, Melbourne, Australia

4 Royal Australian Navy Reserve, Canberra, Australia,

5 Monash Institute of Medical Engineering - Monash University, Clayton, Australia

#### Abstract

**Background:** Risky alcohol consumption and related harms are a significant issue for the

Australian Defence Forces (ADF). However, most interventions to reduce risky drinking have not been developed or tried in the defence context despite substantial differences between the civilian and defence force populations. The Prevent Alcohol and Risk-related Trauma in Youth (P.A.R.T.Y.) Program, developed in North America, is a widely-used program for addressing risk-taking behaviour and alcohol consumption in young people. Following a promising pilot in trainees for the Royal Australian Navy (RAN), we are examining the efficacy of the P.A.R.T.Y. program in the Royal Australian Navy in a randomised controlled trial (RCT) in which two variations of the P.A.R.T.Y. intervention are being compared to usual RAN drug alcohol education.

**Methods:** All eligible RAN trainees completing training at HMAS Cerberus aged between 18-30 years provided informed consent and completed baseline questionnaires including the Alcohol Use Disorders Identification Test (AUDIT), Modified Drinking Motives Questionnaire - Revised (MDMQ-R) and the PARTY Defence Attitudes and Behaviours Questionnaire. Consented trainees were then randomly assigned to either offsite delivery of P.A.R.T.Y. in a hospital, on-base delivery of, P.A.R.T.Y. or a control arm. Follow-up outcome measurement at 12 months will be completed in July 2017, with the primary outcome being AUDIT score (insert details).

**Results:** The mean(SD) age of the 953 eligible participants is 21(2.83) years and 80% are male. Participants were evenly distributed across the three arms; In-Hospital (n=322), On-Base (n=317) and Control (n=314). Participants primarily came from three faculties: Boatswains, Engineering, and Communicators (97%), with the remaining coming from Maritime logistics, Health and Music faculties (3%). Follow up rates for the completion of the three questionnaires at 12 months' post intervention is currently 65%, while alcohol-related incident data has been collected for 100% of participants.

**Conclusion:** Our study is the first RCT evaluating the effectiveness of the P.A.R.T.Y. program as an intervention for reducing risky drinking behaviour and alcohol related incidents in a military setting. With completion of twelve month follow up in July 2017, this study will be able to make recommendations regarding the effectiveness of the P.A.R.T.Y. program in a military setting.

#### Biography

Jason is currently pursuing his PhD exploring alcohol related harms in young naval trainees under the supervision of Professor Belinda Gabbe, Professor Paul Dietze and Professor Jeffrey Rosenfeld. His thesis

aims to explore alcohol related harm minimisation and is linked to an RCT funded by Defence health Foundation titled 'Measuring the effectiveness of the in-hospital and new on-base P.A.R.T.Y. programs (Prevent Alcohol and Risk-related Trauma in Youth) in reducing alcohol related harms in young naval trainees.

Jason continues to work in the Department of Intensive Care and Hyperbaric at the Alfred as a clinical Educator part time during his candidature.

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### Military Healthcare Leadership: Preparing our People for the Unpredictable

LTCOL Louise Martin<sup>1</sup>

*1 2nd General Health Battalion, Enoggera, Australia*

#### Abstract

Much has been made in Army in recent years of the concept of resilience: what Army has defined as 'the capacity of individuals, teams and organisations to adapt, recover and thrive in situations of risk, challenge, danger, complexity and adversity'. This concept acknowledges that the modern battle space is a domain that is information rich and complex; where the speed and interdependency of actions and effects has created a less predictable, more volatile environment and where the complicated challenges of the past are now overshadowed by this unpredictable, complex reality of the future. So how do we prepare our people to not only survive, but thrive in this new complex environment? How do we as military health care leaders, prepare our people to respond to the unpredictable? In this presentation, LTCOL Martin argues that the archetypal, traditional model of 'heroic' leadership won't meet the demands of our people or our health care organisations in the future. She looks at how traditional military leadership models that rely upon hierarchical structures and clearly defined parameters won't adequately prepare our people for future challenges. She argues that leadership, exercised up, down and across, that recognises and respects the role and function of every member of the team and is practiced at every level of the organisation will be essential to ensuring the success of our teams into the future.

#### Biography

Lieutenant Colonel Louise Martin commissioned into the Royal Australian Army Medical Corps in 1999. Her career highlights include appointments as Adjutant and Officer Commanding of the 1st Health Support Battalion, as an Operations Captain on Headquarters 1st Brigade, as the Package Master for Command, Leadership and Management at Army's Officer Training Wing and most recently as the Senior Health Officer and J07 of Headquarters 1st Division and the Deployable Joint Force Headquarters. Lieutenant Colonel Martin deployed as operations officer of the surgical element on Op ANODE whilst posted to 1 HSB. She is a graduate of the Australian Defence Force Academy, Royal Military College Duntroon, Australian Command and Staff College and is a Chief Executive Women's alumni. Lieutenant Colonel Martin is currently serving as the Commanding Officer of the 2nd General Health Battalion.

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LTCOL Louise Martin

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### Military Medicine - An Artistic Perspective

Michael Dowsett AM<sup>1</sup>

*1 Retired, Australia*

#### Abstract

The Australian War Memorial records the Australian experience of war through a variety of official and personal records, artefacts, photographs, letters and an art collection of about 40,000 items. The works of art range from traditional oil paintings to digital imaging and comprise items that have been donated or acquired, many of them being works commissioned under the Official War Artists scheme. This presentation will focus on a number of items from the collection depicting the role of the military health services viewed from the perspective of an artist.

#### Biography

Following a career in the Royal Australian Navy and now retired and living in Canberra where he maintains an interest in military history. Currently a Voluntary Guide at the Australian War Memorial.

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Michael Dowsett



## Military Oxygen Diving: Acute Pulmonary Oxygen Toxicity

CPL Justin King<sup>1</sup>

*1 Army, Campell Barracks, Australia*

### Abstract

During World War II, British and Italian forces employed oxygen diving for hydrographical reconnaissance and subsurface approach to maritime targets, operational and training diving fatalities were high in military diving due to loss of consciousness at depth and subsequent drowning. Today, the Closed Circuit Breathing Apparatus allows the diver to rebreathe expired gas after carbon dioxide has been removed by absorbent and supplementary oxygen delivered, with no gas emission disclosing force location. The primary role of the Underwater Medicine Clinician is to enable military diving operations by having a sound understanding of the deployable underwater breathing apparatus, the pathophysiology of dive medicine, procedures for emergency recompression, and hyperbaric chamber treatment. I would like to present the pathophysiological process of acute pulmonary oxygen toxicity, the physiological response to breathing hyperbaric oxygen and patient presentation, management, and outcomes.

### Biography

*CPL Justin King joined the Australian Army on 29 January 2007. After Recruit training he completed the Basic Medical Assistant Course in February 2008, in which he achieved Student of Merit, the RMIT Certificate for Special Achievement, and the Pulse Credit Union LTD Excellence award.*

*CPL Justin King completed the Advanced Medical Assistant Course in May 2009.*

*CPL Justin King achieved Student of Merit in the Underwater Medicine Clinician Course in September 2014.*

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## Military Working Dog Emergency Care (MWDEC): Training Imperatives for ADF Health Personnel

Major Kendall Crocker<sup>1</sup>, Wing Commander David Cooksley<sup>2,3</sup>

*1 Directorate Of Army Health, Belconnen, Australia*

*2 RAAF SR, Amberley, Australia*

*3 Sunshine Coast University Hospital, Sunshine Coast, Australia*

### Abstract

The ADF has a large number of MWD that contribute to essential ADF security, force-enabling and explosive detection capabilities. In the coming years MWD will be deployed around the globe in increasing numbers on operations and exercise. Defence has a duty-of-care to ensure that there is a plan for the health and welfare of our valuable and valued MWDs whenever and wherever they are employed. On operations and in remote training environments, ADF health personnel may be called upon to provide emergency medical care to injured or ill MWDs or other service dogs (such as police, customs, quarantine, USAR or AUSMAT) until definitive expert veterinary care can be accessed. It is therefore essential that ADF healthcare members receive appropriate training in MWDEC. This presentation will outline the essential components or tiers required for integrated MWDEC and a possible training pathway for each.

### Biography

*MAJ (Dr) Kendall Crocker has extensive experience in civilian and military veterinary medicine. He has been a leader in the development of ADF veterinary capability, working as a Veterinary advisor to HQ JOC, the School of Military Engineering and the Directorate of Army Health. He has deployed in a veterinary role on a number of domestic and international operations and exercises. His military interests include MWD Health and Welfare policy and developing ADF Veterinary capability generally.*

*WGCDR (Dr) David Cooksley is an experienced emergency and retrieval physician. He has extensive training and experience in pre-hospital and retrieval medicine including with the Royal London Hospital Helicopter Emergency Medical Service (HEMS). He has successfully completed the USAF Critical Care Aeromedical Transport Team (CCATT) training, UK military Medical Emergency Response Team (MERT) training and is a RAAF Military Critical Care Aeromedical Transport Team (MCAT) instructor. His*

*current military interests include forward and tactical critical care and MWDEC.*

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### Mobile Medical Treatment Facilities - Experiences of Developing and Using Modern Systems

**Peter Demand<sup>1</sup>**

*1 Federal Ministry of Defence, Bonn*

#### Abstract

The maxim of the Bundeswehr Joint Medical Service is to provide medical care to soldiers who are sick, injured or wounded on operations, which in effect is equivalent to the medical standards in Germany.

A functioning medical evacuation chain is key to meeting this high level of ambition. Core elements of this chain are treatment facilities that are mobile, scalable and modular.

Soon after the Bundeswehr Joint Medical Service was first deployed abroad (Cambodia in 1991), the need for modern medical treatment facilities became clear. When in 1993 Germany took part in UNOSOM II in Somalia, a commercial off-the-shelf solution was procured and used.

Since then, the Bundeswehr has designed and procured different MTFs and operated them in various missions. Based on this experience, German MTFs have been consistently improved.

The underlying principle governing the design of all systems is the use of commercially available medical instruments as found in any hospital setting. The MTF systems are therefore no more than envelopes that ensure the right environmental conditions for the safe technical operation of the commercially available instruments. Following this approach, the Bundeswehr can dispense with the costly development of medical instruments and effortlessly keep up with the rapid advance of medical technology by simply replacing instruments as they become outdated.

Modular medical treatment facilities (MMTF) are the backbone of German MTFs. They have so far been used in Albania, Kosovo, Afghanistan, Uzbekistan, the Congo, and Mali, and will also be used in Iraq.

They consist of a combination of tents and 20-foot ISO containers, some of which can be expanded. The tent sections are mainly used as connecting elements, whereas medically critical functions are accommodated in a variety of different containers. These range from OR containers to containers for CT, microbiology labs and different specialist outpatient clinics. But the containers do not only house medical facilities; technical equipment needed to operate the facilities, such as generators, water tanks or sanitary facilities, are also containerized. The modularity allows tailoring MTFs to roles 1 to 3 and adapt quality and quantity to the specific conditions found in the theatre of operations.

MMTFs offer a high standard of medical care, but entail a significant transport volume and relatively stringent requirements for the area of installation. Operational planning must therefore respect the required timeframes and logistic support services.

In order to also provide medical support to fast-moving initial and special operations, a need was identified for light systems that are quick to deploy. This is the rationale behind the Bundeswehr's air-mobile medical treatment facilities (AMTF), covering role 1 and 2 of the medical evacuation chain.

AMTFs have in the past frequently been prepositioned via airlift prior to the deployment of MTFs, to gain time required for transporting the MTF to its destination, as done in the Congo, Afghanistan and Mali. AMTFs can also be used with a maritime platform, as was the case in Banda Aceh on Sumatra, where disaster relief was provided to tsunami victims.

Our experience so far shows that volume and weight of the MTFs, especially of role 2 basic, are still too high for tactical operations. As a result, efforts to develop a special operations air-transportable surgical hospital were redoubled about three years ago. In a first step, so-called basic modules have been developed and procured. They allow damage control surgery to be performed and can in future be built up to a special operations air-transportable surgical hospital. At only 1.5 tons they have a low weight and can be operational within 30 minutes.

In the mid-term, the Bundeswehr will develop and procure highly mobile surgical hospitals with ballistic protection (role 2 basic) and make them available to provide medical care to land forces.

A balanced portfolio encompassing the different MTF capabilities is key to the functioning of the medical evacuation chain and therefore to achieving operational objectives.

### Biography

*Captain Peter Demand is currently employed at the Federal Ministry of Defence in Bonn. His branch exercises ministerial supervision over all Medical Service armaments projects in the Bundeswehr and oversees the in-service use associated with them.*

*His experience in developing, procuring and using mobile medical treatment facilities goes back to 1997.*

*It includes early field tests with modular MTFs and an assignment as project officer for the medical aspects of the Bundeswehr's mobile naval surgical hospitals (MNSH).*

*In later assignments he held posts at the Joint Medical Forces Command where he was initially employed as S3 officer in the Operations section, responsible for mission planning and support (main area: ISAF). He was subsequently employed in the Logistic Principles section and in Logistic Support for Response Forces. He served in Kosovo and Afghanistan in a mission support function several times.*

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*Peter Demand*

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## Multi-Method Computational Modelling for High Risk and High Consequence Health Planning, Preparedness and Operational Decision Making

**Associate Professor David Heslop<sup>1,2</sup>**

<sup>1</sup> School of Public Health and Community Medicine, University of New South Wales, Australia

<sup>2</sup> NHMRC CRE Integrated Systems for Epidemic Response, University of New South Wales, Australia

### Abstract

Many organisations rely on policies that define how to plan, prepare and respond to high risk scenarios. Pandemics, major disasters, mass casualty events, deliberate and accidental hazardous and infectious materials events are possible occurrences that require the development of portfolios of evidence to justify the expenditure of significant human and financial resources, at the potential expense of other more useful activities. The development of valid evidence to support policy development in these areas is challenging. It is often unethical or unfeasible to undertake direct experiment in high risk areas such as biological, chemical and hazardous materials preparedness and planning. Surrogates for

actual field research such as simulated exercises, immersive training and tabletops can only go so far to explore these impacts and there is the ever present risk that factors such as context, emergence, complex interactions and unforeseen contexts may render many well thought out plans obsolete, or potentially worse than doing nothing. In this talk recent developments in multi-method computational modelling approaches incorporating Agent Based Modelling coupled with Discrete Event and Systems Dynamics modelling, supported by the recent increased availability of low cost high performance computing resources, will be discussed. How these can be used to answer questions about policies that cannot be easily investigated in real life will be discussed, using examples of current research projects being undertaken between UNSW and ADF, DST Group and other civilian research partners are exploring how health systems and health policies perform under extreme conditions such as disasters, high risk military deployment, mass casualty events and mass contamination events.

### Biography

*Major David Heslop (FRACGP MBBS PhD (Medicine) MPH BSc (Adv) Hons I) is an Associate Professor at the School of Public Health and Community Medicine at UNSW, and retains significant military responsibilities as Senior Medical Adviser for CBRNE to Special Operations Headquarters Australia and to Australian Defence Force (ADF) joint senior leadership. He was appointed as Senior Medical Officer for Special Operations Command for 2014, and was the Officer Commanding and Senior Medical Officer to the ADF CBRN medical incident response element at Special Operations Engineer Regiment from 2012-2015. Dr Heslop is a practicing vocationally registered General Practitioner, an advanced trainee in Occupational and Environmental Medicine with RACP, and a fellowship candidate for the Academy of Wilderness Medicine. He currently has active research collaborations with NSW Ambulance, NSW Health, Defence Science and Technology Group, Australian Defence Force Academy and the Australian Defence Force. His research strengths and interests focus on health systems design and analysis, hybrid and agent based modelling, organisational resilience, operational risk analysis and management, military medicine, emergency and prehospital care and health systems, and clinical governance and risk management.*

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### Navy Health Sailor Uniforms

**Dr Neil Westphalen**<sup>1</sup>

*1 RAN Reserve, Palmerston, Australia*

#### Abstract

Navy uniforms were first approved for officers in 1747, and for sailors in 1857. This presentation will describe the evolution of Australian Navy uniforms to the present, with particular emphasis on Navy's medical, nursing and dental services.

