2010 AMMA conference abstracts

Keynote Speaker

David Mearns

US-born marine scientist, researcher and deep-sea shipwreck hunter David Mearns has found and filmed some of the world's most famous and controversial shipwrecks. His formidable reputation is built on a career finding notoriously difficult wrecks that others predicted would never be found or their mysteries solved. David and his company Blue Water Recoveries Ltd, have located 22 major shipwrecks and have been awarded three Guinness World Records, including one for locating the deepest shipwreck ever found at 5,762 metres – the German WWII blockade runner Rio Grande.

David's most important finds include Lucona – a cargo ship at the centre of a sensational European murder trial; Derbyshire – a bulk carrier lost with all hands which led to new rules covering survivability and structural requirements for bulk carriers; Esmeralda – a Portuguese Nau in the fleet of Vasco da Gama that is the oldest colonial wreck ever found; and HMS Hood – the much loved and feared British battlecruiser sunk in an apocalyptic battle with the German battleship Bismarck, which was also filmed by David and his team. The Dispatches TV documentary made about the loss of Derbyshire won the inaugural Desmond Wettern Maritime Media award, whilst the documentary made about the discovery of HMS Hood was shortlisted for a BAFTA award.

More recently David has earned a place in Australia's military history by finding the wrecks of the country's two worst maritime disasters in less than two years. In early 2008 David capped off an epic 6-year research project by locating and filming the wreck of HMAS Sydney, which proved to be his toughest challenge testing his skills as a detective, engineer, marine scientist, and navigator. The search for Sydney took him around the world, from the war archives in Germany to the home of Kormoran's most senior living officer in Santiago, Chile, and then to Fremantle, WA and out into the depths of the Indian Ocean. He would encounter conspiracy theories, false clues, wild weather and myriad mechanical problems, but 66 years after this famous warship was sunk by the German Raider Kormoran (whose wreck David also located) he would finally record in his personal log the astonishing words Australia waited decades to hear, 'HMAS Sydney found!' The expedition's website, which featured David's diary and the stunning photographs he took of the wrecks, has been visited over 33 million times.

David followed up this amazing achievement the very next year by locating the wreck of the Australian Hospital Ship Centaur in late 2009 on behalf of the Commonwealth and Queensland State Governments. Centaur had been on a mission of mercy when it was torpedoed by a Japanese submarine off the coast of Brisbane in clear violation of the Hague convention. Of Centaur's 332 medical personnel and civilian crew aboard, 268 were killed leading General Douglas MacArthur who was the Supreme Commander of Allied Forces based in Brisbane to denounce it as an "unnecessary act of cruelty" and one of "limitless savagery."

David has worked in all the world's oceans, excluding the ice-covered Arctic, and has travelled to more than 40 countries. He is a fellow of the Royal Geographical Society and the Explorer's Club and has written two popular books about his search expeditions. David's first book, Hood and Bismarck co-authored with Rob White and published by McMillan in late 2001, was nominated for the prestigious Desmond Wettern Maritime Media award in the UK. His second book, The Search for Sydney was published in Australia by HarperCollins in August 2009 and immediately went to No. 1 in the history book category nationwide.

The search for Australia's most famous WW2 shipwrecks: HMAS *SYDNEY* & THE HOSPITAL SHIP *CENTAUR*

In the annals of Australian naval and maritime history during World War II few events have generated more gut-wrenching grief and red-hot controversy than the sinking of the ships HMAS *Sydney* and AHS *Centaur*. Lost on opposite coastlines and under completely different circumstances, the ships bear the tragic weight of representing the greatest losses of military and civilian lives caused by enemy hands on the high seas in all of Australian history.

The light cruiser HMAS *Sydney* was the much celebrated and loved glory ship of the RAN. Having returned to a

heroes welcome following an amazingly successful campaign in the Mediterranean, the ship and her company were later pitched into a fierce battle off Western Australia with a disguised German Raider that ended in the death of all 645 of her men. The loss of *Sydney*, and her men, to the slower and less powerful Raider shocked an unbelieving nation to its core.

Eighteen months later, whilst in transit about 53 nautical miles east of Brisbane, the Hospital Ship *Centaur* suffered a similar fate when it was illegally attacked and sunk by a Japanese submarine. The sinking of *Centaur* and cold-blooded killing of 268 doctors, nurses, field ambulance personnel and ship's crew – all innocent non-combatants - was one of the most savage and heinous war crimes ever committed against Australia during World War II.

The unfathomable losses of *Sydney* and *Centaur* left open wounds in the hearts and minds of countless relatives and friends, which would never totally heal until their wrecks were found and those who died within them were honoured. David Mearns, the British based shipwreck hunter who led the Government backed expeditions to find and film both shipwrecks will speak about the intensive research he conducted to pinpoint their sinking locations and the challenges he faced searching for these virtual needles in haystacks in water depths over 2,000 metres. His presentation will include stunningly clear images of the shipwrecks.

Mental Health in the ADF

Overview ADF Mental Health Strategy – Next generation

David Morton

David joined Defence on 15 March 2010 to the newly created position of Director General Mental Health, Psychology and Rehabilitation in Joint Health Command. David has a bachelor of Social Work and has completed post graduate studies in Public Sector Management.

He has over 25 years experience working in the delivery, management and policy development of mental health and counselling services. His clinical, management and policy development experience has focussed on responding the mental health and wellbeing needs of veterans and their families and current defence members and their families.

Having graduated in 1986, David worked for three years in community health services in Adelaide before moving to Darwin in 1989 to take up a position with defence managing the NT operations of the Australian defence families and liaison Staff (ADFIlS). He returned to South Australia in 1991 as the Senior Social Worker for Air Force at RAAF base Edinburgh.

In 1993 David transferred to Department of Veterans' Affairs as Director of Vietnam Veterans Counselling Service in South Australia. between 1997 and 2001 David led the development of the DVA mental health policy and strategy -"Towards better Mental Health for the Veteran Community". This blue print for mental health policy and service delivery for the veteran community provided the umbrella for the national alcohol project - "The Right Mix - your health and Alcohol"- launched in 2003 and still being utilised as a comprehensive health intervention package today.

In 2004 David relocated to Canberra with his family and was appointed to the position of Director Mental Health Policy within DVA. In 2005 he was promoted to the position of National Manager VVCS – Veterans and Veterans Families Counselling Service. between 2005 and 2010 David oversaw the further development of VVCS which included changes to the name of the service and focus of programs so as to be more responsive to the needs of current and recent veterans and families while still addressing the needs of Vietnam veterans and their families.

The Review of Mental Health Care in the ADF and Transition through Discharge was conducted by Professor David Dunt in 2008. Released in May 2009, the report stated that the establishment of the ADF Mental Health Strategy in 2002 was far-sighted and compared favourably, and in some ways surpassed similar strategies in Australian workplaces and other military forces. However, the report also identified that

due to the increased operational tempo in the ADF, there were gaps in the delivery of mental health care for members. The report included 52 recommendations of which 49 were accepted unconditionally by the Government, while the other three were partially accepted. Government committed $84 million over four years to implement the recommendations, which form the basis of the current reform process.

A key component of the mental health reform process is development of the next generation of the ADF Mental Health Strategy 2009 – 2013 which provides an overarching vision for an ADF mental health system that promotes resilience, readiness and recovery of ADF members across their career span, including transition out of the ADF. The aims of the Strategy are:

- To provide a framework for the current reform of ADF mental health services, and for ongoing development in the light of new evidence and research;
- To align ADF mental health service development with evidence-based practice, Australian national mental health service planning and international military mental health service planning; and
- To ensure all needed areas of mental health service development are addressed, and that as far as possible, service planning anticipates, recognises and provides for changing needs of the ADF population and their families.

This paper provides an overview of the Defence Mental Health Reform process and the Mental Health Strategy 2009 – 2013.

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Post-Deployment Psychological Screening: Mental Health trends for 2009 – What can they tell us.

Cherie Nicholson

Cherie Nicholson has been working for the Directorate of Mental Health and other psychology research areas within Defence for the past five years. Her primary role focuses on research into mental health issues faced by deployed military personnel and validation of psychological screening instruments. She has recently completed internal Defence papers on the use of the Post-traumatic Stress Disorder Scale in the ADF, and the psychological effects of operational deployment on personnel upon return to Australia and a 3-6 month follow up.

The ADF is currently reviewing the most effective methods for the monitoring of post operational mental health trends in the ADF. This paper will report key finding from the 2009 mental health post operational data. Data will encompass Army, Navy, and Air Force ADF members deployed to the main active operations (including Anode, Astute, Catalyst and Slipper) who returned to Australia between Jan and Dec 2009. Data collected upon return to Australia will be compared to data collected 3-6 months later in order to examine the change in trends over time and check for effective reintegration. Topics covered include trauma exposure trends, organisational stressors, symptomology, and perceived deployment experiences. The data reported will be utilised to highlight both the strengthens and weakness of the current data collection systems and propose improvements for the future.

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The Four-Day Outpatient Alcohol Treatment Program

Jennifer Harland

Jennifer Harland currently holds the position of National Coordinator – Alcohol, Tobacco and Other Drugs Program in Joint Health Command, the Australian Defence Force. She also currently holds an academic appointment at the Visiting Clinical Fellow at the University of Wollongong teaching Drug and Alcohol Studies and Primary Health Care off shore (Hong Kong).

Ms Harland is a general trained registered nurse with 25 years diverse experience in mental health, drug and alcohol, acute care, teaching, management, research and clinical governance. She holds post graduate qualifications in mental health and intensive care nursing.

Aim: The aim of this paper is to provide an overview and evaluation findings of the Four-Day Outpatient Alcohol Treatment Program (OATP).

Background: The OATP was developed during 2003/04 by Darwin-based Army psychologist CAPT Alison Kaine in response to an expressed need by local health service providers and Commanders. The program was designed as a group-based cognitive behavioural therapy (CbT) program incorporating motivational interviewing techniques, coping skills training and relapse prevention activities. The program is now tri-service and delivered at a variety of locations across Defence.

Evaluation: During almost six years of delivery, process and impact level evaluation has been undertaken routinely immediately following the completion of each OATP. In 2009 an analysis of OATP participant evaluations was conducted with the assistance of academic staff from the University of Wollongong.

The outcome of this analysis notes that the OATP is addressing and achieving the six program objectives, with participants' demonstrating increased level of awareness about alcohol consumption and personal insight.

An external review of the program was conducted in January 2010. 17 recommendations were made and incorporated into the program. The program has been enhanced and continues to be delivered across Defence.

Findings: This paper will provide an overview of the program, evaluation and review findings. The findings will inform the audience of the type of participants that would benefit from attending the OATP.

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Management of Traumatic Brain Injury

Duncan Wallace

Dr Wallace is a consultant psychiatrist at the newly established ADF Centre for Mental Health. He is a Captain in the Navy Reserve, where he holds the position of Director, Naval Health Reserves for NSW & ACT. He has seen active service in East Timor, Iraq and the Persian Gulf. He has participated on humanitarian assistance operations in banda Aceh and Nias. After Cyclone larry in Queensland in 2006, he served as a special advisor to the Qld Chief Psychiatrist, earning a commendation from the Qld Health Minister. His areas of interest are emergency department psychiatry, military psychiatry and disaster psychiatry.

The current conflicts in Iraq and Afghanistan have seen frequent use of improvised explosive devices resulting in thousands of casualties, with traumatic brain injuries particularly common. The use of body armour and other advances has led to improved survival rates among blast injury victims. Resultant neuropsychiatric injuries, in particular traumatic brain injuries, are discussed. The diagnosis, management, relationship with posttraumatic stress disorder and prognosis of traumatic brain injury are reviewed.

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History

Our Lost colleagues of HMAS SYDNEY II – The Medical Officers and Sick Berth Attendants of "The Stormy Petrel"

Leut Scott Finlayson

Currently Senior Medical Officer HMAS WATERHEN, posted in January 2010. Prior to that a Fleet Pool Medical Officer, deploying on a six-month South-East Asian tour, the Persian Gulf on OP CATALYST and around the world on OP NORTHERN TRIDENT. A graduate of UNSW (b.Optom.Hons) and USyd (MSBS), He is currently pursuing his FRACGP, as well as MPH (Defence) through UQ.

HMAS SYDNEY II sank off the Western Australian coast on 19 November 1941 in action with the Auxiliary Cruiser KORMORAN, lost until discovered by the Finding Sydney Foundation on 17 March 2008. Her final hours would have pushed the dedicated medical staff to their limits, as they endeavoured to save the lives of as many of their crewmates as possible, with an estimated 70% killed or incapacitated. What we know of the lives, accomplishments and lost potential of our colleagues in the sickbay is important to remember.

Through the investigation of various resources the biographical details of the two medical officers onboard HMAS SYDNEY II will be presented, as well as the dental officer, and the names and available biographical information of the seven sick berth attendants. In addition there will be presented some details on the final disposition of the crew as pieced together by the commission of enquiry into the sinking. The medical sub-department was headed by SURG-CMDR John Hasker, born in ballarat, he was educated at Geelong Grammar and Melbourne University and joined the RAN in 1928. He was supported by SURG-lCDR Francis Genge, a World War One volunteer who had spent time working in Ireland, England, Germany and Austria before the Second World War. In addition the SURG-LEUT (Dentist) Mervyn Townsend with his DENTAL assistant Sick Berth Attendant 2nd Class Stewart Laxton. The team was completed by the six other medics - Sick Berth Petty Officer Ralph barham, leading Sick Berth Attendant David Boyd and Sick berth Attendants Lindsay Medlen, Leslie Minns, John Payne and Roderick Wilson. Many of their biographical details are incomplete, but it is important to preserve what we know.

While the sinking of HMAS SYDNEY II is rightly referred to as a national tragedy, it was also a very personal one, affecting individuals and families across

Australia as it cut short the lives of 645 promising and yet already accomplished young men. The death of each member of the medical staff onboard is yet another reminder of the sacrifices our colleagues have made in times of war.

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Tropical Medicine and the Great War. The contribution of the Australian Army Medical Corps

Assoc. Prof Geoffrey Quail

Associate Professor Geoff Quail, Department of Surgery, Monash Medical Centre, has held academic appointments at Australian universities and as a specialist consultant in a major teaching hospital for over 45 years. He read modern history at Oxford University and studied tropical medicine at the liverpool School of Tropical Medicine. He is a retired Wing Commander in the RAAF Specialist Reserve and was awarded an AOC Commendation for services to medical education. He has been amember of AMMA since its inception and spoke at the first AMMA conference. He is the holder of an AMMA research grant.

The enormous debt the discipline of tropical medicine owes to the military is little appreciated. The health of combatants was the deciding factor in hostilities up to the Great War and indeed played a deciding part in the outcome of the Gallipoli campaign. Although Australian troops were initially in excellent physical health, within six weeks of the commencement of the campaign, 20,120 had been invalided to Egypt.

This paper will look at the role Australian doctors played in identifying the causes of illness, the research undertaken and the effectiveness of subsequent measures to minimise disease and improve welfare.

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Endurance, Courage and Care: The 1942 Kokoda track campaign of Captain Alan Watson, Dental Surgeon

Dr Barry Reed

Senior Oral and Maxillofacial Surgeon John Hunter Hospital, Newcastle; Clinical lecturer School of Medicine, University of Newcastle since 1992; Accredited Visiting Oral and Maxillofacial Surgeon to five Newcastle and Hunter Valley private hospitals; Oral and Maxillofacial Surgeon Australian Army Reserve 1st Health Support battalion; Colonel Kenny Award as best Army Reserve Dental Officer in 2008 for achievements at the AACAP 14 dental health program at Doomadgee and for an official visit to brooke Army Medical Center San Antonio Texas in 2008 in regard to management of facial injuries from improvised explosive devices and other ballistic trauma; Award of a 2009 Australian Army History Research Unit research grant; Oral and Maxillofacial Surgeon at Exercise Talisman Sabre 2009; Foundation Clinical Director, Oral and Maxillofacial Surgery Unit John Hunter Hospital 1992-1995.

In the critical Kokoda Track campaign of 1942, Captain Alan Watson, RAADC, demonstrated the vital importance of deploying a dentist to provide rapid, best practice care for soldiers' dental pain, dental disease, and mouth and jaw battlefield wounds. Dental pain, disease and injury not only reduce soldier performance, it lowers morale.

The versatility of deployed experienced dental officers was illustrated when Captain Watson was multitasked into two additional crucial roles while still performing his dental duties. In the absence of an anaesthetist for the general surgeon of his Field Ambulance, Captain Watson was trained in the field to administer general anaesthesia for battle casualties, and gave over two hundred general anaesthetics for wounded soldiers, often under hurricane lamp and ankle deep in mud. Captain Watson was also detached to act as an aero evacuation officer, and in one day alone, arranged the aero evacuation of approximately 400 casualties.

His photographic collection and war diary provide a unique illustrated view of his essential and difficult work and that of his Field Ambulance. His Field Ambulance functioned in a similar mode to a current day ADF role two (enhanced) deployable hospital, providing initial wound surgery close to the battlefield while being mobile and capable of redeploying quickly to minimise evacuation times over the mountainous terrain as the campaign progressed.

An analysis of the events of his campaign in relation to military dental health strategy and tactics will be described. The features of his campaign that are of relevance to the Army today will be examined, especially those of significance to future dental planning considerations for Army deployments.

Study of the Kokoda campaign records of Captain Alan Watson provides a great insight into the importance of always deploying an ADF dental team as part of future ADF deployments to eliminate avoidable loss of soldier performance and morale from oral problems. In contrast, during the Boer War when the Australian volunteer military units did not deploy any dentists, 25% of all evacuations from the front line were due to dental problems. Current day deployments, such as by the US Army in Iraq and Afghanistan, have revealed new dental problems, related to stress and diet, can

debilitate soldiers on long deployments if there is no rapid access to dental treatment.

In conclusion, the enduring and valuable lesson from the Kokoda Track campaign of Captain Alan Watson is that immediate high quality oral care by deployed ADF dental teams, who are also capable of providing battlefield oral wound care, will always be fundamental to preserving and restoring the health of our deployed Australian soldiers.

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The loss of HMAS SYDNEY II: Medical aspects

Neil Westphalen

Joined Navy as direct entry MO 1987. Service at sea includes SWAN, STALWART, SUCCESS, SYDNEY and PERTH. Deployments include two 'up top' plus DAMASK VII, RELEX II, TANAGER and GEMSBOK and Exercises RIMPAC 96 and TALISMAN SABRE 07. Service ashore includes CERbERUS, PENGUIN, KUTTABUl, ALBATROSS HQAST, and STIRlING. Currently DNOEH at Navy Safety and Certification. FRACGP 1996, Dip Av Med 1997, MPH 2004, FAFOEM 2006.

On 19 Nov 41, HMAS SYDNEY II was returning to Fremantle, after escorting the troopship ZEALANDIA to Sunda Strait (between Java and Sumatra).

At 1600 she encountered the German auxiliary cruiser KORMORAN, 100nm off Shark bay. The ensuring battle began at 1730 and ended at 1825. SYDNEY was last seen on fire at 2300, while KORMORAN blew up and sank just after midnight. There were no SYDNEY survivors from her crew of 645 and both wrecks were found 67 years later.

This presentation describes the medical aspects of SYDNEY'S final action, as an acknowledgement to her medical department (two medical officers, one dental officer, and seven medical and dental sailors).

It describes the layout of the ship's medical facilities, the likely damage they sustained during the action, and estimated casualty numbers. It also discusses the lifesaving assets available when she sank, and some of the reasons why the search failed to find any live survivors.

The presentation includes a roll of honour for SYDNEY's medical department.

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Training Recruitment and Retention

Training the Military Surgeon for the Australian Defence Force

Maj Gen Jeffery Rosenfeld

Surgeon General Defence JHealth Reserves. Professor and Head, Department of Surgery, Monash University, and Director, Department of Neurosurgery, The Alfred Hospital, Melbourne, Australia. Adjunct Professor, CMVH. Honorary Professor, University of PNG. Primary research interest in traumatic brain injury. Chair, Editorial board, ASDF Health.

General surgeons are becoming superspecialised early in their training and may have little exposure to trauma. However, the deployed Australian military surgeon is potentially faced with a wide range of surgical problems including general trauma, bomb blast, missile injuries and surgery related to humanitarian and disaster management including obstetrics and gynaecology, paediatrics and tropical medicine. Clearly this is beyond the experience of most civilian general surgeons.

ADF personnel who require surgery expect the same expertise in specialist care as to what they would receive in Australia although there needs to be some allowance for being in a remote and hostile environment. The EMST Course and the Definitive Surgery Trauma Course and its Military Module are pre-requisites for credentialing and deployment. The Military Obstetrics and Gynaecology Course developed by the O&G Consultative Group is also recommended. The Rural Surgery Training Program of the RACS is probably closest to a broad general surgery training for deployment. Selected brief periods working in specialised units such as burns, thoracic surgery and neurosurgery or in large volume trauma centres (especially penetrating trauma) are also to be encouraged.

There are many excellent reference sources to inform the general surgeon such as War Surgery in Iraq and Afghanistan published by the Borden Institute of WRAMC, USA. Training as a team in mission rehearsal exercises is also vital. Credentialing of the surgeon is essential prior to deployment. The Strategic Alliances with major hospitals such as Royal Brisbane Hospital will also facilitate the training of military trauma surgeons.

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Non-technical core competencies for surgeons in disaster response – Need for a training program!

Ass Prof Bruce Waxman

Professor Waxman is Director of General Surgery for Southern Health, Director of Surgery and Colorectal Surgery Unit Head at Dandenong Hospital and Associate Professor, Monash University, Academic Surgical Unit, Dandenong Hospital, part of the Southern Clinical School.

Background: Current training programs do not equip surgeons for the non-technical skills in disaster response.

Objectives: The aims of this study were:

(1) to identify the non-technical core competencies (NTCCs) required of Australian surgeons in disaster response,

(2) to explore the barriers and facilitators of interprofessional practice in disaster surgical teams,

(3) to identify how NTCCs for Australian surgeons in disaster response could be best taught and assessed.

Design: A qualitative exploratory design, incorporating matrix analysis, explored of surgeons' non-technical skills and interprofessionalism in the disaster environment, and identified methods of training.

Methods: 20 health professionals with prior experience in natural disaster response or education participated in semi-structured in-depth interviews.

Results: NTCCs for surgeons in disaster response identified in this study include skills for austere environments, cognitive strategies and interpersonal skills. Skills for austere environments are physical self-care including survival skills, psychological self-care, flexibility, adaptability, innovation and improvisation. Cognitive strategies identified in this study were 'big picture' thinking, situational awareness, critical thinking, problem solving and creativity. Interpersonal attributes include communication, team-player, sense of humour, cultural competency, and conflict resolution skills. Interprofessionalism in disaster teams incorporates elements of effective teamwork, good leadership, role adjustment and conflict resolution. Participants believe that surgeons needed training in non-technical skills.

Conclusions: Surgeons considering becoming involved in disaster management should be trained in NTCCs for disaster response. This would ideally be conducted in a multidisciplinary program with an emphasis on interprofessional practice.

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Roles of consultant physicians in the Australian Defence Force (ADF)

Dr William Heddle

Senior Consultant (Cardiology) Flinders Medical Centre and Assistant Dean, Student Services, Medical School, Flinders University of SA. CMDR RANR, former Senior Naval Medical Officer SA, Consultant Cardiologist to ADF, and Chair, Physician Consultative Group, ADF President Australian Association of Consultant Physicians.