#### Biography

*Dr Neil Westphalen graduated from Adelaide University in 1985, and joined the RAN in 1987. He is a RAN Staff Course graduate, and a Fellow of both the Royal Australian College of General Practitioners and the Australasian Faculty of Occupational and Environmental Medicine. He also has a Diploma of Aviation Medicine and a Master of Public Health, and was admitted as a Foundation Fellow of the new Australasian College of Aerospace Medicine in 2012.*

*His seagoing service includes HMA Ships SWAN, STALWART, SUCCESS, SYDNEY, PERTH and CHOULES. Deployments include DAMASK VII, RIMPAC 96, TANAGER, RELEX II, GEMSBOK, TALISMAN SABRE 07, RENDERSAFE 14, SEA RAIDER 15, KAKADU 16 and POLYGON 17. His service ashore includes clinical roles at CERBERUS, PENGUIN, KUTTABUL, ALBATROSS and STIRLING, and staff positions as J07 (Director Health) at the then HQAST, Director Navy Occupational and Environmental Health, Director of Navy Health, Joint Health Command SO1 MEC Advisory and Review Services, and Fleet Medical Officer (January 2013 to January 2016).*

*Commander Westphalen transferred to the Active Reserve in July 2016.*

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*Dr Neil Westphalen*

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### Nested disasters – What Happens When a Mass Casualty Incident Occurs within a Disaster Zone?

**Dr Jorian Kippax**<sup>1,2</sup>

*1 Royal Hobart Hospital, Hobart, Australia*

*2 Australian Defence Force*

#### Abstract

Nested disasters – what happens when secondary mass casualty incident strikes within a disaster zone?

An account of a Philippines Air Force Iroquois crash occurring during the 2013 AusMAT deployment to Cyclone Haiyan and discussion of disaster-within-disaster preparedness.

The Category 5 Cyclone Haiyan that struck the Western Philippines in 2013 combined massive storm surge with the fastest sustained winds in recorded human history and resulted in one of the worst cyclone-related disasters events affect one of Australia's neighbouring countries.

As part of a coordinated disaster assistance package, Australia deployed the Australian Medical Assistance Team (AusMAT) light surgical field hospital. This world-class (now WHO certified) capability quickly became the primary acute surgical treatment facility for the devastated region and offered acute assessment, surgical management and short-term inpatient care for thousands of patients over the course of its deployment.

During this deployment a Philippines Air Force Iroquois helicopter crashed nearby with eight personnel on board. The AusMAT hospital was immediately tasked to stand-by to receive the most critically injured.

Regions affected by natural disaster are by definition challenged by a multitude of factors increase risk for relief agencies such as impaired communications, variable inter-agency coordination, sustained high workload of both personnel and machines and a rapidly changing physical and cultural environment. In such conditions it is not surprising if secondary disasters and mass casualty events occur and place an enormous strain on facilities that may already be overwhelmed.

The AusMAT field hospital received five critically injured patients a short time later. I would like to describe this event, some of the lessons learnt and discuss how sudden onset natural disaster aid agencies might best prepare for secondary mass casualty incidents.

#### Biography

*Dr Jorian Kippax is an Emergency Medicine and Hyperbaric Medicine Specialist at the Royal Hobart Hospital, Tasmania. He is a reservist Medical Officer in the Australian Defence Force. In this role MAJ Kippax has provided Resus medical support for national and international exercises and has a keen interest in teaching advanced resuscitation skills – joining the CLOSEX team for exercise Hammel last year. In 2016 he joined a small team led by COL Brick (DLOG-A) to Ladakh, India, on a Subject Matter Expert Exchange (SMEE) investigating the Indian Army's logistic and health arrangements at high altitude.*



*Dr Kippax professional interests include aeromedical, disaster response and environmental medicine with a focus on altitude-related medicine. Dr Kippax is a keen mountaineer and has made first ascents of a number of peaks over 6800m throughout the world while providing expedition medical support.*

*Dr Kippax is involved with international disaster response through the Australian Medical Assistance Team (AusMAT). In 2013 he deployed to Tacloban in the Philippines immediately following Cyclone Yolanda in the capacity of Clinical Team Leader and 2IC. He also is involved with National Critical Care Trauma Response Centre (NCCTRC) team leadership training.*

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### Neurofeedback in the Treatment of Posttraumatic Stress Disorder: A Case Series Report

**Ms Tamara Lorensen<sup>1</sup>**

*1 Neurotherapy centre, Bardonia, Australia*

#### Abstract

Neurofeedback in the treatment of Posttraumatic Stress disorder: a case series report.

Brain-Computer Interaction devices (BCI) and more specifically Neurofeedback (NFB) devices have been in use for more than 30 years to alter brain activity and neural signals. However NFB is only now gaining prominence and rapidly emerging as a treatment of choice in many psychological conditions. A relatively large body of research exists in the use of neurofeedback to assist with the physical effects and disabilities in things such as stroke or into its application in a performance enhancement context (Shih et al, 2012) as well as mitigating the symptoms of ADHD. The use of Neurofeedback as a therapeutic option for Posttraumatic Stress disorder (PTSD) has, however, been overlooked in terms of any significant research funding or support. In a recent paper by Van der Kolk, Hodgdon, Gapen, et al (2016) neurofeedback as a treatment modality for PTSD showed significant positive outcomes. Results within this study clearly lend themselves to further investigation in order to promote greater interest in this treatment method. Within the sphere of PTSD, psychological therapies currently used continue to face the challenge of gaining positive outcomes when

they do not clearly demonstrate altering or improving physiological hyper-arousal, poor sleep or the ability to self-regulate and sufferers often require ongoing psychopharmacological support. These physiological aspects of dysfunction are being better understood and demonstrated through recent neuroimaging studies. The core of neurofeedback aims to address these very concerns.

Case series reports present a unique and important contribution and stimulus to further research by demonstrating the intervention in real world terms. This is particularly so with PTSD which represents a complex multi-system mental health disorder. This case series was conducted in a clinical setting.

Participants consented to their data collection for the purpose of research and presentation. Assessment consisted of standardised measures as well as a practice-based assessment tool that permitted a closer examination of multiple functional dimensions. Pre/post measures are presented; the outcomes achieved are shown to be in line with the positive results shown by Van der Kolk et al (2016) and demonstrate the efficacy of neurofeedback as, at the very least, an adjunctive treatment modality. This approach also demonstrates the need for further research and a broader approach to the treatment of PTSD as well as an appreciation for the underlying physiological mechanisms that are disturbed in this condition.

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#### Biography

*Tamara Lorensen BSc, Grad Dip Couns, MAppSc, Grad Dip Ed.*

*Is a psychologist with more than 20 years' experience in the field of neurofeedback. Her Research Masters thesis conducted a quantitative electroencephalogram (qEEG) study. Operating in private practice she has also worked as an Army Reserve psychologist, Tamara currently also works part time at RAAF base Amberley.*

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*Ms Tamara Lorensen*

### New Zealand Military Nurses Navigating Professional Accountabilities and Role Expectations

**Lieutenant Colonel Maree Sheard<sup>1,2</sup>**

*1 New Zealand Army, Feilding, New Zealand*

*2 Whanganui District Health Board, Whanganui, New Zealand*

#### Abstract

Nurses who are members of armed forces have responsibilities to both their defence force employers and to their nursing regulatory councils. Both national and international statutes and codes govern, support and constrain the way nurses work in the military context. These statutes and codes can create tensions for nurses as they seek to balance defence outputs with the delivery of care in accordance with professional standards. Any disconnects between the nursing profession's expectations of their members and those of the military can be compounded on operational missions due to the way in which military orders specific to particular engagements place different constraints on how nurses carry out their health care functions.

Balancing the needs of patients with those of defence force employers is a necessary feature of military nursing around the world however conditions within each country and at times within different arms of a single country's military forces, are unique. Defence rules and priorities, the cultural norms of both defence forces and of the societies in which defence forces arise, health regulations and the expectations of population dependencies combine with individual countries' strategic positioning and legal frameworks in ways that create challenges for military nurses that are unique to each armed service. What the complex interrelationships between societies, the state and a state's armed forces means is that the experiences of each group of military nurses navigating the space between professional accountabilities and role expectations within their respective countries will differ.

This presentation concentrates on the New Zealand military environment and the Nursing Council's regulatory requirements for nurses serving in New Zealand. The presentation will provide delegates with an overview of a selection of factors that influence the delivery of care provided by New Zealand military nurses. Challenges to the successful navigation of professional accountabilities and role expectations posed by the care delivery environment will be discussed. How tools such as the New Zealand

Defence Force's Professional Development and Recognition Programme for Nurses support nurses to navigate between their obligations to their employer and to their nursing regulatory authority and prepare them for life after military service will be presented.

#### Biography

*LTCOL Maree Sheard is a Reserve Force Nursing Officer in the New Zealand Army and a past Director of Nursing Services for the New Zealand Defence Force. In her civilian working life she is an Associate Director of Nursing at the Whanganui District Health Board where she holds the portfolio for clinical governance for nursing in the Centre for Patient Safety and Service Quality. LTCOL Sheard is also a PhD candidate at Massey University in Wellington where she is researching how nurses, while serving in the New Zealand Defence Force, navigate professional accountabilities and role expectations. LTCOL Sheard has published papers on aspects of military nursing in New Zealand including alcohol consumption in a cohort of military nurses and the development of the Royal New Zealand Nursing Corps.*

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### Operational and Occupational Concerns and the Mental Health of Military Personnel

**Miss Sasha-Marie Banjavcic-Booker<sup>1</sup>**

*1 Department Of Defence, Campbell, Australia*

#### Abstract

**Aim:** The Australian Defence Force (ADF) has long recognised its responsibilities regarding the mental health of its members, both those deployed on operations and their non-deployed garrison counterparts. The impact of deployment-related stressors on the psychological health of military members has been much researched; more recently, however, work has expanded to include examination of the impact of non-deployment-related occupational stressors upon psychological health in the military workplace. This study compares and contrasts the relative impact of deployment-related stressors on the mental health and wellbeing of operationally deployed ADF personnel, with the impact of common occupational stressors ('work hassles') on non-deployed garrison troops.

**Design:** Exploratory factor analysis was used to examine the underlying structure of both the 'operational concerns' scale (for deployed personnel) and the 'workplace hassles' scale (for garrison troops) of two different mental health screens used by the ADF. Resulting factors were then used in a discriminant function analysis to determine if they were able to correctly classify personnel into groups based upon their level of self-reported mental health risk factors, in both operational and occupational settings. Gender differences in these two settings were also explored.

**Method:** Two large samples (sample 1, n=8090; sample 2, n=7932) were included in this study, covering the period 2015 – 2016. Sample one included members screened using the Return to Australia Psychological Screen (RtAPS) (Operational Stressors); sample two comprised members who had been administered the Profile of Unit Leadership, Satisfaction and Effectiveness (PULSE) survey (Occupational Stressors).

**Results:** In the operational sample, confirmatory factor analysis revealed three reliable factors / subscales which showed different factor loadings for male and female subsamples. The resultant scales were predictive of risk group membership for 71% of males and 67% of females, in an operationally deployed setting. For the occupational sample, factor analysis also revealed distinct factors / subscales for males and females – four factors were predictive of risk group membership 55% of the time for males, while for females, the three factors identified were predictive of risk group membership 54% of the time.

**Conclusion:** This research confirms that both operational stressors and occupational (work) hassles impact upon the mental health of military personnel and, to varying degrees, can help predict the level of psychological distress likely to be experienced by ADF members experiencing those stressors. It is of particular interest that the influence of deployment-related stressors in an operational environment appears to be more predictable than that of 'work hassles' in the garrison environment. Results from this study and others currently underway will be used to inform the development of ADF mental health strategies into the future, with screening tools refined to highlight, with greater accuracy, personnel who might be at risk. A key limitation of this study was that the researchers were not able to control for prior mental health, trauma exposure and personal stressors experienced by the research subjects. Future research should explore the relationship between these variables and how they impact on the link between operational/occupational stressors and mental health outcomes.

### Biography

*Ms Sasha Banjavcic-Booker is a Senior Research Officer in the Occupational & Mental Health Surveillance team within Joint Health Command. Sasha's role in the team has been to conduct unit morale assessments for military units and research operational mental health outcomes of the military.*

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## Part 1 - Military Psychology in Conflict and Disaster... More Than Just Screening

**LTCOL Neanne Bennett<sup>1</sup>, MAJ Dale Hopcraft<sup>1</sup>**

*1 1st Psychology Unit, Randwick Barracks, Australia*

### Abstract

The provision of psychological screening in the ADF following involvement in a critical incident or being deployed on operations has become a well-established and accepted practise which has assisted in making psychology services accessible. Return to Australia Psychological Screens (RtAPS), Post Operational Screening (POPS) and Critical Incident Mental Health Support (CIMHS) has promoted the role of military psychology and established psychological support as part of the key support tools available to Commanders both on operations and at home, however there is still some work to be done to ensure stakeholders are aware of the full spectrum of services military psychologists can provide. This presentation will highlight the role of military psychology on operations and provide examples of work undertaken by 1st Psychology Unit, demonstrating the requirement for military psychologists to be highly trained and agile enough to respond to constantly changing and complex environments.

### Biographies

*Lieutenant Colonel Neanne Bennett is the Commanding Officer of the 1st Psychology Unit. During her military career she has provided clinical care and treatment to veterans and military personnel, as well as being involved in the development and implementation of the ADF Critical Incident Mental Health Support (CIMHS) model. She has extensive deployment experience, having supported humanitarian, peace keeping and combat operations, as well as hostage release activities. Lieutenant Colonel Bennett holds postgraduate qualifications in psychology and rehabilitation. She is currently completing a PhD*

*investigating psychological outcomes and effects of sustained combat operations in ADF personnel.*

Major Hopcraft joined the Australian Regular Army as a psychologist in 2011 and has served in a Mental Health and Psychology Section and in a specialist role when posted to 1st Intelligence Battalion. He is currently posited as the Operations Officer, 1st Psychology Unit. Major Hopcraft holds a Masters Degree in Counselling Psychology, the research component of which focused on Australian Defence Force veterans with combat-related Post Traumatic Stress Disorder. Part of this research, conducted in collaboration with the Australian Centre for Posttraumatic Mental Health, now Phoenix Australia, was published in the *Journal of Anxiety Disorders*.

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## Part 2 - Psychological Certification: Getting Inside the Four Walls

**MAJ Kelly Tomlinson<sup>1</sup>**, MAJ Andrew Moss<sup>2</sup>,  
LTCOL Nianne Bennett<sup>1</sup>

<sup>1</sup> 1st Psychology Unit, Randwick Barracks, Australia

<sup>2</sup> Mental Health Psychology & Research Branch (MHP&R),  
Campbell Barracks, Australia

### Abstract

A key aspect of providing psychological responses following any type of potentially traumatic event such periods of conflict and disaster is ensuring people are equipped and prepared. Army Psychologists posted to 1st Psychology Unit are often required to respond to these events and in 2016 a comprehensive training simulation exercise was introduced to ensure all unit personnel were ready to meet these requirements. The training exercise facilitates a certification process which meets Army Training Levels (ATL) and deployment standards, whilst also providing an opportunity to rectify any individual or team training deficiencies. In addition, the simulations allow for a continuous feedback and learning loop by incorporating lessons learnt from recent critical events and deployments to ensure relevance. This presentation provides an overview of the 1st Psychology Unit Certification Exercise (CERTEX) and demonstrates how we train, assess and prepare our personnel to provide psychological responses in conflict and disaster situations.

### Biography

MAJ Tomlinson graduated from Murdoch University in 2005 with a Bachelor of Arts in Psychology (Honors). Following graduation, she commenced employment as a Behaviour Therapist within the field of Applied Behaviour Analysis (ABA) for children with autism, attention problems and learning difficulties. MAJ Tomlinson received her Commission into the Australian Army Psychology Corps (AAPSYCH) in 2009 and was awarded Student of Merit on her Regimental Basic Officers Basic Course. MAJ Tomlinson has fulfilled appointments within the 1st Psychology Unit, The ADF Centre for Mental Health and within Joint Health Command. Her staff appointment at the ADF Centre for Mental Health provided an opportunity to impart innovation within a reinvigorated mental health training continuum for mental health practitioners and implement advanced trauma training to a selected pool of clinicians, expanding their repertoire of clinical skills for enhanced service provision. MAJ Tomlinson has deployed on both OP Slipper and OP ANODE, and currently holds the position of Executive Officer (XO) 1st Psychology Unit.

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## Part 3 - Lessons Learnt – Reflection on 10 years of CIMHS Response within Operational Military Psychology

**MAJ Sarah Watson<sup>1</sup>**, **MAJ Rob Whistler<sup>1</sup>**

<sup>1</sup> 1st Psychology Unit, Randwick Barracks, Australia

### Abstract

Central to the role of operational military psychology is mental health response and support to critical incidents. 1st Psychology Unit has provided numerous Critical Incident Mental Health Support (CIMHS) responses to operational incidents both overseas and in Australia to support the resilience of our personnel and their ability to effectively manage the environment in which they are trained to respond. Whilst every critical incident is unique, a review of multiple CIMHS responses undertaken by 1st Psychology Unit personnel over the past 10 years has identified many lessons learnt both in the overseas and Australian operational environments. In particular, the acceptable thresholds for activating a response in deployable warlike environments appear



to have changed over time. This presentation aims to explore reasons for these changes and also discuss considerations in activating a CIMHS response. Lessons learnt from CIMHS responses over the last decade will be used to highlight experiences and expertise that has been developed by our personnel, and discuss decision making models and thresholds for activating responses.

### Biography

*MAJ Rob Whistler joined the Australian Army in 2002 and immediately posted to 3rd Combat Support Services Battalion. Subsequent postings have included The Australian Centre for Posttraumatic Mental Health (now Phoenix Australia), the Army Logistic Training Centre, Mental Health and Psychology Section – Gallipoli Barracks, 2nd Health Services Battalion and the Defence Force School of Intelligence. MAJ Whistler is currently posted as OC 1 Psych Unit Townsville DET. MAJ Whistler has deployed on OP ANODE, OP SUMATRA ASSIST, OP CATALYST, OP VIC FIRES ASSIST, OP PADANG ASSIST, OP ASTUTE, and OP SLIPPER.*

*MAJ Sarah Watson is a Senior Psychologist with the Australian Army and is currently posted to Operational Performance within 1st Psychology Unit HQ. MAJ Watson has completed a Bachelor of Arts, Bachelor of Science (Psychology) with Honours, and most recently a Master of Psychology (Organisational). Research undertaken to date has included the identification of gender differences in occupational stress and coping, and investigation of the relationship between reported over confidence and tested competence in trainees. MAJ Watson is currently undertaking the AHPRA registrar program for endorsement as an Org Psych. She has deployed on OP SLIPPER and enjoyed Army and JHC postings including the School of Infantry.*

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## Part 4 - Psychological Outcomes in Conflict and Disaster – are they the Same or Different?

**LTCOL Nianne Bennett<sup>1</sup>**

*1 1st Psychology Unit, Randwick Barracks, Australia*

### Abstract

1st Psychology Unit has a longstanding history of providing psychological support following critical

events including natural disasters and accidents as well as supporting combat and peacekeeping operations. One of the key requirements in providing these responses is the ability to adapt to the environment they are working. Whilst similarities in the provision of psychological support in disaster situations can be found, the psychological outcomes for individuals can differ. This paper will provide a retrospective analysis by reviewing responses and psychological support provided by 1st Psychology Unit over the last 10 years. Presenting issues and themes following conflict and disaster events will be considered, with similarities and differences explored and implications for future responses and planning considered.

### Biography

*Lieutenant Colonel Nianne Bennett is the Commanding Officer of the 1st Psychology Unit. During her military career she has provided clinical care and treatment to veterans and military personnel, as well as being involved in the development and implementation of the ADF Critical Incident Mental Health Support (CIMHS) model. She has extensive deployment experience, having supported humanitarian, peace keeping and combat operations, as well as hostage release activities. Lieutenant Colonel Bennett holds postgraduate qualifications in psychology and rehabilitation. She is currently completing a PhD investigating psychological outcomes and effects of sustained combat operations in ADF personnel.*

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## Pathological Jackpot!

**Dr Peter Hurly**

### Abstract

A case presentation is submitted of a senior Air Force officer, who is a non pilot aircrew and who developed three pathological issues within two years. These issues included a haematological diagnosis a cardiac problem and muscular skeletal issues. The sequence of events is discussed as well as the management of the conditions. A discussion follows on the conditions as well as the military medicine concern regarding the medical grading of the officer, who still has much to offer, but who cannot be returned to his former flying status and medical grading. Interactive discussion from the audience is encouraged.

### Biography

Retired Director of Air Force Medicine for the Royal New Zealand Air Force. Master's degree in Aviation Medicine, commenced military career in Anti-Aircraft Artillery, then in view of volunteer ambulance work, transferred to Medical Corps. Studied Pharmacy and was pharmacist / adjutant in a Field Ambulance Unit seeing active service. Then studied medicine. Worked in A&E and general practice. Was SMO at Linton Camp Hospital. Transferred to Air Force after gaining pilot qualification and Aviation Medicine Diploma. Post graduate certificate in Aeromedical Evacuation followed by Master's degree in Aviation Medicine. Was Director of Air Force Medicine in RNZAF for ten years, retired and remained on as SMO / reservist. Fellow of the Australasian College of Aero Space Medicine, Fellow of the Royal New Zealand College of General Practice, Head of Delegation for the RNZAF in the Aerospace Medicine branch of Air Space Medicine Interoperability Council.

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Dr Peter Hurly

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### Physical Profile of Recruits at ARTC Kapooka and Relationship to Musculoskeletal Injury During Training: Baseline observations from the PREFIT Study

**Dr Belinda Beck**<sup>1,2,5</sup>, Dr Stephan Rudzki<sup>3</sup>,  
Dr Graeme Jones<sup>4</sup>, Ms Sally Dzera<sup>5</sup>

<sup>1</sup> Menzies Health Institute Queensland, Griffith University, Gold Coast, Australia

<sup>2</sup> The Bone Clinic, Brisbane, Australia

<sup>3</sup> MO4 Regional Health Service, Canberra, Australia,

<sup>4</sup> Menzies Research Institute, University of Tasmania, Hobart, Australia

<sup>5</sup> School of Allied Health Sciences, Griffith University, Gold Coast, Australia

### Abstract

**Background:** Musculoskeletal injuries are the cause of the greatest number of days lost to Army recruit training (RT) and comprise one of the largest costs to Defence. Bone injuries take the longest to heal and are the most common cause of medical discharge. The goal of the PREFIT project is to implement a novel pre-RT conditioning program to prepare the musculoskeletal system for the rigours of RT, and reduce rates of injury. To test the effectiveness of the PREFIT program, we are tracking the rate

of musculoskeletal injuries in study participants who undertake preconditioning in comparison with recruits who do not. This work allows us to also determine characteristics that predispose to musculoskeletal injury from the platoon-mates of PREFIT participants at the beginning of recruit training at ARTC Kapooka. The aim of the current work is to describe those characteristics.

**Methods:** Biometrics (age, sex, height, weight), and a suite of physical, functional and behavioural measures relevant to musculoskeletal health, including calcaneal broadband ultrasound attenuation (BUA) and stiffness index (SI) from quantitative ultrasonography (QUS, Achilles, GE); isometric muscle strength from leg strength dynamometry (TTM Muscle Meter, Tokyo, Japan); muscle power from the vertical jump test (GymAware Power Tool, Kinetic Performance, Canberra, Australia); functional reach; serum vitamin D; previous physical activity participation (BPAQ); dietary calcium (AusCal) and prior injuries, are collected at the Army Recruit Training Centre, Kapooka on day one of RT. Musculoskeletal injuries sustained during the 12-week RT are tracked. Descriptive statistics were compiled and comparisons were made with Australian reference norms as available. The ability of relevant biometric, physical and behavioural characteristics of recruits to predict rates of lower extremity musculoskeletal injury during recruit training was examined using multiple regression analysis.

**Results:** We have examined 393 recruits to date. Australian Army recruits, (mean age  $22.0 \pm 5.4$  yrs) of whom 16.5% were female, were taller ( $p > 0.0001$ ), heavier ( $p = 0.02$ ) and had lower BMI ( $p = 0.006$ ) on entry to the Army than standard Australian reference norms, and consumed 80% of the Australian recommended daily allowance of calcium. The incidence of musculoskeletal injury following Army RT was 23.8%. Over 52% of recruits had suffered at least one musculoskeletal injury prior to entering the Army. Calcaneal stiffness and maximum vertical jump power at the beginning of Army RT predicted 15.6% of the variance in rate of total musculoskeletal injury during RT ( $p = 0.024$ ). Height, vertical jump height and resting heart rate at baseline predicted 16.5% of the variance in number of bone injuries sustained during RT ( $p > 0.0001$ ). Those relationships were positive except for calcaneal stiffness and height.

**Conclusions:** Findings suggest that while ARTC Kapooka recruits on average may have somewhat larger physiques than average, those with poorer bone health are most likely to suffer from a musculoskeletal injury during recruit training, and

those who are shorter and have poorer entry-level fitness are most likely to suffer from training-related bone injuries.

### Biography

*Belinda Beck is a Professor at Griffith University in the School of Allied Health Sciences and the Menzies Health Institute Queensland. She graduated from The University of Queensland (BHMS[Ed]) and from the University of Oregon (MSc and PhD) where she studied sports medicine and exercise physiology. She completed a postdoctoral research fellowship in the Stanford University School of Medicine (CA, USA). Her work, primarily related to the effects of mechanical loading on bone, has involved both animal and human models, from basic to clinical research. Her particular focuses have been exercise interventions for the prevention of osteoporosis and fracture in old age, and the prevention and management of bone stress injuries in the military. Her work has involved observational and clinical trials in exercise and vibration training across the lifespan. She recently founded The Bone Clinic, an innovative translational research facility and health service with a focus on safe and efficacious exercise for osteoporosis.*

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## Preparing ADF Nursing Officers for War and Conflict and Disasters and Humanitarian Missions and.....

**CAPT Alison Reardon<sup>1</sup>, LT Guy Williams<sup>1</sup>**

*<sup>1</sup> Army School Of Health, Bonegilla, Australia*

### Abstract

The training of ADF nurses over the last 20 years has seen modernisation from the original Field Nursing Course (FNC). This course aimed to prepare nurses to work in field and austere environments. The course was developed into the Military Advanced Resuscitation Course (MARC) as a requirement to meet the demands of deployment in an asymmetric threat environment. Over the last two years, the MARC has been reviewed and re developed, focussing more on primary health care, humanitarian and paediatric assessment skills and the ever evolving need to manage disasters and mass casualty events.

The redeveloped course aims to prepare ADF nurses for the wide range of employment and deployment roles that they may experience in their ADF careers.

Today, ADF nurses are required to complete a two-phase Extended Practice Nursing course known as the ADFEPN. This course is now being trialled at the Army School of Health (ASH). Phase 1 prepares nurses to work in a primary health care environment and deliver advanced primary health care assessment and management including suturing, advanced ECG interpretation, musculoskeletal management and plastering and a suite of Humanitarian Aid and Disaster Relief topics. These include the management of obstetric emergencies, paediatric assessment and a nationally recognised Immunisation program. Phase 2 includes a suite of recognised civilian qualifications such as the Trauma Nursing Core Course (TNCC), Major Incident Medical Management Support (MIMMS), Advanced Life Support 2 (ALS2), Emergency Management of Severe Burns (EMSB) and management of critically unwell patients over extended periods.

The ADFEPN is still in trial and the effects on nursing preparedness, retention and capability are yet to be formally reviewed, however the future looks bright.

CAPT Ali Reardon is the Officer-in-Charge of the Health Training Team at the Army School of Health.

Lieutenant Guy Williams is the Course Manager of the ADF Extended Practice Nursing Course.

### Biography

*CAPT Ali Reardon, MStJ, RN, is an Army Reservist on CFTS at the Army School of Health (ASH), Bonegilla. She has a Masters of Advance Practice and is also a qualified Remote and Isolated Practice Endorse Nurse (RIPEN). CAPT Reardon has been a lead instructor and course manager for the Medical and Nursing Officer training Team for 2 years, delivering both the ADF Extended Practice Nursing Course (ADFEPN) and Medical Officers Introduction Course (MOIC). During that time she has been heavily involved with re-writing and re-developing the new (ADFEPN), formerly the Military Advanced Resuscitation Course (MARC) for which she was awarded a bronze commendation and both the ASH and the Army Logistic Training Centres (ALTC) instructor of the year.*

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*CAPT Alison Reardon*

### Preparing for the Unpredictable: Employing Global Health Engagement to Promote Access, Quality, and Patient Safety in Combatant Commander AOR

**Colonel Joseph Anderson**<sup>1</sup>

*1 US Air Force Medical Support Agency, Falls Church,  
United States*

#### Abstract

The presentation was requested as keynote address for AMMA's 2017 Conference Responding to the Unpredictable. The objective of this presentation is to discuss what may be a novel approach to Global Health Engagement in a Combatant Commander's Area of Operations by presenting it in terms of the US Military Health System's (MHS) new High Reliability Organization (HRO) concept. Specifically, the MHS HRO concept intends to improve system-wide Access to Clinical Care, Quality of Care, and Patient Safety. Global Health Engagement is very different from everything most of medical personnel have been training to do all their careers. The focus of our day-to-day activities has almost always been training for and actually delivering direct medical care. That care may be in our own home station medical facilities, or it may be in a deployed location. In various countries, medical personnel, both military and civilian, are deploying specifically to advise and assist another country in building its healthcare infrastructure. Their GHE mission is to advise, to teach, and to build relationships rather than actually to deliver medical care. This presentation includes a description of the US military perspective of Global Health Engagement as well as describes the policy guidance for those activities, specifically its role in developing international partnerships while promoting partner capability and capacity. While these engagements are often military-to-military, the US GHE teams often also engage with local civilian governmental and non-governmental organizations. The idea is not necessarily to develop a military capability but rather a capability that is more broadly applicable to humanitarian assistance and disaster response. The ultimate goal of these engagements is that the partner country develops the ability to respond effectively not just its own internal disaster situations, but even to regional disasters, thereby promoting regional stability. Finally, this presentation will highlight two examples each of how these GHE activities can be thought to promote Access to Care, Quality of Care, and Patient Safety in the Indo-Asia-Pacific Area of Operations.

#### Biography

Col Joseph Anderson is the Chief of Expeditionary Medical Readiness at the US Air Force Medical Support Agency. In this role, he oversees policy development and implementation for all aspects of medical readiness across the US Air Force. He graduated from the College of Charleston with a Bachelor of Science in Biochemistry. He earned his Doctor of Medicine degree from the Uniformed Services University of the Health Sciences, Bethesda, Maryland. He also has a Master of Public Health degree from the Harvard School of Public Health. He is residency trained in Family Medicine, Aerospace Medicine, and Preventive Medicine. He maintains board certification in Family Medicine. In his previous assignment, he was the Headquarters Pacific Air Forces Command Surgeon, overseeing all US Air Force medical operations in the Pacific area.

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### Psychological Reactions to Trauma are Only Half the Story

**Ms Kristin Graham**<sup>1</sup>, Dr Ellie Lawrence-Wood<sup>1</sup>,  
Dr Miranda Van Hooff<sup>1</sup>, Dr Amelia Searle<sup>1</sup>,  
Prof Alexander McFarlane<sup>1</sup>

*1 Centre For Traumatic Stress Studies, Adelaide, Australia*

#### Abstract

**Background:** Current paradigms of posttraumatic stress disorder and the effects of combat on military personnel have minimized the significance of combat exposure as a cause of somatic distress. As a result somatic distress is characteristically dealt with as a comorbidity of psychopathology.