Consultant Physicians (CPs) are trained to a high level in clinical diagnostic and management skills.

Their role in the ADF has been uncertain for many years, particularly with the uncertainty created by the confusion between "internist" (as described in UN documentation) and "intensivist" (some Intensivists are also CPs). This confusion has resulted in continuing uncertainty in the role of CPs in the ADF, most particularly in operations.

CPs can provide expert advice both for individuals and on Health Policy in both the Support area and in civilian practice. The continuing professional development requirements including high exposure to clinical practice are in general not available long term in the military environment and hence most CPs in the ADF are part-time in the ADF.

This paper explores the potential roles and required training for CPs in ADF operations

1) In Humanitarian Relief operations they have a special role, as the major problems, particularly after the first 48 hours frequently relate to infectious disease in which they have additional skills for both individuals and in public health measures

2) In standard military operations they have an important and often underestimated role, as in many conflicts, NbI (non-battle injuries) far exceed direct injuries as a result of conflict; in NbI CPs have a very useful clinical role, particularly in management of infectious diseases.

Additional specific medical training modules to adapt civilian CPs for military roles may be necessary and potential programmes to achieve this are under development and will be discussed.

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The growth of paramedic roles and the urgent need for national standards

Dr James Ross

Dr James Ross is the Medical Director for Aspen Medical and the Remote Area Health Corps (RAHC). Dr Ross is an Occupational Physician and Public Health Physician

with experience in health services management, aviation medicine, medical research, sports medicine and policy development. Dr Ross has spent most of his career in the Australian Defence Force and has had operational deployments to Iraq and East Timor, and is still a member of the Specialist Reserves. He is an Adjunct Associate Professor at the University of Queensland through the Centre for Military and Veterans' Health.

The traditional role of paramedics in the Australian healthcare system has been as ambulance officers. This role is developing further, with the gradual move towards 'professionalisation' of paramedics. However, there is still a dramatic variation in training, skills, definitions and capability of paramedics across Australia, which could lead to dangerous practices and threat of injury.

There is a greatly expanding niche for paramedics in Australia based around remote, often solo, practice. This development introduces new challenges for preparation and management of paramedics, for training, credentialing, scope of practice, clinical oversight, skills maintenance and career development. At present there is no regulatory control over paramedic employment other than that provided by an employer. This places much more responsibility on employers (many of who do not understand the risks), but also opens up the risk of inappropriate use of paramedics without sufficient support structures and/or outside of a defined scope of practice. Many employers are increasingly employing paramedics in such roles.

Having scoped the issues facing the paramedic profession, this presentation discusses one program being implemented to provide clinical governance covering the use of 'remote paramedics', including plans for use of paramedics both domestically and internationally. This is of particular relevance to military health practice, where the employment of medics has been in place for a long time, with the civilian paramedic developing in parallel and diverging in recent years.

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Early management of trauma and pre-hospital care

Special forces: Battlefield trauma care training

Dr Jim Iliopoulos

The high operational tempo currently being experienced by SOCOMD in an increasingly dangerous and isolated environment, resulting in wounding and potential fatality of Special Forces soldiers mandates the continual improvement of battlefield trauma care training.

Although there is widespread use of simulators in aviation for training, the maintenance of skills and re-certification, this is not necessarily the case in health. The human body does not have exact specifications, as may be the case with aircraft systems, and is a complex, dynamic and highly variable system. There is however increasing use of simulation in health, such as surgical skills training using bench top simulators; simulation of trauma scenarios, for example using SimMan; and the use of tissue models, for more practical skills training.

Tissue training in the field is the gold standard for training in battlefield trauma injuries and care. It is a well validated model for training civilian and military health personnel and is able to be undertaken in a field setting simulating the austere / tactical environment.

Within SOCOMD health personnel are currently trained utilising a combination of trauma training methods that includes simulators and tissue models. Tissue training is conducted in both the laboratory setting and the field setting and has been shown to have a beneficial effect on battlefield trauma care provided in the austere environment.

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Hypothermia and the battle casualty

Maj Ken Wishaw

Major Ken Wishaw is a consultant anaesthetist on The Sunshine Coast Queensland, and attached to 2HSb, Enoggera. Since his deployment to Afghanistan in early 2009, he has had a particular interest in Damage Control Resuscitation. He was author of the ADF anaesthetist consultative group position paper on mild hypothermia and the battle casualty.

Mild hypothermia, significantly increases morbidity and mortality in the battle casualty and is one of the lethal triad of damage control resuscitation.

The physics and physiology of hypothermia will be discussed as the basis for developing a prevention and management strategy including why hypothermia often goes undiagnosed.

Equipment now available for aggressive prevention and management of hypothermia applicable to the military setting will be reviewed.

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Surgical workload at the role 3 multinational medical unit, Kandahar Airfield, Afghanistan

FLTLT Katrina Franke

Current position - Orthopaedic PHO Logan Hospital, QLD, RAAF SR in-training; previously base Medical Services Officer, 3 Combat Support Hospital, RAAF Richmond, June 2007 - Mar 2009; Australian Medical Officer, Kandahar Airfield, Afghanistan, June- November 2008; Australian Medical Officer, TG 633.2, Middle East Area of Operations, June -December 2006; Medical Officer 3 Combat Support Hospital, June 2006-Mar 2009.

The Role 3 Multinational Medical Unit, Kandahar Airfield (Role 3 MMU KAF) provides a highly efficient surgical capability in southern Afghanistan. As the major coalition medical facility in southern Afghanistan, this hospital primarily serves coalition military personnel, providing life and limb saving trauma surgery.

Afghan National Army (ANA), Afghan National Police (ANP) and local nationals injured as a consequence of military trauma are also treated in this facility.

Staffed by a multinational medical team, the Role 3 MMU KAF runs very efficiently to provide timely surgical care to large numbers of critically injured patients. Large numbers of casualties in need of urgent life/limb saving surgical management were treated at this hospital, and frequently necessitated the two available operating theatres running concurrently. In the 2 year period from February 2007 to February 2009, the average number of operations per day was 2.91, with variations from no procedures (on 71 of 740 days) to 11 surgical procedures (on 1 of 740 days). Local nationals, ANA and ANP made up the majority of the cases requiring surgical management at KAF (76.8%). US and Canadian soldiers made up the majority of the coalition patients requiring surgery (73% of coalition surgeries). 87.5% of surgical procedures were performed on adults. Extremity injuries and head and neck trauma made up a large proportion of the injuries requiring surgery.

Surgical data collected from February 2007 to February 2009 will be presented to highlight the surgical capacity at The Role 3 MMU KAF.

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Combat-related maxillofacial injuries: the Kandahar experience

LT COL Darryl Tong

Mr Tong is a consultant maxillofacial surgeon and senior lecturer at the University of Otago. He qualified in dentistry and medicine in New zealand and received his specialty training in Seattle, Washington. He is an army reserve lieutenant Colonel in the RNzAMC and deployed to Afghanistan in 2009. Research for his ongoing PhD studies involve war injuries of the face and jaws.

Current literature reports a proportional increase in maxillofacial injuries sustained by military personnel as a result of combat operations in Iraq and Afghanistan. Due to the effectiveness of modern combat body armour, increased protection is offered against lethal penetrating injuries to the chest and abdomen but the upper and lower limbs and the face remain exposed to injury from fragments and gun shot wounds. This paper gives a brief overview of maxillofacial injuries sustained in a combat environment with case illustrations from the Role 3 Multinational Medical Unit in Kandahar and points of consideration for future training in a military medicine setting.

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Defence Research

Towards a better understanding of the physical and mental health of ADF personnel

Dr Carol Davy, Col Stephanie Hodson, Assoc Prof Susan Treloar, Ms Mirand Van Hoof, Dr Christopher Baron, Ms Nicole Steele, Dr Alan Verhargen, Prof Alexander McFarlane

Professor McFarlane is currently the Head of the University of Adelaide Node of the Centre of Military and Veterans Health. He is an international expert in the field of the impact of disasters and post traumatic stress disorder. He is a Past President of both the International Society for Traumatic Stress Studies and the Australasian Society for Traumatic Stress Studies. He is the recipient for the Robert Laufer Award for outstanding scientific achievement in the study of the effects of traumatic stress.

Since completion of her honours degree in Psychology through the University of Adelaide in 1998, Miranda Van Hooff has specialized in epidemiological and longitudinal research involving trauma and children. She is currently employed as Research Fellow for the Adelaide Node of the Centre for Military and Veteran's Health at the University of Adelaide and has completed her PhD examining the long-term impact of childhood behaviour problems and adversity on adult mental health. Through her work and

further studies, Miranda has gained extensive expertise in dealing with traumatised populations with /without posttraumatic stress disorder, victims of disaster and victims of traumatic injury, as well as in database management and statistical analysis, project management, staff training and development, and clinical assessments. She has also presented at a number of national and international conferences in the field of Trauma and Post-traumatic Stress Disorder. Miranda is currently study manager of the MilHOP Health and Wellbeing Survey, which is being conducted in cooperation with the Department of Defence.

Associate Professor Susan Treloar (MSW, MSc, PhD) was appointed as Head of the University of Queensland node of the Centre for Military and Veterans' Health (CMVH) in December 2008. She joined CMVH in 2007 as Principal Research Fellow and Head of the Deployment Health Surveillance Program. She was Principal Investigator of the Defence Deployed East Timor and bougainville Health Studies and is a Chief Investigator on the current Middle East Area of Operations Health Study. She is also a Chief Investigator on studies investigating women's health in the DVA context. Prior to joining CMVH she was a Senior Research Fellow in Genetic Epidemiology at the Queensland Institute of Medical Research and Deputy Director of the Australian Twin Registry. Her previous area of expertise was in the epidemiology of women's health, both mental and gynaecological. Her PhD was in the field of Psychiatry. She has a long track record in leading and running large, collaborative, international and national, epidemiological, twin and family studies on common, complex health conditions. Her original background in the social sciences and public health has also allowed her to develop projects spanning these fields.

Dr Carol Davy is a Research Fellow with the University of Adelaide with specific responsibility for managing the Middle East Area of Operations Prospective Study. Dr Davy brings to this position over twelve years experience in planning and managing a range of research projects and programs, within geographically, demographically and culturally diverse contexts. Key achievements include the management of several national projects including the Veteran's MATES program as well as various studies for the Papua New Guinean Institute of Medical Research.

Protecting the health and welfare of serving and ex-serving members of the Australian Defence Force (ADF) is one of the most challenging tasks faced by the Department of Defence and the Department of Veterans' Affairs. The Military Health Outcomes Program (MilHOP) led by the Centre for Military and Veterans' Health (CMVH) and working with both these Departments, is helping to address this issue. by investigating the psychological and physical indicators, MilHOP aims to better understand the physical, mental and social well-being of ADF members across the three Services in order to enhance the future health support systems.

The first of three MilHOP studies was specifically designed to respond to the recommendations of the Dunt Review of Mental Health Care in the Australian Defence Force (ADF) and Transition to Discharge, which highlighted the need to have a more accurate estimate of the rates of psychiatric disorder in the ADF. In May 2010, all currently serving ADF members were invited to complete a self-administered survey aimed at measuring mental health problems and psychological distress. This study is now validating the psychological screening measures used in the survey which are also currently being administered to all ADF members post-deployment as part of the Return to Australia Psychological Screens (RtAPS) and Post-Operational Psychological Screens (POPS) process.

MilHOP also includes two health studies focusing on deployment to the Middle East Area of Operations (MEAO). These studies are specifically aimed at determining the effects of deployment (and multiple deployments) and extending the measurements to include physical as well as psychological well-being. All serving and ex-serving ADF personnel who deployed to the MEAO between 01 October 2001 and 31 December 2009 will be invited to complete an extended self-administered survey which also asks about their physical health, their deployment history, as well as deployment exposures.