**Aims:** To identify three possible symptom groups post deployment: somatic distress, psychological distress or a comorbidity of both somatic and psychological distress. Our objectives included examining the comparative size of the population in each group, as well as the relative strength of the relationship between traumatic exposures on deployment and these different symptomatic outcomes.

**Methods:** We used data from a cross sectional study of Australian Defence Force personnel who had deployed to the Middle East Area of Operations between 2001 and December 2009 (N = 10944). Multinomial logistic regression models were used to



assess the probability of symptom group membership with self-reported deployment exposures as the predictor. Traumatic deployment exposures were assessed as subjective combat, objective combat, or human death and degradation exposures.

**Results:** Three symptomatic groups were identified: somatic, psychological, and comorbid. We found the higher the level of trauma exposure the stronger the association with all symptom group membership. Subjective combat exposures demonstrated the strongest associations. The comorbid group exhibited the strongest association with all traumatic deployment exposures and the psychological group the weakest.

**Conclusion:** Our findings suggest somatic and psychological distress in veterans are similarly related to deployment trauma. These findings question the treatment of somatic distress as a comorbidity of psychological reactions observed in veterans. Alternatively they argue for somatic and psychological symptoms being on the same axis of distress.

### Biography

*Kristin Graham has over 25 years' experience as a clinical podiatrist. After returning to study a Bachelor of Psychological Science (Honours) she received the Rotary Health ANZAC scholarship, and is now completing a PhD at the Centre for traumatic Stress Studies examining the associations between war-related trauma exposure and the physical and mental health of veterans.*

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## RACS Trauma Verification of the 2nd General Health Battalion Role 2E Hospital

**CAPT Robert Eccleston<sup>1</sup>**

*1 2nd General Health Battalion, Enoggera, Australia*

### Abstract

The Royal Australasian College of Surgeons (RACS) Trauma Verification program is a multi-disciplinary inter-collegiate process that assists hospitals analyse and improve their systems of trauma care. Comparisons to objective criteria facilitate quality improvement and a standardised understanding

of the level of clinical service a hospital delivers. Most Australian and New Zealand civilian trauma centres seek RACS Verification. The 2nd General Health Battalion (2GHB), as part of its ongoing quality improvement program, is the first Australian military hospital to undergo this process. Earlier outcomes of this program include establishing a robust clinical governance framework, implementing the Ten National Safety and Quality Health Service Standards, developing Clinical Practice Guidelines specific to an Australian Role 2E hospital, and undertaking regular independent assessments of clinical care and systems using simulated casualties by specialists from the 3rd Health Support Battalion.

The complex nature of deployable healthcare, for both combat and humanitarian missions, necessitates interaction with multiple stakeholders in order to provide optimal patient care from point of injury through to discharge from hospital. The Trauma Verification process benchmarks systems, personnel and equipment used by 2GHB against international best practice. Feedback and subsequent improvements in these processes will help 2GHB deliver the highest possible quality patient care, and improve its ability to interact with civilian facilities and coalition military partners.

As the first military hospital to undergo the Trauma Verification process, 2GHB has worked with the RACS to translate civilian hospital criteria into the military context. Recommendations from the RACS are likely to have applicability to other ADF hospital units.

### Biography

*CAPT Eccleston is a Regular Army General Practitioner posted to the 2nd General Health Battalion, Gallipoli Barracks, Enoggera. In 2015 he deployed to Iraq with Task Group Taji 2, where he was a general duties medical officer in the deployed R2E. He is currently working as an intensive care registrar at QEII Hospital with a view to commencing specialist training in anaesthetics in 2018. CAPT Eccleston has been the primary facilitator of the 2GHB RACS Trauma Verification project.*

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*CAPT Robert Eccleston*

### Reducing the Chronic Pain Experience of Defence Personnel: A Randomised Controlled Trial of an Attentional Bias Modification Protocol

Dr Melanie White<sup>1</sup>, Dr Kate Mulgrew<sup>2</sup>,  
Prof Ross Young<sup>1</sup>, Assoc Prof Clint Douglas<sup>1</sup>,  
Dr Lee Kannis<sup>2</sup>

*1 Queensland University of Technology, Institute of Health and Biomedical Innovation, Kelvin Grove, Australia*

*2 University of the Sunshine Coast, Sippy Downs, Australia*

#### Abstract

Chronic pain and associated mental illness (particularly, depression, anxiety and trauma symptoms) present significantly disabling and costly problems for Defence personnel, their families, the ADF and health care system. Pain serves an important survival function by drawing our attention to injury. However, people with chronic pain can show an impaired regulation of this attentional process and become excessively vigilant to pain-related cues. This largely unconscious, automated and implicit allocation of attention to pain cues, termed attentional bias, in turn may serve to maintain or exacerbate chronic pain and associated disability. This Defence Health Foundation funded randomised controlled trial examines the effectiveness of 5 weekly sessions of a computerised attentional bias modification task (vs. control condition: non-training version) at training this attentional bias away from pain-related cues in Defence personnel who report chronic pain (lasting at least 3 months). Additionally, we examine whether such attentional training leads to improvements in individuals' self-reported pain experience, mental health and wellbeing up to 1 month later. Preliminary results will be presented and potential applications will be discussed.

#### Biography

*Dr Melanie White is a Senior Lecturer in the School of Psychology and Counselling at Queensland University of Technology. She leads the Behavioural Neuroscience and Mental Health Program within QUT's Institute of Health and Biomedical Innovation. She has held previous posts at the University of Southern Queensland (Lecturer), the Centre for Accident Research & Road Safety – Queensland (CARRS-Q; Post-doctoral research fellow), and in the Queensland Government (Education research and policy roles). Melanie's research program is*

*broadly focused on cognitive function (particularly, executive function, reward processing, impulsivity and cognitive biases), its role in health concerns such as addictive behaviours and chronic pain experience, and the development and evaluation of associated interventions. Her research applies experimental psychology methods to examine the interplay between physiological and psychosocial aspects of cognitive function and complex behaviour.*

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### RESET – Review of a Pilot Implementation of an ADF Specific Mental Health and Wellbeing Prevention Program that Focuses on Self Efficacy and Adaptive Coping Skills

Dr David Said<sup>1</sup>, LTCOL Jacqueline Costello<sup>1</sup>

*1 Australian Defence Force Centre for Mental Health*

#### Abstract

The RESET program was developed by the ADF Centre for Mental Health and Phoenix Australia. It is a mental health and wellbeing prevention program that focuses on developing self efficacy and adaptive coping skills. RESET fits within a stepped model of care.

It is a group program delivered across six modules over two days. It is designed to support ADF members build confidence and practical skills of self management to enhance performance and quality of life across a range of domains. The program is evidence informed and supports members to develop personal insight and strategies to manage the challenges of military and personal life more adaptively.

RESET is a command initiated program. In this way, RESET participants do not necessarily have to identify with current life challenges or mental health issues to engage and benefit from the program.

RESET was piloted throughout 2015 - 2016 and has now begun to be implemented in Garrison Health. We will present feedback from participants and trainers on the program as well as review self report quality of life measures completed by participants pre, and following the program.

### Biography

*Dr David Said is a clinical psychologist and the Clinical Programs Manager at the Australian Defence Force Centre for Mental Health. He has worked with complex presentations in the ADF usually including comorbid PTSD, alcohol and mTBI for the past 5 years. Previously he worked for the NSW Dept of Health in a dual diagnosis mental health service. He has been an Army Reserve military psychologist for the past 19 years and has deployed on several occasions to Afghanistan, Iraq, East Timor, Cyprus, the Solomon Islands and Pakistan with the Australian Army.*

*LTCOL Jacqueline Costello was commissioned as an Officer in the Australian Army Psychology Corps in 2002 and has served in a wide variety of postings across Army and Joint units in both garrison and deployed settings. She has deployed on operations to Afghanistan, Kuwait and the UAE. She holds a Masters degree in Organisational Psychology and is currently the Officer-In-Charge of the ADF Centre for Mental Health.*

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### Responding to the Unpredictable: Some Thoughts on Short Notice HADR Deployments, with Case Studies

Dr Gavin Day<sup>1</sup>

*1 Army, Brisbane, Australia*

#### Abstract

The Australian Government has shown an on-going commitment to deploy ADF health assets to respond to natural disasters in our region. These natural disasters can be unpredictable, and their responses ad hoc, but can also be predictable (even forecast) and their responses more planned. The author has been fortunate enough to deploy as a Medical Officer on two recent short notice HADR responses; OP PHILIPPINES ASSIST, after Super Typhoon Yolanda, and OP FIJI ASSIST, after Tropical Cyclone Winston. On neither of these occasions was the author involved in the health planning for these responses but was subsequently responsible for implementing the plans. He will take the opportunity to present a number of insights on short notice HADR deployments, from the aspect of a Doctor on the ground, and via the

use of case studies. He will then discuss the lessons we can learn from these deployments to better inform our health planning, mature the training of our clinicians and improve some our capabilities; including Rotary Wing Aeromedical Evacuation.

### Biography

*Major Gavin Day is an Army Medical Officer at the Headquarters of the 1st Division in Brisbane, having recently been posted from the 2nd Close Health Company in Townsville. Gavin served as an Officer in the Royal Australian Armoured Corps before completing his medical degree, at Flinders University in Adelaide, and his Fellowship of the Royal Australian College of General Practitioners. Gavin is also qualified as an Aviation Medical Officer and Underwater Medicine Medical Officer.*

*In 2013 Gavin deployed on OP PHILIPPINES ASSIST, as part of the ADF's short notice response to Super Typhoon Yolanda, providing clinical care and evacuation to the Engineer reconstruction effort. He deployed to Afghanistan in 2015, on OP HIGHROAD, working with coalition medical assets at the NATO Role 2 in Kabul and supervising Australian clinicians. Gavin deployed on OP FIJI ASSIST in 2016, as the Rotary Wing Aeromedical Evacuation Medical Officer, part of the short notice response to Cyclone Winston. He led a small clinical team providing aeromedical evacuation and clinical care in an austere, post disaster environment.*

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### Risk and Protective Factors Associated with Service Life in the NZDF

Colonel Clare Bennett

#### Abstract

New Zealand's suicide rate is near the highest it has been since recording began. The prevalence of broader mental health related issues in the NZ population is increasing and it can be expected that this trend is also being reflected in the NZDF population, our families who support us, and our new recruits. As a representative sample of the broader NZ population in many respects, the NZDF can expect similar trends, along with some differences.

While a comparatively younger and healthier subset of the broader population, the nature of service life comes with demands that aren't typical of those in the broader community. This presentation presents a summary of the potential stressors associated with military service, risk factors most strongly linked to psychological distress and those factors that have been found to be protective in keeping people well. Key areas of focus for building and maintaining positive mental health in the NZDF are also presented.

### Biography:

Col Bennett is the Chief Mental Health Officer in the NZDF. She is a registered psychologist and holds Masters degrees in Business and Strategy.

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Colonel Clare Bennett

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## Royal Australian Air Force Aeromedical Evacuation Capability in Disaster

**SQLNDR Cameron Brockel**<sup>1,2</sup>

*1 Royal Australian Air Force, Brisbane, Australia*

*2 Defence Force Recruiting, Brisbane, Australia*

### Abstract

The Royal Australian Air Force offers a unique capability in support of Humanitarian Assistance and Disaster Relief operations. It is the only mass evacuation capability within Australia's area of interest and has been used on a number of occasions in support of a Whole of Government response to various disasters within Australia and abroad.

This presentation will examine the lessons learnt from Bali; the development of current RAAF Aeromedical Evacuation capability; examples of recent mass evacuations such as OP YASI ASSIST and the evacuation of Cairns Base and Private Hospitals, OP QUEENSLAND FLOOD ASSIST and the evacuation of Bundaberg Hospital, and the support provided to Vanuatu after Cyclone Pam and Nepal after the devastating earthquake; and the way forward for future AME capability.

### Biography

SQLNDR Brockel completed his Bachelor of Nursing at CQU in 1994. After starting in the private sector he moved to Queensland Health in 1996 working in various Intensive Care Units in South East Queensland including as the NUM of Caboolture Hospitals Critical

Care Unit and ICU Nurse Educator for Metro North Health Service District. In 2007 he joined the RAAF initially in the Specialist Reserve and transferred to the Permanent Air Force in 2008.

SQLNDR Brockel has extensive Military AME experience with over 400 flying hours on various military and civilian platforms in addition to 200 hours as an AME instructor. He was part of the RAAF AME teams that evacuated Cairns Base and Private Hospitals during Cyclone Yasi in 2011 and coordinated AME teams deployed in support of Vanuatu, Fiji and Nepal in the wake of disasters in those areas. He deployed on OPERATION SLIPPER to Afghanistan as the Aeromedical Evacuation Liaison Officer, on OPERATION HAWICK on the AME team supporting the MH17 Crash Investigation Team in Ukraine and on OPERATION ACCORDION as OIC of the AS RIE Medical Centre.

SQLNDR Brockel is currently posted to Defence Force Recruiting in the Specialist Recruiting Team for all ADF Health roles.

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## Shooting Reconstruction and Terminal Ballistics: Determinations from Examining Wound Patterns

**FLTLT John David North**<sup>1</sup>

*1 Royal Australian Air Force, RAAF Base Williamtown, Australia*

### Abstract

Shootings involving serious injury or death require forensic investigations in an attempt to determine what occurred at the time of the incident. Within this process, assistance from medical personnel provides significant support to law enforcement and forensic officers. However, being prepared for these types of incidents may be difficult where medical personnel have limited exposure to shooting victims and or an inadequate understanding of what's required for coronial and legislative purposes. Coupled with this is the need for knowledge relating to evidence that may be obtained from the mechanisms of firearms, ammunition and what occurs after the trigger is pulled.

This presentation will address the method of shooting reconstruction by highlighting terminal ballistics;



the branch of ballistics that examines a projectile's (or bullet's) impact on a target surface. Examination of wounds to the body, damage to clothing and the incident scene, greatly assists investigators in the shooting reconstruction process.

During this presentation, a series of case studies will be discussed, with medical personnel being provided recommendations to consider a holistic approach to aid forensic officers with shootings investigations.

### Biography

*FLTLT David North is a RAAF Reservist with 2 Expeditionary Health Squadron (2EHS) squadron base at RAAF Williamtown. He has been a police officer for 16 years, serving with the Queensland Police Service (QPS) and currently with Tasmania Police.*

*FLTLT North holds a Master of forensic science with specialties in crime scene examinations and recovery of human remains.*

*He is a member of the Australia and New Zealand Forensic Sciences Society (ANZFSS) and regularly contributes at forensic symposium.*

*FLTLT North is an avid bagpiper and is a member of the Tasmania Police Pipe band who, in recent years, has played at the Royal Edinburgh Military Tattoo in Scotland 2014 and in Melbourne 2016.*

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## Step Up! A Stepped Care Approach to Alcohol Management in the ADF

**Ms Jennifer Harland<sup>1</sup>**, J Hemmerling, R McGregor, K Nash, **Pennye Richter<sup>1</sup>**, G Roe, B Stead, N Teong

<sup>1</sup> Department of Defence

### Abstract

Alcohol is consumed by many Australians, including members of the Australian Defence Force (ADF). Drinking at levels that can cause short-term risk or long-term harm is detrimental to the health and safety of individual Defence members. Alcohol may negatively impact on behaviour, professional performance, personal relationships, unit morale and the reputation of Defence.

Defence is committed to minimising alcohol-related harm in order to enhance operational capability, reduce personal harm and minimise operational costs. The ADF Alcohol Management Strategy (ADFAMS) was developed to support the Defence

commitment to improving alcohol management and reducing the negative impact of alcohol on the health, safety, capability and reputation of the ADF.