A prospective study is also being conducted to investigate the links between illness and deployment. Changes in health outcomes will be measured before and after deployment in a sample of ADF personnel (~2000) deploying to the MEAO after the 1 June 2010, and returning to Australia before the end of November 2011. In addition to the self-administered survey, a subset of deploying personnel (~n=750) are being asked to take part in a brief physical assessment. A smaller group (~n=400) are also being invited to undertake a neurocognitive assessment.

Together with initial results, this program of presentations will provide an overview of the various methodologies and response rates. Once completed, data from MilHOP will add to the already extensive CMVH Deployment Health Surveillance Program health data for ADF members who deployed to the Solomon Islands, East Timor and bougainville and ADF comparison groups. This will assist to monitor the health of veterans and ADF members into the future by identifying health indicators and exposures that are predictive of morbidity and mortality. In turn, this information could lead to early intervention and program change to minimise disability amongst both veterans and ADF members.

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Resilience in ADF Mental Health prevention and Early Intervention

2 BattleSMART – Self regulation and resilience training

COL S. E. Hodson, LTCOL A Cohn, Dr M Crane & LTCOL N Sadler

This paper will provide an overview of an innovative and comprehensive resilience building program being rolled out across the ADF. This program is designed to enhance the underlying psychological processes that allow an individual to 'bounce back' from adverse events and the challenges of military service. The program entitled 'battleSMART (Self Regulation and Resilience Training) is currently being delivered to ADF recruits in all three Services, is being piloted at intial employment and was recently trialed with deploying personnel. The program has had international input through the five nation Technical Coorperation Program (TTPC) and is being tailored to single Service requirements. The theortical underpinnings of the program will be details and challenges in implementation highlighted.

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LASER-Resilience: a longitudinal ADF study examining resilience

M. F. Crane, Assoc. Prof. V. Lewis, Ltcol A. Cohn, Col S. E. Hodson, Prof M. Creamer, Prof. R. Bryant, Dr R. Parslow, Prof A. Mcfarlane

Dr. Monique Crane has been working for the Directorate of Mental Health within Defence for two years. Her primary role focuses on research into psychological resilience and the evaluation of ADF resilience training programs. She has completed internal technical documents detailing the evaluation of the ADF resilience training program. Dr. Crane is also one of the chief investigators in a longitudinal study investigating psychological resilience in the ADF.

The Government-directed ADF mental health 'lifecycle' initiatives were introduced in 2008 as a means of ensuring that the mental health of ADF members was supported across their career spans, from the point of entry into Defence, through to their transition out of Defence. The first initiative was to be a longitudinal study of psychological resilience in ADF members over the first four years of service. This project is a collaboration between the Directorate of Mental health (DMH) in Defence and the Australian Centre for Posttraumatic Mental Health (ACPMH). The study is managed by the Prevention and Resilience Section within the Directorate of Mental Health and is being conducted as part of the longitudinal ADF Study Evaluating Retention (LASER), a study which had been collecting data since Jan 2008 on the drivers predicting turnover in the ADF over the first four years of service. The current presentation presents some preliminary cross-sectional findings from the LASER-Resilience program of research.

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ADF resilience training: the evaluation of a new ADF resilience training initiative.

M. F. Crane, C. Chesney, M. Bond, A. Cohn, & S. E. Hodson

The present training evaluation represents one part of an evaluation program that aims to inform the development of effective resilience training within the ADF. In this study, the researchers examined the effectiveness of a two hour resilience training program entitled BattleSMART (Self-Management and Resilience Training). Two-hundred and seventeen Defence Force School of Signals (DFSS) trainees received the BattleSMART program just prior to a period of increased academic stress. A longitudinal study design was employed where trainees were surveyed on three occasions: (1) just prior to receiving the BattleSMART program, (2) immediately after receiving the program, and (3) three-months after receiving the program. Measures were taken at each of these time points relating to psychological distress, psychological resilience, and coping flexibility. A repeated-measures analysis was conducted examining whether satisfaction with training and the reported intention to use the training were related to changes in the critical outcome variables. Findings relating to the efficacy of the BattleSMART program were mixed. While there was no demonstrated overall improvement in measures of psychological distress or psychological resilience, there was evidence that the BattleSMART program could facilitate better adjustment to the ADF environment. Furthermore, the findings indicated that satisfaction with the training and intention to apply training were related to lower levels of concern regarding stressful events that occurred post participation in the program. In general, the findings of this first evaluation

demonstrate mixed success. The implications of the findings for future iterations of the BattleSMART program are discussed.

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Occupational Health and Safety

Real-world attenuation of foam earplugs

Dr Adrian Smith

Adrian Smith is an aviation medicine specialist, contracted to Army to provide aviation medicine research support to the RAAF Institute of Aviation Medicine.

Background: Work-related exposure to hazardous levels of noise is a significant occupational threat around the world. In Australia, occupational hearing loss is a significant source of morbidity, accounting for up to 24% of all disease-related claims over the last 10 years. Sensorineural hearing loss and tinnitus are the two most common conditions compensated through Department of Veterans' Affairs. Foam earplugs are a common form of hearing protection, and are used widely across all sectors in Defence, however poorly-fitting earplugs can provide inadequate attenuation. This project aimed to document the attenuation of foam earplugs as worn by typical ADF aircrew, and to determine the extent to which training could increase the level of attenuation.

Method: A group of 43 aircrew were recruited for the study. They were asked to insert foam earplugs as they normally would – the technique used to insert foam earplugs was documented, and the attenuation afforded by the earplugs was measured using VeriPro. The study was repeated after each subject received one-on-one training to insert the earplugs in accordance with the manufacturer's instructions.

Findings: The earplugs used in this study had an attenuation rating of NRR 32 db / SlC80 25 db. before training, the group-mean attenuation was only 15 db - 57% of earplugs attenuated ≤ 15 db of noise, and only 10% and 2% of earplugs reached the SlC80 and NRR (respectively). After training, the group mean attenuation increased to 25.5 db – with only 8% of earplugs attenuating ≤ 15 db, and 47% and 31% of earplugs now meeting or exceeding the SlC80 and NRR (respectively). 43% of subjects exhibited an improvement ≥ 15 db (equivalent to 32-fold or greater reduction in noise-energy exposure). Before training, only 10% of earplugs were inserted deep enough to provide the wearer with optimum attenuation. After watching a short training video, 97% of earplugs were inserted deep enough to provide adequate noise attenuation. There was no significant advantage – in terms of attenuation achieved or technique followed - for those who had previously undergone training through Defence in how to insert earplugs.

Conclusions: The real-world attenuation of foam earplugs exhibited in this study is significantly lower than the factory-specified level of attenuation, and can be attributed to inadequate formal training to insert foam earplugs correctly. Personnel wearing poorly fitting earplugs may be receiving inadequate protection from hazardous levels of noise. A brief training intervention significantly increases the level of attenuation wearers can achieve from their earplugs, and this has the potential to significantly reduce the risk of noise-induced hearing loss for Defence members.

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Lessons learnt from a heatstroke death

BRIG Stephan Rudzki

BRIG Rudzki is currently the Director General Strategic Health Coordination in Joint Health Command. He is currently responsible for health policy and health projects. He is a Fellow of the Australian College of Sports Physicians with an interest in injury prevention. He has served in Western Sahara, bougainville, East Timor and the Middle East.

In 2005 a young soldier died from heatstroke while undertaking training in the Northern Territory. His death was the subject of an internal investigation and a coronial inquiry. The internal inquiry revealed a number of areas which required attention and new policy and training in heat injury was developed. This paper will discuss the importance of acclimatisation, education and risk management in the prevention of heat injury.

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Navy asbestos containing material (ACM)

Neil Westphalen

Joined Navy as direct entry MO 1987. Service at sea includes SWAN, STAlWART, SUCCESS, SYDNEY and PERTH. Deployments include two 'up top' plus DAMASK VII, RELEX II, TANAGER and GEMSbOK and Exercises RIMPAC 96 and TAlISMAN SABRE 07. Service ashore includes CERbERUS, PENGUIN, KUTTAbUl, ALBATROSS HQAST, and STIRlLNG. Currently DNOEH at Navy Safety and Certification. FRACGP 1996, Dip Av Med 1997, MPH 2004, FAFOEM 2006.

The Federal Government prohibited the supply and use of all forms of asbestos from 01 Jan 2004, unless it had been through an exemption process. However, Defence Material Organisation (DMO) continued to issue non-exempt asbestos parts until May 2007. This resulted in high level media and government interest, a Comcare investigation, and a major response by Defence.

This presentation describes Navy's response to the presence of non-exempt asbestos parts in the Defence stores system.

Navy's response included:

- participation in the whole-of-Defence response, managed by the DMO Asbestos Inventory Tiger Team (AITT)
- managing a separate Comcare Improvement Notice resulting from Navy's asbestos management
- revising the Navy's asbestos management Defence Instruction
- developing a new asbestos health surveillance health Directive on behalf of JHC.

The presentation describes some of the issues with respect to managing a political / media issue with some occupational health overtones.

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Welding injuries to the ear: from the superficial to deep

Dr Peter Peters

SBLT Peter Peters joined the RAN in 1988 as a recruit communicator specialising in Electronic Warfare. He completed his bachelor of Science (Honours) at Northern Territory University whilst a junior sailor. He left the permanent forces in 2000 and transferred to the reserves and undertook his medical training. He is currently working as a Urology Registrar at Ipswich Hospital, and holds the title of lecturer with the School of Medicine, Griffith University and the title of Associate lecturer with the School of Medicine, University of Queensland.

Welding and steel fabrication is known to be a dangerous profession. Methods compromising oxy-acetylene, TIG (tungsten inert gas) and electric arc cutting carry specific risks. These risks are notably sparks, hot metal, luminescence (arc eye) or noxious gases.

Welders protective safety equipment carried to a worksite includes self darkening goggles, facemask, earplugs, welding apron/spark resistant clothing and safety gloves are industry standard. This is appropriate when considering the extreme flame temperatures (~1000°C) involved. However, most Occupational Health and Safety (OH&S) strategies are aimed at minimising ocular and respiratory hazards.

A literature search focussing on the injuries from welding shows very few in the literature on damage to the ears when compared to the eyes and lungs. This series is a comprehensive review of the world literature relating to welding injuries to the ear and experiences from our own unit. All publications with reference to otological ramifications from welding were included, ranging from simple superficial burns to the external ear, transtympanic damage to the facial nerve and other middle ear structures. Injuries to the from welding range from minor burns of the external ear (meatus, pinna) to tympanic perforation with injuries ranging from otalgia, chronic otorrhea, deafness and complete facial nerve paresis. The injuries at the severe end of the spectrum lead to significant morbidity and to significant costs for an employer. An important risk factor to a welding injury to the ear is overhead welding within a confined space. Unfortunately, this is an environment that matches a machinery space on a warship. These injuries are significant and are entirely preventable with appropriate safety equipment and training, the outcomes take on a increased degree.

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Rehabilitation

Occupational rehabilitation in the ADF

Jane Hayter

Jane Hayter is the Deputy Director Operations for the Directorate ADF Rehabilitation Services. She started work with Defence in 2006 as a Rehabilitation Coordinator when the ADF rehabilitation Program was implemented. Jane is an Occupational Therapist and have worked in the area of workplace injury management occupational rehabilitation since 2002. She moved to Canberra in 2009 to take up my current role and oversee the implementation of the ADFRP nationally.

A national approach by Defence for Occupational Rehabilitation (ADFRP) was implemented in 2006. The program has been successful in having the highest return to work rate compared with compensation figures. The program is continually under review to improve its services and the Directorate of Rehabilitation Services has increased its portfolio to include Compensation Support and the ADF Paralympic Program. As part of the SRP the ADFRP is currently working on a change to the service delivery which will enhance the opportunity to provide a more integrated process to improve outcomes for both Defence and the Defence member.

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Reflections on a new initiative: case co-ordination for clients with complex needs

John Fely

John is the Assistant National Manager Rehabilitation Compensation & Systems Support Group, Department of Veterans Affairs.