A priority action of ADFAMS was to 'Develop, strengthen and standardise best practice service delivery models for prevention, early intervention and treatment'. This presentation will demonstrate how the Stepped Care Approach to the management of alcohol use has been implemented across Defence. The model is designed to deliver and monitor interventions appropriate to a person's need. Depending on the member's changing needs and response to the first intervention, they are either 'stepped up' or 'stepped down' the continuum. This approach provides the ability to enter the continuum at any step depending on the Defence member's need or situation.

A case study approach will be used to illustrate a member's journey through the stepped care model to demonstrate how it can be effectively implemented in a range of settings. The presentation will highlight the success of an integrated and collaborated approach to alcohol related harms across the single Services with the support of the Regional Alcohol, Tobacco and other Drug Coordinators.

### References

- 1 Department of Defence (2014) Australian Defence Force Alcohol Management Strategy and Plan (2014-2017)
- 2 Haber, P., Lintzeris, N., Proude, E. & Lopatko, O. (2009) Guidelines for the Treatment of Alcohol Problems, Australian Government, Department of Health and Aging.
- 3 Saunders, J., Conigrave, K., Latt, N., Nutt, D., Marshall, J., Ling, W., Higuchi, S. (2016) Addiction Medicine (second edition) Oxford University Press, Australia

### Biographies

*Jennifer Harland has over 20 year's experience in the drug and alcohol sector. Clinically, Jennifer has worked in substance withdrawal management, residential rehabilitation, opioid treatment programs, acute care and mental health. Jennifer has held academic appointments at the University of Adelaide and the University of Wollongong. In 2012, Jennifer completed the International Program in Addiction Studies which led to her appointment as Global Coordinator for the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) Program for the World Health Organization. Jennifer is a Credentialed Drug and Alcohol Nurse (CDAN) and is Vice President (International) for the Drug and Alcohol Nurses of Australasia.*

*Pennye Richter has 20 year's experience as a Registered Nurse and 16 years of that within the drug and alcohol sector. Throughout these years, Pennye has worked in substance withdrawal management, opioid treatment program, drugs in pregnancy, acute care and most recently, is the Alcohol, Tobacco and other Drug Coordinator for SA. Pennye has completed a graduate diploma at Adelaide University in Addiction and Mental Health, achieving academic award (honours?). She is a current member of the Drug and Alcohol Nurses of Australasia.*

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### Super-Cyclone Yolanda - An Account of the AusMAT Deployment to the Philippines Following the Strongest Cyclone in History

**Dr Jorian Kippax**<sup>1,2</sup>

*1 Royal Hobart Hospital, Hobart, Australia*

*2 Australian Defence Force, Hobart, Australia*

#### Abstract

In 2013 the Category 5 Cyclone Haiyan struck the Western islands of the Phillipines. With a combination of the strongest sustained winds in recorded human history and a massive storm surge it became one of the worst disasters ever experienced with an official death toll of over 6241 persons and 11 million persons displaced.

Just 72 hours after the disaster the Australian Medical Assistance Team (AusMAT) coordinated by the Darwin-based National critical Care and Trauma Response Centre (NCCTRC) landed in Tacloban with a light surgical field hospital capability and quickly became the primary acute surgical treatment facility for the devastated region.

This presentation relates to this civilian humanitarian deployment from my perspective as 2IC of the second (team bravo) AusMAT contingent and an account of the clinical experience and the capability of this world-standard deployable capability.

#### Biography

*Dr Jorian Kippax is an Emergency Medicine and Hyperbaric Medicine Specialist at the Royal Hobart*

*Hospital, Tasmania. He is a reservist Medical Officer in the Australian Defence Force. In this role MAJ Kippax has provided Resus medical support for national and international exercises and has a keen interest in teaching advanced resuscitation skills – joining the CLOSEX team for exercise Hammel last year. In 2016 he joined a small team led by COL Brick (DLOG-A) to Ladakh, India, on a Subject Matter Expert Exchange (SMEE) investigating the Indian Army's logistic and health arrangements at high altitude.*

*Dr Kippax professional interests include aeromedical, disaster response and environmental medicine with a focus on altitude-related medicine. Dr Kippax is a keen mountaineer and has made first ascents of a number of peaks over 6800m throughout the world while providing expedition medical support.*

*Dr Kippax is involved with international disaster response through the Australian Medical Assistance Team (AusMAT). In 2013 he deployed to Tacloban in the Philippines immediately following Cyclone Yolanda in the capacity of Clinical Team Leader and 2IC. He also is involved with National Critical Care Trauma Response Centre (NCCTRC) team leadership training.*

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### Supporting Those with Post-Traumatic Stress to Sustain or Transition Back To Work: A Novel Tailored Health Coaching Program

**Ms Louise Pitcher**<sup>3</sup>, Ms Dorothy Frost<sup>2,3</sup>,

Dr Dianne Sheppard<sup>1</sup>

*1 Monash University Accident Research Centre, Clayton, Australia*

*2 Work Health Group, Melbourne, AUSTRALIA*

*3 IPAR Rehabilitation, Melbourne, AUSTRALIA*

#### Abstract

**Introduction:** The health benefits of work for individuals, employers and society are well established. The Australasian Faculty of Occupational and Environmental Medicine (AFOEM) recently clarified, in the Health Benefits of Work 'companion statement', that we can only expect to see clear health benefits for 'good work', which can be defined as work that "Balances the interests of individuals, employers and society in order to deliver performance, engagement and fairness." Work-related needs of those with post-traumatic stress (PTS) are a research priority; the rates of

work absence due to stress are increasing. Defence force personnel and Emergency service workers are particularly exposed to potentially traumatic situations. Separating members of the defence force who were deployed are a particularly high risk group; their years of service can impact everyday function, including the perceived ability to find and sustain suitable civilian employment post-separation.

Sustaining work or returning to work following exposure to trauma is a marker of social recovery, improved quality of life and feelings of self-worth. Returning to 'good work' not only improves health and well-being, but reduces psychological distress. The challenge is to work with both members and employers to overcome barriers to enable the gradual return to good, sustainable work for those with PTS.

IPAR, a leading national provider of occupational rehabilitation (OR) services, in collaboration with Monash University and Phoenix Australia Centre for Post-traumatic Mental Health, have developed a unique, evidence-based OR program tailored to those with post-traumatic stress. It was designed with Defence personnel in mind. This presentation will outline the novel, tailored OR program that aligns with current theories underlying PTSD and aims to facilitate the return to 'good' sustainable work for those with PTS.

**Methods:** The novel health coaching and assessment program elements of the OR service have been specifically tailored to those who have been exposed to trauma. They are relevant to those who are seeking to return to existing employment following a period of work absence, or transition to new employment due to PTS symptoms.

The novel program offers standard OR services, as well as a tailored, evidence-based health coaching and assessment program. The health coaching and associated psychosocial assessment, assesses and challenges beliefs and perceptions about health and working. It emphasises improving self-management of PTS symptoms, perceptions about work, recovery of function, and return to health. Of note, it is based on a generic program already being successfully utilized by IPAR to facilitate sustained work capacity and improved work participation for those with long term work absence due to chronic pain and musculoskeletal conditions. Longer term follow up at 6 – 12 months of this generic program has demonstrated sustained work capacity and improved work participation for those with long term work absence.

**Concluding Remarks:** The development and implementation of a tailored, multimodal workplace rehabilitation service innovation for those with post-

traumatic stress is particularly relevant to separating members of the defence force who were deployed and exposed to trauma who are now looking to transition to sustainable civilian employment. This program stands to benefit program participants, families and workplaces in Australia through facilitating the gradual return to good, sustainable work for those with post-traumatic stress. Such a program works toward improved work and health outcomes and competency improvements within the occupational rehabilitation and mental health sectors.

### Biography

*As a Psychologist with qualifications in Clinical Psychology and individual Coaching, Louise has extensive experience working with Defence, Enforcement and Emergency services personnel. She served in the ADF for 13 years and deployed on multiple occasions to the Middle East Area of Operations, East Timor and Solomon Islands. She consulted with NSWPF on the psychological response to Lindt and subsequent Inquiry as well as leading the response to officers involved with the shooting of Curtis Cheng. She now brings this knowledge of responses in the wake of trauma and disaster to the Rehabilitation Industry working with IPAR as the ADF Innovation and Service Delivery manager with a special role in the provision of Mental Health services across the business.*

### Relevant Engagements:

*Speaker at Defence, Emergency Services and Enforcement Leadership forum, 2017.*

*Speaker at Victorian Fire Authority Leadership conference, 2017.*

*Speaker at International Military Testing Association Conference: Canada 2007.*

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## The Burden of Non Communicable Diseases after Sudden Onset Disasters – the AUSMAT Experience

David Read

### Abstract

**Background:** Low and Middle Income Countries (LMIC) are disproportionately affected by Sudden

Onset Disasters (SOD's), and many are the site of a rapidly emerging Non Communicable Disease (NCD) epidemic. The management of diabetes and other NCD's after a SOD is complicated not only by a lack of equipment and medications, but by a lack of baseline care for these chronic diseases. In 2013 the Philippines was struck by the catastrophic category five Typhoon Haiyan. Post this SOD the Australian Government deployed the Australian Medical Assistance Team (AusMAT) field hospital; a type 2 Emergency Medical Team (EMT) to Tacloban, Philippines. During the 23 day operational deployment; thirty-two percent of the surgical workload was diabetic limb infections, usually sepsis as a result of relatively minor injury. Many dilemmas were encountered, not limited to difficulty with timing of wound closure, an absence of pharmaceuticals for discharge, limited inpatient expertise with diabetic management and concerns about the usage of diabetic medications post discharge in a food scarce environment.

**Methods:** To review the clinical experience of the AusMAT during the Typhoon Haiyan response, and to chronicle the post deployment improvements in clinical pathways, pharmaceuticals, multidisciplinary team staffing and engagement with host nation Ministry of Health. The experience with diabetes has been used to address other potential NCD's post SOD.

**Results:** Since 2013, the AusMAT EMT has added the following aspects to its service

- (1) Increased number of and range of diabetic medications
- (2) Increase laboratory capacity to diagnose and treat the complications of diabetes
- (3) A focus on integrating internal medicine expertise in the team
- (4) Including nurses with diabetic management and education expertise
- (5) Clinical practice guidelines for surgical management of diabetic foot wounds

**Conclusions:** The experience of the AusMAT Type 2 EMT in Tacloban with serious diabetic foot complications from minor injuries has led to a considerable reconfiguration of the clinical service, which previously focused upon trauma and infectious diseases. This experience will be of interest to Defence assets responding to similar SOD's.

### Biography

*Mr David Read CSC, is a General Surgeon and the Director of Trauma & Burns at the National Critical*

*Care and Trauma Response Centre (NCCTRC) at the Royal Darwin Hospital. He has a very broad based surgical practice but has a particular interest in Trauma and Burns, Disaster Surgery, Surgical Oncology and Paediatric Surgery. As a Lieutenant Colonel in the Army Reserves he has deployed to East Timor, Iraq and Bali. He has been awarded the Conspicuous Service Cross for Operation Bali Assist 2002 and the Meritorious Unit Citation after Iraq. He has also been involved in the RDH response to the Bali bombings and East Timor, Ashmore Reef. He recently deployed as the General Surgeon on Team Alpha of the AusMAT Team to Tacloban, the Phillipines after Typhoon Haiyan. He is the Northern Territory representative on the Royal Australasian College of Surgeons Trauma Committee and a board member at Kidsafe NT. An enthusiastic teacher, he is an instructor on EMST, EMSB, DTSC and the Disaster Surgical AUSMAT course. He has extensive experience in Indigenous Health issues and has an interest in the delivery of specialist surgical services to remote Indigenous communities. In his spare time he does whatever his 3 and 5 year old daughters want.*

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## The Camino - an Ancient Way Back to Veterans' Mental Health

**Major (Dr.) Sanjiva Wijesinha<sup>1</sup>**

*1 3rd Health Support Battalion, RAAMC, Oakleigh, Australia*

### Abstract

In many instances, soldiers leaving the military lose their way.

Having given the best years of their lives to serve their country, often in times of conflict and traumatic stress, many undergo a vacuum of self doubt, a loss of identity and a lack of direction once they have to give up wearing uniform.

No longer part of a familiar team where they knew their role, were respected by their peers and commanders and themselves had tremendous self respect, they now find themselves having to start at the bottom of the civilian community - with little guidance and support. A fair number turn to alcohol and drugs to suppress their anger, frustration and loss of self esteem.

This paper discusses one way in which some veterans have regained their sense of self esteem and achieved a sense of self worth - by undertaking the ancient pilgrimage in Spain known as the Camino of Santiago.



Known since ancient times as The Way, for many veterans it has become The Way Back.

### Biography

*Major (Dr) Sanjiva Wijesinha served for 12 years as a medical officer and surgeon in the Sri Lankan army - and for the past 14 years has been a medical officer with the ADF Reserves. In civilian life he is an Associate Professor in the Faculty of Medicine at Monash University in Melbourne and practices as a Family Physician.*

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## The Dark Night of the Veteran's Soul – Understanding The Impact of Spiritual Wounds for Australian Veterans

**Mr Murray Davies**<sup>1</sup>

*1 Wounded Spirit, Barton, Australia*

### Abstract

**Background:** Figures from the Department of Veterans Affairs indicate there may be over 30,000 Australian veterans that have or may yet develop some form of service related mental illness. There is a growing body of evidence that there is a spiritual dimension to soldiers' wounds.

**Purpose:** The purpose of this paper is to understand the causes, symptoms and healing pathways for spiritual wounds.

**Method and Materials:** Initial exploration of the nature of veteran spirituality. Secondly, how a veteran's spirit can be wounded and what form these wounds take will need to be understood. Finally, approaches to healing these spiritual wounds.

**Results:** There is a strong and growing body of empirical evidence highlighting linkages between diminished spiritual functioning and mental health issues such as PTSD. Properly trained and accredited medical and psychological practitioners are required to deliver treatment in their space.

**Conclusion:** There is limited evidence of any spiritual institution or facility of any nature making a significant contribution in the support of veterans whose Defence service has led to mental health

issues with a spiritual or faith basis. Determining what role spiritual institutions or facilities should take will need to be a major area for further study.

### Biography

*Murray Davies is the CSO of Wounded Spirit. Wounded Spirit works with Australian Defence Force veterans whose Defence service may have led to mental health issues with a spiritual or faith basis. It's not just for veterans, it's also their key supporters, friends, families, and the medical, social and spiritual teams who support them. Wounded Spirit is a multi-faith non-denomination volunteer group.*

*A former Australian Army officer, Murray was appointed by the Chief of the Defence Force as the Australian Defence Force Research Fellow at the Australian Defence Studies Centre. During this appointment, Murray undertook a major review of change management processes within the Defence and security organisations. Murray has a strong background in organisational capability analysis and his academic credentials balance this practical experience as he holds management related Masters from Deakin University and Canberra University as well as Bachelor of Arts (Hons) from UNSW, as well as a Grad Dip in Theology from Charles Sturt University. Murray is currently completing his Masters of Theology and will commence a PhD in Veterans Spirituality in 2019.*

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## The Impact of Deployment on Respiratory Function of Contemporary Australian Veterans

**Mrs Honey Ighani**<sup>1</sup>, Dr Ellie Lawrence-Wood<sup>1</sup>, Associate Professor Susan Neuhaus<sup>1</sup>, Professor Alexander McFarlane<sup>1</sup>

*1 Centre For Traumatic Stress Studies University Of Adelaide, Adelaide, Australia*

### Abstract

Current international literature suggests a higher prevalence of respiratory conditions in military personnel during and following deployment to the Middle East, however the reasons for this are not well understood. There is little published literature relating to the respiratory health outcomes of the Australian Defence Force (ADF) members deployed

to the Middle East Area of Operations (MEAO). Therefore, this research will explore the impacts of deployment on respiratory function among Australian contemporary military veterans.