As part of an election commitment, the Government appointed Professor David Dunt to carry out a study entitled Independent Study into Suicide in the Ex-Service Community. Professor Dunt's study was released on 1 May 2009 and identified 21 recommendations covering broad issues of suicide to help identify ex-service members who are at an increased risk of self harm, common contributing factors among ex-service members who have committed or attempted suicide, the extent of suicide in the ex-service community, lifestyle or other factors that may be contributing to suicide in the ex-service community, and recommended administrative reforms or initiatives to help combat suicide in the ex-service community.

One recommendation specific to DVA, which was accepted by Government, was to implement a system of case coordination for clients with complex needs. Case Co-ordinators assist clients who are identified as at risk and/or have complex needs to navigate DVA services and benefits in order to minimise the risk of self-harm and maximise quality of life. Case Co-ordinators support clients and their families in accessing all their DVA entitlements, and assist with other psychosocial supports that can be required. This includes an assessment of overall needs, setting goals for improved health and well-being, identifying appropriate services that will assist the client in achieving their goals and supporting them to manage their circumstances. When a client is receiving a single point of contact service, Case Co-ordinators continue to consult, liaise, and work closely with all parties involved with the client. When all the client's agreed needs have been met, Case Co-ordination moves to a monitoring program for a further 12 months. Thirteen Case Co-ordinators were appointed and are located in small groups in Brisbane, Melbourne, Perth and Sydney offices and provide services to relevant clients throughout Australia. DVA Case Co-ordination services commenced on the 11th of January 2010.

This paper uses a qualitative historical framework (Where have we come from, where are we, who are we now and where are we going?) in context of the service, to examine the key areas during the first 6 months of the new program. The areas explored are:

- The challenges of implementing a new service;
- The opportunities that have arisen;
- Perspectives from the case co-ordinators;
- Feedback from the clients themselves.

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Life after amputation – ignorance is not bliss

Rowena English

Rowena English is an experienced Physiotherapist with over 15 years experience in the fields of elite Sports Medicine, Orthopaedics and military Rehabilitation.

War stimulates a generational shift in amputee research and management. These modern day advances in amputee management have led to over

150 amputee's being deployed today in the MEAO in both conventional and Special Forces. They are fitter than you or I. Yet there is the perception within Defence that these people are disabled and their clinical management and rehabilitation is poorly understood or not even occurring.

This presentation will discuss the care pathways, specialist rehabilitation and prosthetic management of military amputees. It will highlight the importance of a multidisciplinary team working together to achieve the member's goals including the:

- Rehabilitation stages
- Stump and wound management
- Phantom pain
- Prosthetic management and technology available
- Associated clinical rehabilitation requirements
- Specialist Physical Training
- Peer support
- Re-integration into community and sport

With the technology available today, there are no limits to what an amputee in the Australian Defence Force can achieve, it just takes good quality and correct rehabilitation commencing day 1.

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Australian Defence Force paralympic sports program & association

Scott Mengel

Currently Scott holds the position as the Sports Development Officer for the ADF Paralympic Sports Program. This position is combined with his public servant position in the ADF Rehabilitation Services. Prior to joining the public service in 2007 he was in the Royal Australian Army Medical Corps as a Physical Training Instructor. As a Physical Training Instructor ScottI held a variety of positions and ranks from Corporal to Warrant Officer Class One.

The ADFPSP and ADFPSA provide adaptive sporting pathways and high level rehabilitation to Australian Defence Force (ADF) members with acquired disabilities.

The ADF Paralympic Sports Program assists the ADF in fulfilling its obligations as an employer to severely injured members who have acquired a disability. The ADFPSP provides these members with significant rehabilitative physical and psychological benefits enabling them to achieve a very high level of functional independence, the attainment of physical fitness and an active lifestyle through the participation in adaptive sport.

The ADFPSA provides mutual support to the ADFPSP by undertaking the roles of management, funding and equipping of the ADF Paralympic Sports team. This then enables the membership base to seek external sources of funding in the form of sponsorship and donations.

The Department of Defence has entered into a Memorandum of Understanding (MOU) with the Australian Paralympic Committee (APC) for the purposes of significantly improving the rehabilitation and functional independence of Australian Defence Force (ADF) members who have acquired a disability. Through this partnership, identified ADF members will be aligned with Paralympic sporting pathways, which will provide them with equitable access to sporting opportunities through to the elite international level.

The ADF Paralympic Sports Program (incorporating the ADF PSA) in conjunction with the APC now enables severely injured ADF members with acquired disabilities equitable access to sport through to the elite international level. This program focuses on ability not disability and reduces the psychosocial impact of severe injuries.

The ADFPSP and ADFPSA's values are equality, courage, compassion, teamwork, and initiative in overcoming adversity.

The ADFPSP and the ADFPSA share the following strategic objectives:

a. To facilitate a return to physical fitness in ADF members with acquired disabilities, by the identification and facilitation of adaptive sports opportunities through Australian Paralympic Committee sports, programs and disabled sporting pathways;

b. To identify talented ADF members with acquired disabilities and facilitate access to elite sporting opportunities through the APC;

c. Develop and maintain disabled and adaptive sports policy, programs and training for ADF members, Health Professionals and Physical Training Instructors;

d. Advertise and promote adaptive sport opportunities internally within the ADF to wounded individuals, the chain of command and externally to the national media;

e. Facilitate, mentor and provide appropriate advice to severely injured ADF members and their families on adaptive sporting activities;

f. Develop relationships with disabled national governing bodies; and

g. To develop relationships with and funding from Service charities and commercial sponsors to ensure the ADFPSP is financially viable.

As a recognised ADF sport, ADF Paralympic Sport gives members with recognised disability equitable access to the sporting entitlements. All APC sports are covered under the name ADF Paralympic Sport hence, the purpose driven name. It is recognised that the same proportion of ADF Paralympic sport members will reach the elite level as per Defence sport. The point is that now Defence can adequately support them and sport is the winner.

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Early Management of Trauma and Pre-hospital Care

Disaster and mass casualty response

Dr Jeff Stephenson

Dr Jeff Stephenson is a member of RAAF Specialist Reserve and is the Senior Medical Officer at 3EHS, RAAF Richmond. He is a Senior Aviation Medical Officer in the ADF and lectures on RAAF AME courses on aviation physiology and clinical considerations. He has operational experience both within Australia and overseas, including East Timor, Sumatra and the Middle East. He has an appointment as Senior lecturer in Aeromedical Retrieval and Transport at the University of Otago.

Definitions of mass casualty situations, incidents and disasters should be understood by those personnel who may be required to respond. An understanding of the epidemiology of trauma deaths and the classic trimodal mortality pattern can help responders to know when and how they can alter the outcome for victims. It is important to understand the difference between facts and myths in disaster response to ensure that high-priority tasks are correctly identified and enacted by responders. The long-term psychological care of providers involved in disaster response is an important part of mission planning. The concept of a surge capability should also be considered. In this presentation the key concepts in disaster and mass casualty response are explained and simple guidelines are provided. In addition comment is made on the appropriate provision of aeromedical assistance in disaster situations.

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Pre-hospital care of severe head trauma

Dr Ben Manion

Graduated medicine 2006; Neurosurgical registrar since 2008; additional work for international martial arts events as ringside doctor; motorsport on track medical cover with Parasol, including Gold Coast Indy, V8 supercars, Australian Touring cars.

An outline of the pathophysiology of primary and secondary brain injury, and optimal management of severe head trauma in a pre-hospital setting. Includes an overview of emergent decompressive techniques in the prehospital setting, such as external ventricular drainage, emergency burrhole placement and intracranial pressure monitoring.

Traumatic head injury is the most common combat related injury. Head and spinal injuries account for nearly 25 percent of combat casualties (1), and has become known as the "signature injury" of the Iraqi war. Traumatic brain injuries, often from blast effects, have been seen in as high as 62% of troops returning from combat duty in Iraq (2). Primary injury takes place immediately and is irreversible.

Secondary injury to damaged brain is therefore the therapeutic focus, and it can be minimised by efficient and comprehensive prehospital management, which includes medical and basic surgical measures that can be conducted in the field. The importance of rapid effective treatment cannot be overstated, as even a single episode of systolic pressure less then 90mmHg will double mortality. An analysis of the pathophysiology of the damaged brain creates therapeutic opportunities which can be exploited with basic medical facilities.

Hypoxia and hypotension can be minimised with airway and cardiovascular support. Intracranial pressure can be monitored to guide immediate medical management and aid surgical planning.

It is particularly useful in the setting of delayed transfer to a tertiary care facility, in monitoring an intubated and paralysed patient with a head injury, and as a precautionary measure when other procedures such as orthopaedic operations are undertaken in a head injured patient. In the absence of imaging equipment intracranial haemorrhage location can be predicted by the changing clinical picture, allowing placement of exploratory burrholes. By well informed prehospital practice the burden of head injury can be reduced significantly.

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Microcirculatory changes in response to smoke inhalational injury

Dr Anthony Holley

Dr Anthony Holley bSc. MbbCh. DipPaeds. DipDHM. FACEM. FCICM. Anthony is a dual qualified intensivist and emergency physician, working as an intensivist at Royal Brisbane and Women's Hospital. He is currently a serving officer in the Royal Australian Navy Reserve. His military service has included active service in the SADF as a national serviceman in the Angolan campaign, peace keeping duties in Bougainville, and in East Timor as part of INTERFET and most recently service in the Arabian Gulf. Anthony has published more than twenty papers in peer reviewed journals. He is an intensive care representative for the National Blood Authority critical care expert group. He teaches on EMST and Care of the Critically Ill Surgical Patient. Anthony is also the supervisor of intensive care training at the Royal Brisbane and Women's Hospital.

Inhalational injury is common and potentially a significant component of battle injury. The local effects of inhalational injury are well documented, however, the systemic consequences are less well understood.

This study utilised a live sheep model to assess the microcirculation pre and post inhalational injury. The eight exposed sheep served as their own controls prior to inhalation of two sets of standardised twelve breaths of smoke. The microcirculation was directly visualised in the sublingual area, with sidestream dark field imaging (SDFI), while concurrently measuring arterial blood gases, lactate, carboxyhaemoglobin, continuous invasive blood pressure, cardiac output, systemic vascular resistance and pulmonary artery pressures. The SDF images were independently assessed by two blinded observers utilising the De backer score. Objective scoring facilitated evaluation of the microcirculatory changes demonstrated in response to this insult, while concomitantly assessing the global haemodynamic parameters. This is the first work that demonstrates microcirculatory perturbation in the setting of inhalational injury.

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Case report of thoracic spine fractures from IED blast in an armoured vehicle

CMDR Ian Young

Commander Ian Young is an Orthopaedic Surgeon in the Permanent Navy posted to the Primary Casualty Reception Facility for the Maritime Role 2E capability. He is a part-time staff surgeon at Frankston Hospital south of Melbourne, VIC. Previous service in the Canadian Forces from 1990-98 and transferred to the RAN in 1998. Operational deployments include OP Relex in HMAS WARRAMUNGA, Op Padang Assist in HMAS KANIMblA and most recently Op Slipper with the Dutch Role 2E Hospital in Afghanistan.

During recent operations in Afghanistan, five of nine occupants in an armoured vehicle attacked by an IED blast were wounded in action. The casualties were transferred to the local Coalition Role 2E Hospital. During assessment three of the casualties were found to have compression fractures of the thoracic spine. This paper will present the injuries sustained and discuss the spine fractures in detail.