The aims of this study are:

- a) To document respiratory health amongst ADF personnel deployed to MEAO between 2010-2012
- b) To explore the predictors of respiratory health in the context of environmental, combat and other exposures on deployment
- c) To identify the impact of potential risk factors and mediators/ moderators on the relationship between deployment exposures and respiratory health among MEAO deployed ADF members.

So far, the findings from this study suggest that war related environmental, psychological trauma exposures, as well as other military factors such as physical activity, increased tobacco use, and other individual susceptibility markers could contribute to respiratory conditions and other health effects not yet identified.

### Biography

*Honey Ighani is a MPH Graduate from the University of Adelaide with research experience in Veterans' health and epidemiology of infectious diseases. She has worked as a Research Officer at the Centre for Traumatic Stress Studies University of Adelaide. She also has work experience on projects focusing on Indigenous health at the Aboriginal Health Council of South Australia, and Migration health and support programs at the Australian Red Cross.*

*She has published an article in Australia and New Zealand Journal of Public Health with the title: "Seroprevalence of Strongyloides stercoralis in a South Australian Vietnam Veteran cohort". She is also a co-author in a recent article published in the "Journal of Military and Veterans Health" with the title: "A Systematic Review of the Impacts of Active Military Service on Sexual and Reproductive Health Outcomes Among Servicewomen and Female Veterans of Armed Forces".*

*She is currently a Medical Science PhD student working under the supervision of Professor Alexander McFarlane, Associate Professor Susan Neuhaus and Dr Ellie Laurence-Wood at the University of Adelaide. Her thesis title is "Impact of deployment on respiratory function of contemporary Australian Veterans".*

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## The Influence of Post-Traumatic Stress Disorder (PTSD) on Analgesic use in Vietnam Veterans with Musculoskeletal Conditions

Dr Lisa Kalisch Ellett<sup>1</sup>, [Dr Anna Moffat](#)<sup>1</sup>, Associate Professor Nicole Pratt<sup>1</sup>, Professor Elizabeth Roughead<sup>1</sup>

<sup>1</sup> University Of South Australia, Adelaide, Australia

### Abstract

**Introduction:** Musculoskeletal-related pain is common in veterans. Both recently returned and older veterans experience musculoskeletal pain at high rates. It is also common for veterans to experience musculoskeletal pain and PTSD concurrently. An American study of Vietnam veterans found that up to 80% of veterans attending a PTSD outpatient clinic also experienced chronic pain. While musculoskeletal pain can be managed with analgesics, opioid analgesics should only be used short-term as there is no good quality evidence to support long term use for musculoskeletal pain. There are no published studies on the use of analgesics for chronic musculoskeletal pain in Australian veterans, or the influence of PTSD on this use.

**Aim:** This study aimed to characterise the use of analgesics for veterans with service related back and knee conditions.

**Method:** Data was sourced from the administrative claims database maintained by the Australian Government Department of Veteran's Affairs. We undertook an analysis involving Vietnam veterans who were alive on 30 June 2016 and who had an accepted service related disability relating to back or knee conditions, effective before 1 July 2015. For these veterans we identified analgesic use between 1 July 2015 and 30 June 2016. Analgesics were defined as paracetamol (alone, or in combination with codeine), opioid analgesics and non-steroidal anti-inflammatory drugs. PTSD was identified if a Vietnam veteran had an accepted disability for service related PTSD before 1 July 2015. Results were stratified by PTSD status and age groups. Chi squared tests were conducted to determine differences in the percentage of Vietnam veterans with and without PTSD dispensed each type of analgesic.

**Results:** There were 9,600 Vietnam veterans with service related back or knee pain. Just over half had PTSD (58%). In total, 61% of those with PTSD and 55% of those without PTSD were dispensed pain medicines. Veterans with PTSD were dispensed a

median of 1.6 (interquartile range (IQR) 0.5 – 7.45) oral morphine equivalents (OME) per day over the one year study period, which was not significantly different to veterans without PTSD (median 1.6 (IR 0.5-9.4) OMEs per day,  $p = 0.3$ ).

**Conclusions:** International research has found that veterans with PTSD are more likely to use opioid analgesics, and are more likely to use them at higher doses than those without PTSD. In our study veterans with PTSD were more likely to be dispensed opioid analgesics, however, there was no significant difference in the amount of opioid analgesic dispensed to veterans with PTSD compared to those without PTSD.

### Biography

*Dr Anna Moffat has a background in psychology and a career that has focused on projects that partner service delivery and research. Before moving to the University of South Australia in 2016, she worked on local and nationwide projects that concentrated on health outcomes and wellbeing in children. She has been the Evaluation Leader for the Veterans' MATES program since June 2016.*

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## The Longitudinal ADF Study Evaluating Resilience (LASER-Resilience): Exploring Social Support in the Initial Years of Military Service

**Ms Carolina Casetta<sup>1</sup>, Dr Lisa Dell<sup>2</sup>**

<sup>1</sup> Defence, Campbell, Australia

<sup>2</sup> Phoenix Australia, Centre for Posttraumatic Mental Health, Carlton, Australia

### Abstract

The Directorate of Strategic and Operational Mental Health (DSOMH) has been conducting the Longitudinal ADF Study Evaluating Resilience (LASER-Resilience) since 2009, in collaboration with Phoenix Australia. LASER-Resilience is a longitudinal study of the psychological and environmental factors that contribute to or erode the resilience of ADF members. Data was collected upon enlistment or shortly after training commenced for members who

enlisted between Nov 2009 and Dec 2012 (Time 1), at the end of Initial Training or 12 months following Time 1 (Time 2) and at 12 months intervals for the first three years of their career (Time 3 to Time 5). All administrations ceased in Oct 2016.

In 2016, Phoenix Australia produced the seventh Report based on LASER-Resilience data, the Social Support Report. This Report explores the relationship between social support, mental health and leadership in the ADF. Specifically, it examines the changes in positive and negative social interactions over the first two years of military service across four domains; family, friends, military colleagues and supervisory leadership. In addition, it explores whether social support is associated with changes in mental health and the role of leadership in influencing the nature of an individual's social support network. This presentation will discuss the key findings from these reports.

This presentation will also provide an outline of what the Final LASER-Resilience Report, the next and final stage of this study, will likely cover and achieve.

### Biography

*Dr Lisa Dell is a Senior Research Fellow in the Department of Psychiatry at the University of Melbourne. Lisa has a background in psychology and completed her PhD in the area of stress and emotional management. She is also currently undertaking a Masters in Evaluation at the University of Melbourne. Lisa has extensive experience in managing research and evaluation projects at Phoenix Australia, including the development of the Australian Guidelines for the Treatment of Acute Stress Disorder and Posttraumatic Stress Disorder; the three-year evaluation of Department of Veterans' Affairs (DVA) Mental Health Initiatives, and DVA's Scientific Health and Wellbeing Evidence Schema research project. Lisa is currently leading the Longitudinal ADF Study Evaluating Resilience and the National Health and Medical Research Council partnership grant study of Intensive Prolonged Exposure therapy.*

*Ms Carolina Casetta is a Registered Psychologist and is the Senior Research Officer in the Mental Health Research and Evaluation Team within Joint Health Command. Ms Casetta's primary role in this team is the Project Manager of the Longitudinal ADF Study Evaluating Resilience (LASER-Resilience).*

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*Ms Carolina Casetta*

### The Silent Enemy - Understanding Infectious Disease Threats in the Post-Disaster Setting

LTCOL Peta Mantel<sup>1</sup>

*1 Department Of Defence, Russell, Australia*

#### Abstract

The Silent Enemy – Understanding the infectious disease threats in the post-disaster setting

For more than a decade the Australian Defence Force (ADF) has deployed personnel on a number of humanitarian assistance and disaster relief (HADR) operations, ranging from the 2005 Boxing Day Tsunami to support to Fiji in the aftermath of Tropical Cyclone Winston in 2017.

The provision of early warning of infectious diseases of military significance is critical during the planning and conduct of ADF HADR operations to ensure Commanders are aware of the risks and appropriate health countermeasures can be put in place. What is often forgotten is that the prevalence and incidence of endemic diseases is extremely variable in the post-disaster setting. Diseases that would not ordinarily pose a significant threat to deployed forces have been known to wreak havoc in the immediate aftermath of a disaster. This includes diseases such as leishmaniasis, which is known to have resulted in significant outbreaks in our near region after cyclones or flooding. While some infectious diseases cases may rise in the immediate aftermath, others – including vector-borne diseases – may initially pose a low threat; however, explosive outbreaks will likely occur within weeks.

Not only does the infectious disease profile vary with geographic location and climate, it also varies considerably depending on the disaster itself. Each type of disaster – be it a cyclone, earthquake, flood, tsunami or disease outbreak – comes with its own specific infectious disease threats so a blanket approach cannot be applied to every HADR operation.

In addition to the real threat of infectious disease is the perceived threat from other factors, such as dead bodies, that our troops are often exposed to in the post-disaster environment. Having an understanding of such threats reduces some of the psychological stressors faced by troops on the ground. This is of particular importance if the response is to a disease outbreak such as ebola virus disease (EVD). The actual versus perceived risk of a non-healthcare worker getting EVD during a large community-wide outbreak is significant so it is critical to ensure troops have an understanding of the risk they are being exposed to.

Ultimately the accurate and timely identification of infectious disease threats will ensure that the ADF can successfully complete their HADR mission with minimal loss of operational capability.

#### Biography

LTCOL Mantel is a clinical epidemiologist with the Australian Army. She has a Masters in Clinical Epidemiology with Merit and a Masters in Applied Science (Environmental Health). Over her 20 years in the Australian Army she has gained a wealth of experience in domestic and international health threats. She has previously worked as a senior environmental health officer for the United Nations in Timor Leste and the Peace Monitoring Group in Bougainville, Papua New Guinea. During her time in Timor Leste she was worked as part of the WHO outbreak investigation team for various infectious disease outbreaks among deployed troops and the local population. She has also undertaken the role of Deputy Chief Inspector of the biological weapons inspection team in Iraq in 1998 as part of the United Nations Special Commission on Iraq. Over the past six years she has focussed on infectious disease threats to deployed personnel and has led the health intelligence support to ADF humanitarian assistance and disaster response operations. Her interest lies in pandemic warning and the early detection of the emergence of pathogens with pandemic potential.

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### The Transition and Wellbeing Research Programme: Pre-release Update

Miranda Van Hooff<sup>1</sup>, Ellie Lawrence-Wood<sup>1</sup>, David Forbes<sup>2</sup>, Alexander McFarlane<sup>3</sup>, Nicole Sadler<sup>2,4</sup>, Helen Benassi<sup>4</sup>, Stephanie Hodson<sup>5</sup>, Craig Hansen<sup>3</sup>

*1 Centre for Traumatic Stress Studies*

*2 Phoenix Australia, Centre for Posttraumatic Mental Health*

*3 Centre for Traumatic Stress Studies*

*4 Department of Defence*

*5 Department of Veterans Affairs*



### Abstract

This panel session will provide detailed background to the Transition and Wellbeing Research Programme, and situate the study in the context of international research findings. This will be followed by a review of the programme methodology, including an overview of the final study populations included and their characteristics. A snapshot of the first two reports from the programme, the mental health prevalence and pathways to care reports, will be provided. While the results are not due for official release until later in 2017, the panel will discuss what to expect from the reports and how the findings and implications they contain might be understood and utilised by the ADF and veteran community, health practitioners and service providers, and the broader research community. This will include an overview of the structure and content of the reports, and discussion of the reports in light of other recent research findings relating to transition from the ADF. A preview of the remaining reports to be released during 2018 will summarise the key populations, and their general structure and content. The session will conclude with key lessons learned, proposed future research directions, and an opportunity for audience discussion.

### Biographies

*Miranda Van Hooff is the Director of Research at The University of Adelaide, Centre for Traumatic Stress Studies. She has been an author, lead researcher and program manager on numerous large-scale longitudinal epidemiological studies of child and adult trauma survivors. She was the lead researcher on the 2010 ADF Mental Health Prevalence and Wellbeing Study, which examined the prevalence of Mental Disorder in the entire ADF. She is Chief Investigator for The Transition and Wellbeing Research Programme, examining the impact of contemporary military service on the physical, social and mental health and wellbeing of serving and ex-serving ADF personnel.*

*Ellie Lawrence-Wood is Senior Research Fellow at The University of Adelaide, Centre for Traumatic Stress Studies. She has been involved in numerous large-scale projects focussed on the health and wellbeing of Australian Defence Force personnel. She is Investigator and Study Manager for the Impact of Combat Study (Transition and Wellbeing Research Programme), which examines the longitudinal physiological and psychological impacts of deployment to a combat zone. She was also responsible for the Mothers in the MEAO project, aimed at understanding the specific health and psychosocial wellbeing impacts of deployment, for Australian mothers who have deployed to the MEAO.*

*Professor David Forbes is the Director of Phoenix Australia, and Deputy Head, Department of Psychiatry, the University of Melbourne. David is a clinical psychologist with extensive experience in the assessment and treatment of mental health problems following trauma, and he has worked in both acute crisis and continuing care settings across the community mental health system and in specialist traumatic stress services. David is an international expert in posttraumatic stress disorder (PTSD) and military mental health, with strong national and international links with other researchers and experts in the field. He was Chair of the Working Party for the inaugural National Health and Medical Research Council (NHMRC) approved Australian Guidelines for the Treatment of Acute Stress Disorder and Posttraumatic Stress Disorder in 2007, and co-chair of the steering group for the revised Guidelines in 2013. David has published more than 110 peer-reviewed articles and book chapters, and sits on the editorial boards of leading international journals.*

*Currently the Director of The University of Adelaide's Centre for Traumatic Stress Studies, Professor McFarlane's area of particular specialty has been the effects of traumatic stress and is an international expert in the field of the impact of disasters and posttraumatic stress disorder (PTSD). His research has focused on the epidemiology and longitudinal course of PTSD as well as the neuroimaging of the cognitive deficits in this disorder. He has published over 250 articles and chapters in various refereed journals and has co-edited three books. Professor McFarlane has acted as special advisor to the Department of Veterans' Affairs, including the Scientific Advisory committee examining the health and psychological status of Gulf War Veterans.*

*Colonel Nicole Sadler is the Director Special Projects Mental Health, within Joint Health Command, Department of Defence. From August 2012 until December 2016 she was the Director Strategic and Operational Mental Health and the Head of Corps of the Australian Army Psychology Corps.*

*She was awarded a Master of Psychology (Clinical) degree in 2005 and is currently enrolled as a Doctor of Philosophy candidate through the University of Adelaide. Colonel Sadler is an investigator on the joint Defence and Veterans' Affairs Transition and Wellbeing Research Programme.*

*Ms Helen Benassi is a 2017 Sir Roland Wilson Foundation PhD Scholar from the Department of Defence. Prior to starting her PhD, Helen was responsible for the coordination of strategic mental health research within Defence and is an investigator on a number of influential research projects, including*

*the Longitudinal ADF Study Evaluating Resilience, the ADF Mental Health Prevalence and Wellbeing Study and the Transition and Wellbeing Research Programme.*

*Helen joined Defence in 2005, where she has worked in mental health screening, surveillance and unit climate, epidemiology and personnel selection research and completed a psychology internship in 2010.*

*Dr Craig Hansen is Senior Research Fellow/Epidemiologist at The University of Adelaide, Centre for Traumatic Stress Studies. Craig holds a PhD in Environmental/Perinatal epidemiology and has been involved in a wide variety of research projects, including a) the association between medications during pregnancy and birth defects; b) the health effects of air pollution; c) the cardiovascular disease in Soweto, South Africa; d) the surveillance of fetal alcohol syndrome; and e) the quality of skin cancer excisions performed by physicians. Craig's career in epidemiology has spanned across government, university, and private healthcare settings with previous positions at the US Environmental Protection Agency (USEPA), the Centers for Disease Control and Prevention (CDC), and Kaiser Permanente.*

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### The Use of Ketamine as Best Practice in the Operational Environment

**M Andrews<sup>1</sup>**

*1 Australian Defence Force*

CONFIDENTIAL

**Introduction:** From November 2016 to May 2017, multinational military health professionals provided emergency trauma care to in excess of 1700 coalition military personnel. During this time, the predominant patterns of injury were blast and gunshot wounds. Exposure to differing pharmacological skills sets and protocols used by members of the multinational health care team provided insight to the appropriateness, efficacy and suitability of current ADF in-service analgesia regimes and pain management plans from point of injury (POI), through to Role One (R1) facilities, and Damage Control Surgery (DCS).