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Preventative Health and Promotion

The US Army Public Health Command initiative: transforming public health services for the US Army

John Resta

Mr Resta joined the Army Environmental Hygiene Agency in 1980 holding several technical positions in the water, wastewater and hazardous waste programs. From 1996 thru 2001, Mr Resta served as the Program Manager for the Deployment Environmental Surveillance Program overseeing the overall occupational and environmental health exposure monitoring for US Forces deployed to Operation Desert Shield/Storm, bosnia-Herzogovina, Kosovo and the USACHPPM response to the terrorist attack on the Pentagon in September 2001. Through August 2004, Mr Resta served as the Director, Health Risk Management, USACHPPM, overseeing the environmental risk assessment program, risk communication efforts and deployment surveillance of US operations in Afghanistan and Iraq. After his return from the National Defence University in 2005, he has served as the Scientific Advisor to the Commander, USACHPPM now Public Health Command. As Scientific Advisor, he is responsible for the accomplishment of the broad, scientific mission and with the effective and economical internal functioning of the organization. He currently co-leads the Public Health Command Transition Team.

The United States is at a health-care crossroads. We spend more on health care than any other nation on the planet (>$2T/year or about 16% of GDP) and yet our population's health is at best only average by most measures (life expectancy, chronic disease rates, access to health care, infant mortality, etc). This problem is projected to worsen as the US population ages. The Army follows the overall US trends. Army medical beneficiaries (Soldiers and retirees, their families, and Army civilian employees) suffer the same chronic disease rates, use tobacco and alcohol at equal or higher rates, and are as overweight and/or obese as their civilian counterparts with two important exceptions: our Soldiers are fitter than their civilian counterparts due to mandatory physical fitness training and weight limits, but suffer more injuries due to the physical nature of their duties and our beneficiaries have universal access to quality medical care.

Recognizing that more needs to be done, the Army Medical Command has started to place an increased emphasis on improving beneficiary health by using a public health-centric approach to its overall strategy.

A key component of this increased emphasis on public health is the creation of an Army Public Health Command as part of the overall US Army Medical Command reorganization. This presentation will describe the Army Public Health Command, its objectives, current status of transformation and major program initiatives to include Occupational and Environmental Health support to current operations in Iraq and Afghanistan, propagation of focused efforts to improve installation health promotion and wellness programs and behavioural health epidemiological initiatives.

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Comprehensive soldier fitness in forces command

COL Georgeina Whelan

The evolution that brought over 80% of Army members into one command, FORCES COMMAND, also spurred an evolution in Health delivery, planning and conceptualisation. Health branch HQ FORCOMD is developing a Comprehensive Soldier Fitness concept in order to improve the health status of the Command. The Health branch will develop a health and wellness philosophy underpinned by research, physical and mental resilience, and sound lifestyle behaviours. The lines of operation will include: research and development, education, and training delivery to instil a resilient lifestyle ethos throughout the Command. The Army performs well in addressing discrete health events, but has great opportunities for improvement in the areas of multi-disciplinary health delivery, complex cases, and systemic risk. In response, the concept of Comprehensive Soldier Fitness has been developed in order to drive advancements in these areas. This involves conceiving of health interventions as including core health professions, allied health professions, and also health focussed elements of other professions. For example, the nutrition practices of soldiers have a significant impact on soldier performance at critical periods in a deployment. However, the best interventions in this area include not only nutrition-focussed interventions, but are integrated with existing interventions conducted by mental health, environmental health, physical training, as well as nursing and medicine. Moreover, it is necessary to conceive of soldier health needs as not just static, but mirroring the force generation and deployment cycle. Therefore Comprehensive Soldier Fitness involves not only conceiving of health as a single standard, but as a cycle of processes. Injured soldiers need structured health goals, even when they have no chance of meeting existing employment standards in the near future. Similarly, soldiers already meeting all basic health standards still need health goals to offer the Army the most that they can. This indicates the need to advance the conceptualisation of soldier health to focus on ideas of comprehensive wellness. The delivery and governance of health is being rethought to support multi-disciplinary intervention, and provide the sometimes isolated front line health worker with best practice clinical governance and training. Soldiers of this century can expect that their military operations will be marked by numerous integrated preventive health initiatives, expert health maintenance while on deployment,and an individualised approach to recovery that is also matched to the needs of Army across the force generation cycle. As the strategic value of each soldier increases in line with technological advances, so does the strategic importance of the individual's health. In the future, opponents on the battlefield will face an Australian soldier not only free from illness and injury, but one equipped with Comprehensive Soldier Fitness.

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Dental blitz: the three week campaign of the AACAP Dental Team at Doomadgee

Dr Barry Reed

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Oral and Maxillofacial Surgeon to five Newcastle and Hunter Valley private hospitals; Oral and Maxillofacial Surgeon Australian Army Reserve 1st Health Support battalion; Colonel Kenny Award as best Army Reserve Dental Officer in 2008 for achievements at the AACAP 14 dental health program at Doomadgee and for an official visit to brooke Army Medical Center San Antonio Texas in 2008 in regard to management of facial injuries from improvised explosive devices and other ballistic trauma; Award of a 2009 Australian Army History Research Unit research grant; Oral and Maxillofacial Surgeon at Exercise Talisman Sabre 2009; Foundation Clinical Director, Oral and Maxillofacial Surgery Unit John Hunter Hospital 1992-1995.

An integral part of the Army Aboriginal Community Assistance Program has been dental treatment. For the AACAP 14 project at the remote community at Doomadgee in the Gulf of Carpentaria, the core dental team consisted of a dentist, hygienist, technician, dental assistant and oral and maxillofacial surgeon who provided care for several weeks. The scale of the dental problem for the population of 1500 (including 364 schoolchildren) was immense as there were approx. six decayed teeth per person which results in pain and infection. This high decay rate meant there were many thousands of tooth fillings and extractions needed while there was a very limited visiting government dental service (with no denture provision service). The possible strategies were a short term "band aid" approach of fillings and extractions only for this short AACAP stay or to introduce a long term solution for reduction of the scale of the problem of decay with several preventive dental health strategies. These solutions comprised both targeted population strategies and a whole population strategy. A fundamental measure was communication to establish the support and approval of the community leaders and visiting government dental health providers for our planned strategies and in order to continue these programs long term. An essential measure was establishing credibility with the community to implement these preventive health strategies by first providing practical help in the form of immediate treatment for the relief of pain and a denture provision service. At the specific request of the Aboriginal community, all residents were treated whether indigenous or not. An initial preventive measure was school based oral hygiene education by the dental hygienist which established rapport with the schoolchildren. This was supplemented by provision of oral health education teacher kits for every school class. The first targeted population strategy was introduction of a school based fluoride toothpaste program that provided weekly fluoride supplementation for decay prevention. The effectiveness of such programs has been reduction in decay rates of up to 50 to 60%. This method also has an important additive effect in decay reduction when combined with water fluoridation. The whole population preventive strategy was liaison with the state government fluoridation project officer to assess the suitability for introduction of community water fluoridation which would reduce decay rates for both children and adults by approx. 50%. This involved a water quality supply analysis by the Army environmental health team; an educational leaflet program of the benefits of water fluoridation for the community; caries prevalence research; and meetings with community elders and leaders to gain their support. The second targeted population strategy was identification and treatment of those persons at significant risk of serious morbidity and mortality from dental disease which were those with rheumatic heart disease (approx. 50 persons). In conclusion, the AACAP dental team introduced several dental health solutions (including gaining government approval for water fluoridation) effective for communities with serious dental disease problems.

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Changes over time in the healthy soldier effect

Michael Waller

Michael joined CMVH in January 2007 as a Statistician. He is involved in the analysis of the data from the Near North Area of Operations studies and other research across CMVH. Prior to joining CMVH, he worked at the Institute of Cancer Research, London, UK.

Background: Death rates in military populations are often lower than those in the general population. The study considers how this 'healthy soldier effect' changes over time.

Methods: Data from two large studies of Australian Veterans of the Korean War (n=17381) and the Vietnam War (n=83908) were used to compare the change in death rates and cancer incidence rates relative to the Australian population over time using age standardised ratios (SMRs and SIRs). Separate analyses were conducted for enlisted and National Service personnel.

Results: The healthy soldier effect was most consistently observed in the deaths from circulatory diseases. This was characterized by a large deficit in deaths in the initial follow-up period (10-20 years) before rates tended back to the level observed in the general population. There was no healthy soldier effect in deaths from external causes in enlisted personnel and these death rates were significantly higher than expected in the initial follow-up period among Korean

War Veterans and Regular Army Vietnam Veterans. Those selected for National Service during the Vietnam War exhibited the strongest healthy soldier effect of all cohorts assessed.

Conclusions: Patterns of the healthy soldier effect over time varied markedly by study cohort and by the cause of death studied. In a number of analyses a healthy soldier effect was still apparent after more than 30 years of follow-up.

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Mental Health

The post deployment adjustment of army reservists from stability operations: a winning combination?

LTCOL Geoffrey Orme

Currently SO1 Psych at HQ 2 Div in Sydney. A Reservist studying post deployment adjustment for Army Reservists (PhD through Adelaide Uni and CMVH). Deployed on operations in a variety of theatres. A psychologist in private practice in Sydney.

The Defence White Paper (DWP) 2009 requires Army, through its 'Rebalancing the Army' implementation plan, to optimise its mix of full time and part time force elements to sustain prolonged operations and provide surge capacity should the need arise. It also details how the Army's part time forces can be best provided with a greater operational focus in order to increase the utility of part time personnel.

The ADF is deploying more reservists on a wide range of operational duties both domestically and overseas. The current commitment to Stability Operations in the Solomon Islands, known as Operation Anode, is a clear example.This presentation will report on the outcomes of two longitudinal studies of Reservists who deployed on Stability Operations in Timor l'Este (N=90) and the Solomon Islands (N=350). Mental health, satisfaction and retention were, without exception, positive up to two years post deployment. These results may inform policy as well as provide a baseline for deployment outcomes around traumatic versus non-traumatic operational stress.

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Are suicide rates for young Australian males really falling? The recent controversy explained

Dr Duncan Wallace

Dr Wallace is a consultant psychiatrist at the newly established ADF Centre for Mental Health. He is a Captain in the Navy Reserve, where he holds the position of Director, Naval Health Reserves for NSW & ACT. He has seen active service in East Timor, Iraq and the Persian Gulf. He has participated on humanitarian assistance operations in banda Aceh and Nias. After Cyclone larry in Queensland in 2006, he served as a special advisor to the Qld Chief Psychiatrist, earning a commendation from the Qld Health Minister. His areas of interest are emergency department psychiatry, military psychiatry and disaster psychiatry.

Suicide rates for Australian males aged 15-24 climbed alarmingly during the 1980s and early 1990s. However recent data suggests a significant decline in the suicide rate for this important demographic for the Australian Defence Force. Some authors have questioned whether this decline is actually occurring, leading to a confusing picture. The relevant literature is reviewed.

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The protective effect of hardiness on Australian Army Reservists deployed on stability operations

LTCOL Geoffrey Orme

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The ADF is deploying more reservists on a wide range of operational duties both domestically and overseas. In military groups, hardiness has been shown to protect against the ill effects of stress experienced by US Army Reserve medical personnel mobilised for deployment during the First Gulf War (bartone, 1999). Hardiness has been proposed as a personality characteristic which buffers against the detrimental effects of sustained stress and stimulates adaptive strategies for dealing with stressful circumstances (Goss, 1994).

This presentation will report on the outcomes of longitudinal studies of hardiness of Australian Army Reservists who deployed on stability operations in

Timor l'Este in 2002 (N=90), and the Solomon Islands in 2007 (N=350). The Cognitive Hardiness Scale (Nowack, 1990) was administered to the respondents throughout the deployment cycle for a period up to two years following deployment. The scale contained 30 items based on Kobasa's (1979) dimensions of Commitment, Control and Challenge. The scale identifies attitudes and beliefs around work and life circumstances with emphasis on commitment to others in one's life, appraising life changes as challenges, and viewing one's self as having some sense of control over significant outcomes.