**Methods:** Males from a wide age bracket (majority between 18 to 40 years of age) were treated at multinational care facilities using a wide variety of analgesia protocols from providers of varying levels of skills; combat life savers/combat first aiders, medics, nurses, physician's assistants and doctors. From each nationality and qualification level, care providers implemented their nation specific medication protocols when treating trauma casualties under their care. Effective pain relief was assessed through patient comfort level, ease of procedural implementation, occurrence of side effects and patient comfort during rearward evacuation.

**Results:** For POI pain relief and control of mild to moderate pain, 800 mcg oral transmucosal fentanyl lozenges provided insufficient analgesia to traumatically injured, non critical, patients with a moderate pain score. Analgesia of choice for mild to moderate pain management with simple traumatic injuries was 3mls methoxyflurane, which provided quick and reliable analgesia with no observed side effects. For moderate to severe pain, in both complex and simple traumatic injuries, ketamine was the analgesic agent of choice over traditional opioid preparations (fentanyl and morphine.) This was evident with all care providers, regardless of nationality; it provided the most effective analgesia with very limited occurrence of side effects observed across a large patient population. Its ability to be utilised in haemodynamically unstable casualties also enabled it to be used on casualties where traditional opioid analgesics were contraindicated.

**Conclusion:** Current in-service pain relief protocols for Australian military health care providers would benefit from a critical review in order to come in line with international best practice. This will ensure ADF medical professionals are equipped with a diverse pharmacological skill set, able to be tailored to the most complex of casualties with minimal side effects, ensuring best possible patient outcomes.

### Biography

CPL M enlisted in the Australian Army in Aug 2011. He was successful in being chosen for service in the Royal Australian Army Medical Corps (RAAMC) and after completion of his medical training was posted to 8 Close Health Company in 2013. In 2015 he was selected for service in Special Operations Command and has successfully completed numerous specialist medical, insertion and tactical courses and qualified as a Special Operations Rescue Medic (SORM). CPL M has had a number of international engagements and Deployed with the Special Operations Task Group (SOTG).

### The West African Ebola Virus Epidemic: Delivering Predictable Care in an Unpredictable Setting

**Dr Thomas Crabtree<sup>1</sup>**

*1 Aspen Medical, Reston, United States*

#### Abstract

The West African Ebola virus disease outbreak of 2014-2015 challenged health care organizations at every point in the care delivery continuum. Our organization Aspen Medical was responsible for the clinical management of multiple Ebola Treatment Units (ETUs) in both Sierra Leone and Liberia for the duration of the outbreak. Our experience yielded a wealth of lessons that are worth sharing. This paper details the execution of our mission caring for victims of the West African EVD epidemic. Our place in the global response community and how a private sector organization was tasked are discussed at length. Our group's training, mobilization and deployment are detailed. Our interface with the multiple government, non-governmental and international organizations is given special attention. The care protocols and care environment are outlined and our success in caring for patients as well as protecting our own is highlighted as well. Our work during the recovery phase and our continuing presence in these countries as part of the larger health systems strengthening effort is also presented.

#### Biography

*Dr Thomas G Crabtree is the Group Medical Director for Aspen Medical International, LLC, a subsidiary of Aspen Medical Pty Ltd, a global concern with deep expertise in the delivery of remote and outsourced healthcare. He retired as a Colonel from the US Army where he was a plastic and reconstructive surgeon at Tripler Army Medical Center in Honolulu, Hawaii. In addition to his plastic surgery responsibilities, Dr Crabtree served as the past medical director and the senior medical advisor to the Center of Excellence in Disaster Management and Humanitarian Assistance of the US Pacific Command. He now holds the same position with The Naval Postgraduate School's Center for Civil Military Relations Global Health Program. Combat tours include rotations as a trauma surgeon with the United Nations Protection Forces in the former Yugoslavia and as a trauma and plastic surgeon in Baghdad as part of Operation Iraqi Freedom. His military awards include the Legion of Merit, Bronze Star, Defense Meritorious Service Medal, Humanitarian Service Medal with 2 oak leaf clusters and multiple UN and Foreign Service decorations.*

*Dr Crabtree was born and raised in Boston. He's a graduate of Harvard and Stanford.*

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### What is Resilience? How Can We Improve Resilience, of Ourselves and Our Systems?

**Dr Isaac Seidl<sup>1</sup>**

*1 Joint Health Command, Canberra BC, Australia*

#### Abstract

Resilience is the new military buzz word. Understanding what it really means is critical to how we can improve ourselves and our systems. This is where we move from resilience being a punchline, to something far greater as leaders of health systems.

Traditional models of clinical governance have focussed on what happens when things go wrong. From incident review including root cause analysis, through to formal public inquiries, these can bring health systems into disrepute. This is necessary, and can improve healing, such as in the Bundaberg crisis. However, it fails to recognise that for every bad thing that occurs in health care systems, scores more miracles occur. In health care systems resilience is about a system that can deal with both ends of the spectrum.

This presentation will explore the effects of resilience at the individual, tactical, operational and strategic levels. It will focus on the benefits of resilience for the system, clinicians, patients and interested observers.

Importantly, we must recognise that accountability for human factors involves growth, not scapegoating, and prevention, not retribution.

#### Biography

*Dr Isaac Seidl is a specialist medical administrator and general practitioner. He completed his medical degree at UWA, then undertook a variety of Army appointments across all military environments, before being appointed to Qld Health. Following a period of study sabbatical, he returned to the Australian Army. He holds the rank of Colonel. Dr Seidl has published in the literature and presented at national and international conferences. His academic interests include crisis leadership, clinical governance and ethics. He is Director Garrison Operations at Joint Health Command. Dr Seidl lives in Canberra, Australia with his wife and two children.*

## 2017 AMMA Conference Abstracts

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## Poster Presentations

### Electrocortical Evidence of Reduced Facial Threat Differentiation in Combat-Exposed Military Personnel without Clinically Significant Psychopathology Symptoms: An ERP Study

Mr Andy Lawrence<sup>1</sup>

*1 Centre For Traumatic Stress Studies - University of Adelaide, Adelaide, Australia*

#### Abstract

PTSD symptoms such as exaggerated fear response and overgeneralised threat perception have previously been suggested to be physiologically underpinned by functional abnormalities within key neural structures implicated in threat detection and fear learning. Symptom provocation studies have provided compelling evidence that PTSD status is associated with exaggerated neural responsivity to threat stimuli, however reduced differential responses indicative of impaired threat/non-threat discrimination have also been shown. Whilst such abnormalities have been well examined in PTSD, evidence suggests that trauma exposed groups without significant clinical symptoms nonetheless exhibit threat processing abnormalities reminiscent of PTSD. The potential presence of PTSD-like threat processing abnormalities within healthy trauma exposed groups represents an area of considerable importance, particularly in the contexts of high risk subpopulations such as military combat forces. Military personnel are at greatly elevated risk of initial, and repeated traumatic exposure. Furthermore, these high risk groups routinely encounter, and are required to assess, and respond appropriately to a range of potentially life threatening situations. As such, the potential presence of threat processing abnormalities [e.g. elevated threat sensitivity and/or deficits in threat differentiation] within such groups may have a broad range of implications regarding critical decision making [e.g. use of lethal force] as well as social, occupational and long-term mental health outcomes [e.g. elevated vulnerability to future PTSD development]. As such, the current study aimed to extend previous findings from PTSD and civilian trauma groups to a high risk population of military personnel. Specifically, this study examined electrocortical N170 amplitude responses to masked fear and neutral facial expressions within a cohort of asymptomatic military personnel, both with and

without prior history of significant combat exposure [i.e. healthy combat-exposed and healthy combat-naïve military controls].

As predicted, results provided support for the hypotheses that combat exposure, in the absence of clinically significant symptoms, would nonetheless be associated with abnormal neural response patterns, reminiscent of those observed in PTSD. Specifically, whilst both groups responded similarly to fearful expressions, combat-exposed personnel failed to exhibit normal patterns of reduced N170 amplitudes to neutral expressions, resulting in an absence of threat/non-threat response differentiation. Conversely, reduced amplitude response to neutral relative to fearful expressions were observed in combat-naïve controls. Although it is difficult to determine causality, correlational analyses revealed a linear association between higher N170 amplitudes within the combat-exposed group and increasing number of prior combat experiences, thus suggesting that abnormal neural response patterns observed in this group potentially result from cumulative combat exposure. Whilst speculative, these findings may indicate a deficit in facial threat discrimination within combat exposed subjects, and that such impairments may be driven by an acquired default tendency to respond to non-threatening expressions as potential threats.

Although current results bear striking similarities with previous findings from PTSD research, it remains unclear whether such patterns reflect clinically important markers such as increased vulnerability to future PTSD development [particularly in the context of high re-exposure likelihood]. An ongoing longitudinal investigation of this population will aid in clarifying this possibility. Similarly, the potential impact on present cognitive and behavioural functioning [e.g. threat perception and critical decision making] also warrants further investigation. Whilst questions remain, the current results do provide support for the suggestion that combat exposure has measurable altering effects on threat processing systems consistent with those observed in PTSD, and that such effects may be present despite lack of clinically significant symptom presentation.

#### Biography

*PhD student focusing on neurocognitive markers of battlefield trauma exposure, as well as PTSD risk and resilience.*

### HKM the Key to Unlocking a Digitized Defence Health Capability

Lieutenant Colonel David Bullock

#### Abstract

JP2060 is the overarching Joint Project for the modernisation of the Deployed Health Continuum for the ADF. Having completed Phases 1 & 2, which were both incremental and evolutionary improvements to deployed health equipment. The remaining Phases include: Phase 3 (Health Clinical Care) and Phase 4 (Health Knowledge Management), both of which cover the complete spectrum of the Deployed Health Continuum (DHC).

Phase 4 (Health Knowledge Management) has been sanctioned by VCDF and the Parliamentary Investment Committee to investigate the feasibility of developing one "harmonised" solution to support Garrison and Operations. The outcome is the most optimal model representing best e-clinical practice. There are few e-health systems across the globe which included such a wide clinical practice and geographic scope. As such, the development of this capability represents leading edge technological capability development.

The first stakeholder workshop has been completed in Mar and Apr 17, whereby the HKM lead staff conducted a series of workshops across all stakeholders to ascertain the level of understanding across defence of e-health systems including e-health data, e-health information systems and e-health knowledge management including what systems are currently available and utilised across the ADF including the deployed health continuum (DHC). The second component of this inaugural workshop is designed to allow stakeholders to express 'what it is that they want' which informs the project team of defence needs and wants in achieving digitised clinical best practice.

The intent of this presentation is to provide feedback from the series of first workshops, displaying trend analysis of the current level of e-health knowledge / awareness and common emergent threads that are informing future capability and project development. I intend to work with KPMG to build a smart phone app facilitates a live interactive educative session.

#### Biography

*Lt Col Bullock joined the RAAMC as a Lateral Transfer from the British Army in 2007 as a Health Services General Support Officer. 35 Years of military service have witnessed him deploy with, in support, and in command of combat health units to Northern Ireland,*

*the Balkans, North Africa, Iraq, Afghanistan and other Middle East countries, providing health support to the complete spectrum of operations.*

*Within the ADF he has been employed as a Coy Comd at 2 HSB, lead health planner HQ 1 Div, OPSO 2 GHB, DCI at the Land Warfare Centre and SO1 Joint Health Capability Joint Health Command where he is currently the lead for JP2060 Ph4 (Health Knowledge Management).*

*LTCOL Bullock is a keen academic with a passion for the professionalisation of ADF health services management. He has a Masters in Public Health, Health Management, Business Administration and an MSc and holds a lecturing position at the UQ School of Public Health.*

*He is the founder and chair of the Australasian College of Health Services Management Defence Special Interest Group. As the College's only Defence Fellow, he is currently and is mentoring two College Fellowship candidates in 2017.*

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*Lieutenant Colonel David Bullock*

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### That was Close: 'Near misses', 'Dangerous Occurrences' and 'Hazardous Exposures' in the Australian Army

Dr Robin Orr<sup>1</sup>, Dr Rodney Pope<sup>1</sup>,  
Mr Timothy Rigby<sup>2</sup>, Dr Benjamin Schram<sup>1</sup>

*1 Tactical Research Unit - Bond University, Robina, Australia*

*2 Faculty of Health Science and Medicine - Bond University, Robina, Australia*

#### Abstract

**Introduction:** Occupational health and safety incidents, such as 'hazardous exposures', 'near misses' and 'dangerous occurrences', place the safety of military personnel at serious risk. These incidents, which can differ between service type (e.g. full-time and reserve personnel) can serve as a warning to the Australian Army as to where future potential injuries and fatalities may occur if risk management strategies are not implemented.

**Aim:** The aim of this study was to investigate reported incidents in Australian Army personnel and compare differences between full-time (Australian Regular Army [ARA]) and part-time (Army Reserves [ARES]) personnel.

**Methods:** A retrospective cohort study was conducted using data sourced from the Workplace Health, Safety, Compensation and Reporting (WHSCAR) database. Non-identifiable data spanning the period 1st July 2012 to 30th June 2014 were provided. Data were included in the study if the incident: (a) involved ARA or ARES personnel; (b) occurred when the soldiers were on duty or in training, (c) occurred during service between 01 July 2012 and 30 June 2014. Data were excluded if the incident: a) was an injury or fatality, or b) was to service animals. The Australian Defence Human Research Ethics Committee (Protocol LERP 14-024) and the Bond University Human Research Ethics Committee (Protocol RO1907) granted ethics approval for this study.

**Results:** Of the reported 3,791 incidents, 96% involved ARA personnel and 4% ARES personnel. When accounting for population size and days of service the ARA reported 6.18 incidents per 100 soldiers-years of active service and the ARES 3.29 incidents per 100 soldiers-years of active service. Across both populations, the leading activity for which an incident was reported was operations (n=2,096, 99.4%) followed by weapon firing (n=304, 8.0%) and unknown (n=206, 5.4%). In the ARA, 84% of incidents were hazardous exposures (68.2% due to operations), 14% near misses (22.0% due to driving) and 2% dangerous incidents (36.9% due to weapon firing). In the ARES, 55% of incidents were hazardous exposures (30.2% due to unknown causes, 24.4% as a passenger), 38% near misses (45.5% due to driving), and 7% dangerous incidents (41.4% due to weapons firing). The Private / Private equivalent ranks had the higher rate of incidents (37%) across both service types, followed by Corporal / Corporal equivalent ranks (27%).

**Conclusions:** Apart from exposure reported by ARA personnel due mostly to operations, weapon firing and driving present as leading incidents placing the health and wellbeing of ARA and ARES personnel at risk. Risk mitigation strategies, focussing on operational exposures, weapons firing and driving are recommended to reduce the level of risk and possibly injury, mortality and illness suffered by Australian Army personnel. These strategies should be targeted towards the Private / Private equivalent and Corporal / Corporal equivalent ranks.

### Biography

*Rob served for over 20 years in the Australian Regular Army as an infantry soldier, physical training instructor, physiotherapist and human performance officer. Still serving in the Army Reserve on various human performance projects, Rob took up an*

*appointment at Bond University where the majority of his teaching is on maximising human potential. With a PhD in occupational load carriage for military personnel, Rob has over 40 peer reviewed publications specialising in tactical populations alone and has been invited to present his research both nationally and internationally for a variety of tactical organisations.*

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# Primary Health Care in the ADF

Commander Neil Westphalen, Royal Australian Navy Reserve

## Introduction

This article follows a previous paper by the author regarding occupational and environmental medicine in the ADF.<sup>1</sup> The previous paper asserts that high rates of preventable workplace illness and injury indicate the need to improve the management of the occupational and environmental hazards associated with ADF workplaces, with better emphasis on prevention rather than treatment.