At all time points, the hardiness scores uniformly exceeded the norm mean, and the mental health measures were positive. Despite these range restrictions, predeployment hardiness could be used to predict post deployment mental health measures. Correlations of measures for psychological trauma, distress, depression, anxiety and stress, life satisfaction, and current health were, without exception, moderately correlated with Cognitive Hardiness indicating its protective effect.

These results may inform policy as well as add to the evidence for preventative initiatives including training in hardiness and resilience. Further research across wider ADF groups is discussed. In particular, the positive outcomes for low-threat stability operations may serve as a baseline for assessing the efficacy of hardiness for higher-threat operations, in which reservists may be at greater risk of adverse mental health outcomes.

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Learning to be lethal: patterns of non-suicidal self-injury (NSSI) and suicide attempts in young adults

Shane Latimer

Shane Latimer joined the Royal Australian Navy in 1973. In 1991, he completed fulltime service in the RAN to commence a civilian career as a psychologist. He worked as a Senior Clinical Psychologist with the NSW Department of Corrective Services for the period 1995 to 2007.

As a Principal Clinical Psychologist in the RAN Reserves, he was promoted to Commander in 2004 and to Captain in 2009. He has served in HMA Ships NEWCASTLE and MANOORA for operations in the Middle East and Solomon Islands to provide critical incident support and operational mental health support.

In 2010, he commenced duties with the ADF Centre for Mental Health as a Contracted Health Practitioner.

The paper aims to assist ADF clinicians to conduct suicide risk assessments by reporting patterns of NSSI behaviours and suicide attempts in young adults. Self-Harm (SH) describes a wide range of behaviours and intentions including attempted suicide, self-poisoning, and cutting (Skegg, 2005). Non-suicidal self-injury (NSSI) is one form of SH that is restricted to the destruction of body tissue without conscious suicidal intent (Nock, 2009). Examples of NSSI include burning, scratching, and cutting. The prevalence of NSSI appears to be increasing in young adults and adolescents (Klonsky, 2007). In non-clinical populations, the estimates range between 12% and 38% in college/university students (Whitlock, Eckenrode, & Silverman, 2006) and between 12% and 66% in high school students (De leo & Heller, 2004). In clinical populations, the rates vary between 4% to 20% for adults and around 40% for adolescents (Muehlenkamp, 2005). The theoretical perspective is Joiner's (2005) interpersonal-psychological theory of suicide. This model has three components, namely, perceived burdensomeness, thwarted belongingness, and acquired ability to engage in serious acts of self-harm. The last component (sometimes called learning to be lethal) is a possible causal mechanism that links NSSI to suicide (Whitlock & Knox, 2007). In a sample of 387 young Australians (aged 18 to 30 years), 207 participants (53%) reported a lifetime presence of one or more forms of NSSI. In the NSSI group, 42 cases (20%) reported at least one suicide attempt. In the non-NSSI group, 5 cases (3%) reported at least one suicide attempt.

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Operational Health/Miscellaneous

Australian Medical Task Force 5 (AUSMTF5)

SQNLDR Robyn Tatnell

SQNLDR Robyn Tatnell commenced duties within HQHSW in May 2010. She is undertaking project work including Project lang - Air Force Nursing Officer Career restructure. She has been a member of the Air Force for 8 years which has included postings to operational and training establishments. Robyn has been deployed operationally on Operations Anode, Catalyst, Sumatra Assist 2, Solomon Assist and has just returned from

deployment from Operation Slipper as the Officer-in-Charge of the Australian Medical Task Force 5 (AUSMTF5), which provided surgical and intensive care personnel to augment the Dutch Role 2 Enhanced Medical Treatment Facility in Tarin Kowt. Prior to joining the Air Force, Robyn worked predominately within the perioperative environment at Princess Alexandra Hospital, Ipswich General Hospital and Calvary Hospital Inc. Wagga Wagga.

This paper describes the Air Force and Royal Australian Navy contribution to the fifth rotation of surgical and intensive care personnel to augment the Dutch led Role 2 Enhanced medical treatment facility located within Camp Holland, Tarin Kowt. The Australian Medical Task Force 5 (AUSMTF5) deployed over the period January to March 2010 and consisted of both specialist reserve and permanent forces personnel.

Predeployment activities for the AUSMTF5 personnel will be discussed including team building, administrative requirements and collective training within Australia and the participation in a Mission Rehearsal Exercise (MRE) in the Netherlands. The MRE assisted AUSMTF5 personnel to gain familiarity with the Dutch command structure, equipment and resources, clinical practice guidelines, qualifications and related levels of experience of Dutch and Singaporean colleagues. Due to the relationships established, AUSMTF5 experienced a smooth and rapid integration into the Role 2 Enhanced at Tarin Kowt.

A brief outline of the surgical and intensive care cases treated by AUSMTF5 personnel will be provided including discussion on the high paediatric workload (30%) experienced during this period. Surgical patients were predominately non-battle casualties from motor vehicle accidents and falls, however battle casualties from gunshot wounds and blast injuries were also treated. The Intensive Care Unit also managed medical admissions such as opium overdose, out of hospital cardiac arrest, non VF/VT, seizures and respiratory failure.

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The next phase in Ooperational health models – embedding health professionals

Dr James Ross

Dr James Ross is the Medical Director for Aspen Medical and the Remote Area Health Corps (RAHC). Dr Ross is an Occupational Physician and Public Health Physician with experience in health services management, aviation medicine, medical research, sports medicine and policy development. Dr Ross has spent most of his career in the Australian Defence Force and has had operational deployments to Iraq and East Timor, and is still a member of the Specialist Reserves. He is an Adjunct Associate Professor at the University of Queensland through the Centre for Military and Veterans' Health.

Australia like many other nations faces the challenge of providing sufficient health professionals in various operational locations to meet demand. Attraction and retention of staff remain a constant challenge particularly in rural and remote Australia. The Australian Defence Force (ADF) also experiences challenges with attraction and retention of health professionals.

With the advent of civilian contractors providing operational health care, an opportunity exists for the ADF to leverage off the civilian contractors and utilise the facilities for training opportunities, retention of staff and quasi operational experience.

Aspen Medical currently delivers health care in the Solomon Islands and Timor Leste. Both health facilities mirror the type of health service provided by the ADF on deployment with the exception of the hard standing and facilities. However all health care standards are in accordance with the ADF and therefore this provides a perfect environment for clinicians to experience an 'operational' setting. Such clinicians could include either medically or operationally inexperienced clinicians, and experienced clinicians who have recently joined the ADF.

There is also the opportunity for contractors to embed in military units on deployment, where they gain an immediate understanding of military medical life. The contractors see first hand the complexities of military medicine, and this may act as a recruitment tool for the ADF.

The opportunity exists for a partnering arrangement between contractors and the ADF to embed clinicians into their respective facilities to gain value training and experience. Such an opportunity is a natural extension of the current use of contractors in operational deployments, and for the ADF to move onto the next phase in operational health models.

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Cultural competence: making horizontal integration work for ADF general practice registrars in the Australian general practice training program

COL Scott Kitchener

COL Scott Kitchener RAAMC advises the Senior Health Officer Forces Command on Medical Officer professional development and recruitment and parades as a Senior Aviation Medical Officer at the Army Aviation Centre Oakey. He has previously deployed in the Middle East, PNG, Bougainville and Timor. His civilian practice is largely in Academic Medicine leading rural medical education and research programs for Griffith University and UQ as well as the Queensland Rural Medical Education program of Australian General Practice Training based in Toowoomba, Queensland. He also practices as a Public Health Physician in Aboriginal Health and is on the Editorial team of the JMVH.

ADF General Practice Registrars take longer to pass through the Australian General Practice Training (AGPT) program than average Civilian Registrars, yet they are a selected group of graduates with a high pass rate in Fellowship examinations and have a supportive employer. Why? These Registrars require their AGPT Program to be horizontally integrated with their military and military health training programs within the ADF and they move between conventional Regional Training Providers regions and States.

Horizontal integration in this sense refers to blending Single Service specific initial officer and predeployment military training with military medical training and medical training to initially reach "Medical level 2" to be a deployable Medical Officer.

Currently, military training is rarely accepted for AGPT Programs despite including cultural, leadership and management education to enable performance of clinical duties. Military medical training is inconsistently recognized for AGPT Programs despite clinically content and oriented towards the practice in which the Registrar is working. Finally, medical training within the ADF also is variably recognized despite rich clinical supervision and teaching.

This presentation detail delays in ADF GP Registrar training time and discuss solutions to expedite progress to ML2 and ML3.

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Mobile Field RAP, regimental aid post

Dr Andrew Gordon

This presentation is an expansion of the presentation given at AMMA in Hobart in 2008. Considerable improvements have been made to the field RAP box trailer since October 2008. Most of the trailer is now aluminium. It is lighter, probably stronger and definitely more functional. Ideally we should make the "box" and frame from aluminium. The important aspects are the concept, design, function and construction of this box trailer. At all times, the engineer and I worked on these principles plus, simplicity, engineering safety, i.e. strength, engineering finesse, and then aesthetics. At all times the aims were simplicity and being able to use this equipment any time of the day or night, in any weather and even when being shot at!The RMO, medical section and medical equipment most conform to the RAAMC doctrine and battle conditions. Current battle conditions require mobility; this field RAP box trailer gives the whole unit, in particular, the medical section, mobility, function and speed of initial treatment.The field medical stores in this box trailer and towing vehicle give the medical section independence. In prolonged exercises more support is required e.g. another vehicle and trailer.The medical stores are in bin pack boxes with lids which fold down to 85° and are kept in place by nylon chord. The "master" box on the front left, passenger side of the trailer, contains airway stores, box 2 contains intravenous fluids. Other boxes contain patient comfort stores "office" stores etc.Use; The canvas sides are rolled up and held in place. The horizontal IV pole supports the intravenous fluid tubes, oxygen tubes and ECG cables to be dropped down directly over the patient.The lids of the bin pack boxes have a Perspex "liner": to protect the lids and cover charts.The fire extinguisher is easily accessible. The trailer has its own water supply, fuel supply, power 12 volt battery, internal lights and external spot lights. The canvas, 14 x 14, tent and tarpaulin are carried low to keep the centre of gravity low.All of the support poles have "feet" which are easily adjustable with special pins and "R" clips and short cables.The oxygen cylinders are the most dangerous items on the trailer. They are securely fastened and should withstand a complete roll-over. Further Development: This trailer has been developed as far as it is possible to do so for an individual and his engineer. It now needs evaluation and field trails from/by/with a committed RMO, an NO and experienced medical assistants. Constructive comments would be appreciated.

We need to consider a "V" shaped underside to decrease the damage from a mine blast. An additional use of the trailer is for "Pathology on Wheels"; see the presentation by Major Tim Inglis at AMMA in Hobart in 2008 about a "lab in a box". He and I are actively collaborating to match laboratory science with mobility.

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Early Management of Trauma and Pre-hospital Care

Managing expectations - can we really call on our big blue brother?

LTCOL Susie Busch

LTCOL Busch is posted to Headquarters Northern Command as the J 1/4/07 with responsibility to support border Protection Command's operations in the north and the ADF's response to domestic emergencies or disasters. Her Service highlights include deployments to Rwanda and Timor, and a Fellowship with the US Defence Intelligence Agency's Armed Forces Medical Intelligence Centre where she served as an Intelligence Analyst and contributed operational support to US troops in Kosovo in 1999. Her papers on Health Risks and Post Conflict Reconstruction in Kosovo were published by DIA and used in the development of deployment policy. She commanded the Army School of Administration and Health in 2005 before accepting a civilian position with the United Nations. After service in post-earthquake Pakistan, Susie relocated to HQ New york as a Medical Support Planner with DPKO, responsible for medical and logistic support to Peacekeeping Missions. In UNHQ she also served as the Section Chief for logistics Operations in Western Africa and as the Specialist Support Officer for the Middle East and Afghanistan. She deployed to Syria in 2009 as OIC Mission Support for the United Nations Disengagement Observer Force located on the Golan Heights. LTCOL Busch returned to the ADF in May.