The previous article therefore advocates that, rather than attempting to replicate the treatment service paradigm used for Australian civilians, the ADF's health services should be premised on an occupational and environmental health paradigm. For this to occur, the health capability gaps in the current ADF health service delivery model suggests the need to reassess the fundamental inputs to health capability for both Joint Health Command and Defence's Work Health and Safety Branch. Such a reassessment could lead to a genuinely holistic and sustainable workforce-based ADF health service delivery model by 2030.

This article expands on the previous paper, with respect to providing primary health care for ADF members.

## Primary health care in Australia

In 2014, the Australian health care system had 98,807 medical practitioners in more than 80 specialties, including 32,050 general practitioners.<sup>2</sup> The latter included 21,576 Fellows and trainees of the Royal Australian College of General Practitioners, and 1630 Fellows and trainees of the Australian College of Rural and Remote Medicine. The remaining 8844 general practitioners did not have fellowships but were vocationally registered by Medicare to provide primary health care services. By comparison, in 2014 the Australasian Faculty of Occupational and Environmental Medicine represented only 492 Australian physicians and trainees.

## Definitions

The definitions of 'primary health care' used in Australia are rather complex. The Australian Institute of Health and Welfare defines primary health care as 'typically the first health service visited by patients with a health concern.... It includes most health services not provided by hospitals, and involves:

- A range of activities, such as health promotion, prevention, early intervention, treatment of acute conditions and management of chronic conditions;

- Various health professionals, such as general practitioners, dentists, nurses, Aboriginal health workers, local pharmacists and other allied health professionals; and
- Services delivered in numerous settings, such as general practices, community health centres, allied health practices including physiotherapy and dietetic practices, and more recently via telecommunications technologies such as health advice telephone services, video consultations and remote monitoring of health metrics through electronic devices'.<sup>3</sup>

The College of Rural and Remote Medicine's position paper, *Defining the specialty of general practice*, refers to the 1991 international consensus description of general practice as follows:

The general practitioner or family physician is the physician who is primarily responsible for providing comprehensive care to every individual seeking medical care and arranging for other health personnel to provide services when necessary.

The general practitioner/family physician functions as a generalist who accepts everyone seeking care, whereas other health providers limit access to their services on the basis of age, sex or diagnosis. The general practitioner/family physician cares for the individual in the context of the family, and the family in the context of the community, irrespective of race, religion, culture or social class. He is clinically competent to provide the greater part of their care after taking into account their cultural, socio-economic and psychological background. In addition, he takes personal responsibility for providing comprehensive and continuing care for his patients.

The general practitioner/family physician exercises his/her professional role by providing care, either directly or through the services of others according to their health needs and resources available within the community he/she serves'.<sup>4</sup>



The Royal Australian College of General Practitioners' website describes general practice as providing 'person-centred, continuing, comprehensive and coordinated whole person health care to individuals and families in their communities'.<sup>5</sup> It also indicates that, as a relationship-based specialist medical discipline, general practitioner clinicians are defined by the characteristics of their discipline, which are person-centredness; continuity of care; comprehensiveness; whole person care; diagnostic and therapeutic skill; coordination and clinical teamwork; continuing quality improvement; professional, clinical and ethical standards; leadership, advocacy and equity; and continuing evolution of the discipline.

### Implications

Some general practice attributes per the Royal Australian College of General Practitioners' website in particular, facilitate the baseline clinical skills required to provide primary care for deployed ADF members, and to undertake humanitarian aid / disaster relief operations<sup>6</sup>. These attributes include providing comprehensive whole-person diagnostic and therapeutic care, within a clinical multi-disciplinary environment (usually but not always in a lead role), to individual patients.

However, the attributes that are less consistent with respect to primary care for ADF members, pertain to person-centredness (particularly with respect to the duty-of-care obligations of their patient's chain of command), continuity of care (with particular reference

to their patient's geographic mobility) and (except in very limited circumstances), only providing care for a working-age population that has an increasing but still small proportion of female members<sup>7</sup>

Furthermore, neither the College of Rural and Remote Medicine nor the Royal Australian College of General Practitioners refers to a role for general practitioners with respect to assessing the effects of workplace hazards on their patient's health or vice versa (that is, assessing their patient's medical suitability for employment). The author's earlier paper described some of the limitations of general practitioners regarding their capacity to undertake these tasks.

On the other hand, military and civilian occupational and environmental physicians can complement their general practitioner colleagues regarding the primary care diagnosis and treatment of workplace-related musculoskeletal and mental health disorders, managing workplace-based rehabilitation, and assessing medical suitability for employment and deployment.

### ADF non-deployed primary health care

The earlier paper notes that anecdotally, only 20-40 per cent of ADF primary care presentations are for conditions typically seen in an equivalent Australian civilian population. In support of this contention, Table 1 describes the top 30 reasons for civilian patients to see a general practitioner in 2013-14.

Table 1: Top 30 reasons to present to civilian general practitioners, 2013-14<sup>8</sup>

Reasons for presentation	Number	%	Rate per 100,000	5% LCL <sup>b</sup>	95% UCL <sup>c</sup>
Prescription <sup>a</sup>	13,131	8.7	13.3	12.6	14.0
Checkup <sup>a</sup>	13,015	8.6	13.2	12.6	13.8
Test results <sup>a</sup>	9342	6.2	9.5	9.0	9.9
Cough <sup>c</sup>	6187	4.1	6.3	5.8	6.7
Back complaint <sup>a,c</sup>	3347	2.2	3.4	3.2	3.6
Vaccinations <sup>a,d</sup>	3324	2.2	3.4	3.1	3.6
Administration procedure <sup>a</sup>	3252	2.1	3.3	3.1	3.5
Throat complaint <sup>c</sup>	2836	1.9	2.9	2.6	3.1
Rash <sup>a</sup>	2678	1.8	2.7	2.5	2.9
Blood test <sup>a</sup>	2283	1.5	2.3	2.2	2.5
Depression <sup>c,d</sup>	2224	1.5	2.3	2.1	2.4
Abdominal pain <sup>a</sup>	2101	1.4	2.1	2.0	2.3
Upper respiratory tract infection <sup>c,d</sup>	2077	1.4	2.1	1.8	2.4
Fever	1826	1.2	1.8	1.7	2.0
Headache <sup>a</sup>	1635	1.1	1.7	1.5	1.8
Skin complaint <sup>c</sup>	1577	1.0	1.6	1.5	1.7
Hypertension/high blood pressure <sup>a,d</sup>	1505	1.0	1.5	1.3	1.7

Knee complaint <sup>c</sup>	1505	1.0	1.5	1.4	1.6
Observation/education/advice/diet <sup>a</sup>	1499	1.0	1.5	1.4	1.7
Anxiety <sup>a,c</sup>	1465	1.0	1.5	1.4	1.6
Weakness/tiredness	1464	1.0	1.5	1.4	1.6
Other referrals not elsewhere classified	1458	1.0	1.5	1.4	1.6
Sneezing/nasal congestion <sup>c</sup>	1281	0.8	1.3	1.1	1.5
Shoulder complaint <sup>c</sup>	1259	0.8	1.3	1.2	1.4
Diabetes <sup>a,d</sup>	1251	0.8	1.3	1.1	1.4
Diarrhoea	1238	0.8	1.3	1.1	1.3
Ear pain/earache	1220	0.8	1.2	1.1	1.3
Sleep disturbance	1162	0.8	1.2	1.1	1.3
Vertigo/dizziness	1086	0.7	1.1	1.0	1.2
Foot/toe complaint <sup>c</sup>	1086	0.7	1.1	1.0	1.2
Subtotal	89,287	58.9	-	-	-
Total Reasons for Presentation	151,636	100.0	153.6	151.8	155.4

Notes:

- a. Includes multiple diagnoses.
- b. LCL = lower confidence level; UCL = upper confidence level. The smaller the interval between LCL and UCL, the more likely the rate per 100,000 presentations figure is truly representative.
- c. Most common ADF clinical conditions in 2007-8 and 2008-9.<sup>9</sup>
- d. Most common civilian clinical conditions.<sup>10</sup>

Furthermore, Table 2 shows that in 2013-14, only 2.4 per 100 patient presentations to civilian general practitioners were for work-related reasons, making up only 1.5 per cent of all reasons to see a general practitioner.

Table 2: Most common work-related reasons to present to civilian general practitioners, 2013-1411

Work-related reason	Number	Per cent of total	Rate per 100	5% LCL <sup>a</sup>	95% UCL <sup>a</sup>	Work-related as % of all
Musculoskeletal	1291	56.9	1.3	1.2	1.5	7.3
Psychological	299	13.2	0.3	0.3	0.4	2.3
Other work-related <sup>b</sup>	878	29.9	0.7	0.6	0.8	0.6
Totals	2268	100	2.4	2.2	2.5	1.5

Notes:

- a. LCL/UCL as for Table 1.
- b. Includes general check-ups, administrative procedures, cuts/lacerations, and other skin injuries.

Notwithstanding the lack of data regarding ADF primary care presentations, Tables 1 and 2 confirm the substantial differences between the ADF and civilian populations. In short, compared to their civilian colleagues, ADF general practitioners see proportionally far more musculoskeletal and mental health disorders, most of which are either work-related or affect the ability of the patient to work.

Furthermore, these figures do not include non-primary-care ADF general practitioner presentations such as health assessments ('medicals') or Medical Employment Classification Reviews, both of which are occupational and environmental health functions. These presentations arguably consume 30-40 per cent of the average military general practitioner's workload, or about the same as their actual clinical workload.<sup>12</sup>

## General practitioners and occupational and environmental health

The earlier paper refers to the extensive media commentary that demonstrates the need to improve how the ADF manages occupational and environmental hazards in its base settings. It also noted that thus far there has been no requirement for 'garrison' health services to facilitate local Command compliance with the *Work Health and Safety Act 2011*. This limitation, combined with a lack of occupational and environmental physicians within Joint Health Command, currently restricts 'garrison' rehabilitation and other clinical occupational and environmental health services to that provided by general practitioners and other non-occupational and environmental health providers.

Yet a review of the College of Rural and Remote Medicine's website confirms the absence of any internal occupational and environmental medicine courses. Furthermore, the only occupational and environmental health-related references in the Royal Australian College of General Practitioners' '2016 Core Skills Unit' of its 'Curriculum for Australian general practice' are two lines indicating that general practitioners are only expected to undertake an education and promotion role with respect to early return-to-work after work-related injuries or illness, and identifying opportunities to prevent injury and disease in at-risk individuals.<sup>13</sup>

The Royal Australian College of General Practitioners' curriculum offers 'contextual units' in military medicine and occupational medicine.<sup>14</sup> Other contextual units of less direct relevance to the ADF include travel medicine, individuals with disabilities, musculoskeletal and sports medicine, adult medicine, men's health, women's health, psychological health, abuse and violence, and addiction medicine. However,

all these units consist of 2-3 page summaries, each only describing the relevance of the topic in a general practitioner setting, with very limited further references regarding the actual skills required.

The Royal Australian College of General Practitioners has a Military Medicine Working Group, which is developing a post-fellowship Diploma of Military Medicine that includes modules in public health, and occupational and environmental health. However, neither of the relevant Faculties of Public Health or Occupational and Environmental Medicine have so far been involved in their development.<sup>15</sup>

Furthermore, the Australian and New Zealand Society of Occupational Medicine Inc, is a professional society for those who practice or have an interest in occupational health. It seeks to advance the knowledge, practice and standing of occupational health by providing opportunities for professional development, networking and partnerships.<sup>16</sup> However, 'garrison' services have not yet mandated employing general practitioners from this or other occupational health organisations.

Civilian general practitioner training therefore provides a comprehensive basis for the *clinical* primary care of individual ADF members. However, it does not provide the full range of *non-clinical* primary care and other occupational and environmental health skills and expertise required for the ADF workforce. This further supports the author's earlier assertion that it takes up to 12 months for new full-time general practitioners to understand how to assess medical suitability for ADF employment and deployment, even without considering any other military occupational and environmental health functions.

## ADF medical officer career implications

Defence requires all uniformed, Australian Public Service and contract civilian medical practitioners to comply with the registration standards of the Medical Board of Australia. Service medical officers currently have a four-level career structure, linked to remuneration, as follows:

ML 1: new entry medical officers who have not yet met all the requirements to be operationally deployable under remote supervision, pending further medical studies and Service training courses. All permanent medical officers are expected to initially undertake primary health care roles before diversifying into other streams. In practice, however, ADF medical officer recruiting is almost exclusively premised on an eventual civilian general practitioner career.

ML2: medical officers who are deployable with remote supervision. Although it is intended that medical

officers begin specialising into either clinical or management staff/force protection streams at this point, the aforementioned initial recruiting practices mean that exceptionally few are choosing the latter.

ML3: primary health care medical officers, with either a Royal Australian College of General Practitioners or College of Rural and Remote Medicine fellowship. Most medical officers choose to leave the ADF at this point, which generally coincides with the end of their return-of-service obligation.

ML4: medical officers who have achieved a qualification listed as a specialist medical qualification by the Medical Board of Australia, other than general practitioner. Among other specialties, it includes management/staff/force protection specialties, such as medical administration, public health, and occupational and environmental medicine. However, in November 2016, there were only two permanent ADF occupational and environmental physician trainees, while public health and medical administration trainee numbers were probably comparable.<sup>17</sup>

An under-recognised medical officer retention factor pertains to the lack of diversity with respect to the clinical conditions experienced by the ADF workforce. Treating a succession of musculoskeletal and mental health disorders every day is unlikely to facilitate retaining Service or civilian general practitioner medical officers who prefer more clinical variety.

Consideration should therefore be given to recruiting and training more Service and civilian medical officers with an interest in an occupational and environmental medicine career. It is likely that they would not only maintain an interest in workforce primary health care, but also accept that their eventual career progression to non-clinical roles is more consistent with their occupational and environmental medicine aspirations compared to their general practitioner peers. These 'garrison' occupational and environmental physicians would also facilitate local Command compliance with the *Work Health and Safety Act*.

## Conclusion

With ADF personnel arguably exposed to the most diverse range of occupational and environmental hazards of any Australian workforce, high rates of preventable workplace illness and injury indicate the need to improve the management of occupational and environmental health hazards, with better emphasis on prevention rather than treatment.

This suggests that the ADF's health services should be premised on an occupational and environmental health paradigm, with revised fundamental inputs to capability that would lead to a genuinely holistic and sustainable workforce-based ADF health service delivery model by 2030.

Although general practitioners would still maintain an essential primary health care role within such a paradigm, they lack the skills and expertise to provide the full range of clinical and other occupational and environmental health services required for a young, fit, geographically mobile and predominantly male (although this is changing) ADF workforce.

However, occupational and environmental physicians have the skills and expertise to provide primary health care for workplace-related musculoskeletal and mental health injuries, as well as managing workplace-based rehabilitation, and assessing medical suitability for employment and deployment. Such a delivery model would entail recruiting and training more Service and civilian medical officers who are interested in an occupational and environmental physician career.

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His seagoing service includes HMA Ships Swan, Stalwart, Success, Sydney, Perth and Choules. Deployments include Operations DAMASK VII, RIMPAC 96, TANAGER, RELEX II, GEMSBOK, TALISMAN SABRE 07, RENDERSAFE 14, KAKADU 16 and SEA HORIZON 17. His service ashore includes clinical roles at Cerberus, Penguin, Kuttabul, Albatross and Stirling, and staff positions at Headquarters Australian Theatre, Joint Health Command, Director Navy Occupational and Environmental Health, Director of Navy Health, and Fleet Medical Officer (the latter from January 2013 to January 2016). Commander Westphalen transferred to the Active Reserve in July 2016.

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