Responsiveness, preparedness and interoperability are key contributors to successful outcomes in conflict and disaster situations. It's no secret that the United Nations' ability to deliver on these three success factors is routinely called in to question by Member States and the international community. As a potential player in arenas and environments within which the United Nations (UN) operates, Australia and the ADF remain vulnerable to, and impacted by, potential UN deficiencies and/or unrealistic expectations of the UN's capabilities.

The Department of Peacekeeping Operations (DPKO) is the military arm of the United Nations and is well identified by the signature blue berets or helmets worn by peacekeepers deployed under its auspices around the globe. DPKO is the largest of the United Nations departments with an annual budget in the billions of dollars however, funds aside, managing the variances in capability and capacity across the peacekeeping contributing nations remains a significant challenge for UN planners and operational interlocutors.

Service support, including health, for 'blue berets' and the DPKO Field Missions is the remit of the recently established, little known Department of Field Support (DFS). DFS is staffed almost wholly by civilian UN employees. As the sister organisation of DPKO, DFS was established with the optimistic intent of improving efficiency and reducing lead-times associated with rapid coordination and delivery of resources in conflict and emergencies. DFS and DPKO are considered independent entities with distinct lines of internal command and control yet, must operate interdependently in order to actually get the job done. The jury is still out on how effectively the job is getting done.

This presentation will deliver an insider's view of UN operations, outlining the organisation and management of the UN Departments of Peacekeeping Operations and Field Support - two UN entities frequently interfacing with defence operations in combat or disaster response - with a view to highlighting constraints and limitations affecting their ability to respond, and effectively contribute, in disaster or conflict. Particular focus will be given to health support operations.

Drawing on recent examples of UN operational challenges, the presentation will be structured around discussion points, as follows:

- Organisational change, circa 2008 – • why, what, and outcome;
- Internal DPKO and DFS structures - • authority, governance and factors
- Affecting capability and responsiveness;
- Health structures and health support processes – who, how, how little, how much; and

Delivering on the promises – deployment planning, milestones and timelines.

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Development of a short training course for ADF health care personnel in the primary care of maxillofacial wounds from battlefield trauma

Dr Barry Reed

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battalion; Colonel Kenny Award as best Army Reserve Dental Officer in 2008 for achievements at the AACAP 14 dental health program at Doomadgee and for an official visit to brooke Army Medical Center San Antonio Texas in 2008 in regard to management of facial injuries from improvised explosive devices and other ballistic trauma; Award of a 2009 Australian Army History Research Unit research grant; Oral and Maxillofacial Surgeon at Exercise Talisman Sabre 2009; Foundation Clinical Director, Oral and Maxillofacial Surgery Unit John Hunter Hospital 1992-1995.

This presentation describes the development and features of a short training course in the primary management of combat related maxillofacial wounds for deployed health care personnel who may not be facial specialists. This course includes contemporary treatment techniques for severe maxillofacial wounds from improvised explosive devices (IEDs) and ballistic trauma. In the absence of a deployed oral and maxillofacial surgeon, primary management or stabilization of maxillofacial trauma is a secondary task for deployed general dental officers in the Australian Army. A one day course in the practical assessment and primary management of military maxillofacial trauma, with emphasis on current techniques for multifaceted wounds from IEDs, was introduced into the annual triservice introductory military dentistry course (and an abbreviated version provided to Army medics, nursing and medical officers at a CSSb). Information in the course was gained from liaison with US Army oral and maxillofacial surgeons at Brooke Army Medical Center, San Antonio, Texas who have deployed to Iraq and Afghanistan and from recent published US and british military experience. Facial wounds are now more frequent as a recent study of battle-injured US soldiers found 26% sustained craniomaxillofacial wounds (excluding intracranial injuries) which is significantly higher than previous wars. Of these facial injuries, 84% were due to explosive devices. In contrast, the proportions of battlefield injuries of other body regions remained constant or declined.

Utilising these contemporary maxillofacial techniques has resulted in significantly improved outcomes for both facial appearance and function for casualties of IEDs and ballistic wounds.

This oral and maxillofacial trauma course consists of both illustrated lectures (and laboratory sessions for practice in clinical techniques), on the following topics:

a. assessment of suspected maxillofacial injuries including clinical examination for signs and symptoms of facial fractures and interpretation of radiographs for suspected fractures;

b. pathophysiology of maxillofacial IED wounds;

c. management of facial injuries from IEDs including initial wound surgery for soft tissue injuries with demonstration of pulsatile irrigation for wound decontaminationed.

Management of facial and oral haemorrhage including epistaxis and methods for management of severe haemorrhage;

e. airway assessment and management including the technique of surgical cricothyrotomy which is illustrated by video and individual practical instruction utilising anatomical sheep specimens of the larynx and trachea;

f. assessment and management of vision threatening injuries from orbital compartment syndrome including the technique of emergency lateral canthotomy and cantholysis;

g. methods of temporary jaw fixation for facial fractures including a practical session using wire and commercial arch bar fixation methods utilising plastic phantom head models;

h. emergency management of facial burns especially in relation to IED wounds;

i. management of orofacial infections.

It is made clear that multidisciplinary assessment and management are essential as these casualties often have multiple injuries. In conclusion, maxillofacial wound management courses providing demonstrations and practice in clinical techniques, enable deploying health care personnel, who are not facial specialists, to gain clinical proficiencies which are of great relevance to current conflicts. These proficiencies will result in superior facial aesthetic and functional results for our future wounded soldiers.

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Afghanistan - was I ready for that

Mary Langcake

In July 2008, a Royal Australian Air Force Team, AUSMTF2 deployed to Tarin Kowt in Afghanistan to provide surgical and intensive care support to coalition forces. The team was exposed to trauma and injury far outside that seen in civilian practice. As a member of the RAAF Specialist Reserve I was the trauma surgeon during the first six weeks of this deployment. I was asked to deploy after just 12 months in the RAAF not having taken part in any other military exercise. Within two weeks of the commencement of the deployment I had experienced the death of an 8

year old boy on my operating table, and had failed to save the leg of a twelve year old boy with a shotgun blast to the thigh. Was I ready for that.....certainly not.

In this paper I will describe our preparation for the deployment and aspects of the deployment itself. I will then discuss the the psychological aftermath I experienced which led to a diagnosis of PTSD.

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Governance

Innovation in Joint Health Command clinical governance

LTCOL Helen Murphy

Currently leading clinical governance in Joint Health Command. Responsibilities include development and implementation of clinical governance systems including: the Joint Health Command (JHC) Governance Audit System; the JHC Health Incident Management System; the JHC Complaints/Compliments System; the JHC Patient Feedback System; JHC Orientation of health care providers; the JHC Credentialing System.

The presentation will discuss the JHC Governance Audit System implemented in March 2010. This system is a first for Defence Health, and perhaps for Australia, in being able to assess risk across the health service using a standardised methodology; and provide the ability to target specific ADF health regions with a view to improvement strategies or ADF wide improvement strategies.

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Clinical governance and deployed health

CAPT Amanda Jane Currie

Amanda Jane Currie currently serves as the Senior Nursing Officer, 1st Health Support battalion in Sydney. Known by her middle name 'Jane' she acts as the principle advisor on nursing issues to the Commanding Officer and leads the clinical governance committee of the deployable health capability.

She commenced her military career in the british Army in 2003 where she gained Operational experience deploying to Iraq on three tours of duty between 2005-2007. Jane has specialised in emergency nursing and gained an Emergency Nurse Practitioner qualification in the UK in 2006. In 2008 Jane transferred to the Australian Defence Force and commenced her current posting in Sydney. She recently deployed on OP PADANG ASSIST, in response to the Indonesia earthquakes September 2009. Jane has a special interest in the role of the nurse practitioner and has published several articles on this subject.

Constantly striving to improve the quality of deployed military health care, the 1st Health Support battalion (1HSb) has embraced clinical governance as a mechanism through which improvement can be achieved.

In accordance with definitions of clinical governance, 1HSb has endeavoured to raise the quality of its deployable health service and safeguard high standards of care by creating an environment in which dynamic improvement and excellence can flourish (Scally and Donaldson, 1998). The first step in this process was educating the battalion on the fundamental principles of clinical governance and how these could be used to analyse the quality of the deployable health capability. This was followed by establishing a clinical governance committee which meets monthly to discuss each clinical capability and agree methods for improvement. Finally, a clinical governance framework has been developed which can be translated into the general and close health support environments. So far, clinical governance has been successful in providing both a forum and a structure within which improvements can be made.

This presentation serves to offer detail on the clinical governance framework and how it may support the ongoing provision of deployed health support in the forthcoming close and general health support battalions.

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An introduction to human research ethics for first time defence researchers

Dr Isaac Seidl

Dr Isaac Seidl is Deputy Executive Director Medical Services, Townsville Health Service District. In this position he is principally responsible for medical leadership of clinical governance and ethics in the organisation. He chairs of a number of committees including quality use of medicines, credentialing, Health Quality and Complaints Commission compliance,

and the Human Research Ethics Committee. Dr Seidl undertook a number of appointments in the Australian Regular Army up to the rank of lieutenant Colonel prior to his move to Queensland Health. He is a graduate of Australian Command and Staff College. He remains an active Army reservist, serving as Senior Medical Officer, 11 brigade. Dr Seidl's academic appointments include Adjunct Associate Professor in the School of Public Health, Tropical Medicine and Rehabilitation Sciences at James Cook University. He is a fellow of both the Royal Australian College of General Practitioners and the Royal Australasian College of Medical Administrators.

This abstract describes a 45-60 minute workshop for new researchers in attendance at the conference.

This workshop aims to provide an introduction to human research ethics. It covers:

- What is human research, and why should we do it?
- Historical discussion – including the Nuremberg Trials
- The National Statement on Ethical Conduct in Human Research, including:
- Principles
- Composition of ethics committees
- Quality Assurance, low and negligible risk research
- The nuts and bolts of getting started
- How to choose a research question - basic research methodology
- Developing tools for your research
- Preparing your research proposal
- The future
- Including NHMRC's HoMER project (the author sits on the indigenous research working group for HoMER)
- Controversies

This workshop is suitable for delegates who are interested in learning about or refreshing their knowledge of research ethics, either as a new researcher, a member of a larger trial, or as a health professional whose patients are enrolled as participants in research.Interactive participation is encouraged, and participants should come to the workshop with ideas about research they could conduct.

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JP2060 Phase 3 - the future joint health operational concept

COL Craig Schramm

Colonel Schramm has held a diverse range of postings as an Army Medical Officer, including RMO 2 Cav Regt (Recon), OC Hlth Coy 1 CSSb, RMO 5 Avn Regt, OC/ SMO Darling Downs Hlth Svcs, SO1 AvnMed HQ 16 Avn bde, CO 2 HSb, SHO SQlD, and is currently Director Future Health Capability at Joint Health Command. His current role revolves around the medium to long-term development of health capability for Defence, including equipment, structure and doctrine. He has served on a number of overseas deployments, including to Rwanda, East Timor, banda Aceh and Afghanistan, and is a qualified Army pilot. Colonel Schramm is a graduate of the University of Queensland (M.b.b.S.), Kings College london (DAvMed), Edith Cowan University (PGradDip HlthSci) and the Southern California Safety Institute (Cert Acft Acc Inv). He holds Fellowships of the Australasian College of Tropical Medicine and the Faculty of Travel Medicine.

JP2060 Phase 3 is being developed to ensure that the ADF's deployable health capability continues to support operations into the future. More than just machines, the Future Joint Health Operational Concept will re-frame the way that health care is delivered on operations. With a focus on health command and control, health information and eHealth, the project integrates the five Health Operating Systems. This presentation provides an update on progress to date and the way ahead for the project.

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Health Surveillance

Longitudinal health surveillance of military populations – is it worthwhile?

Dr Peter Nasveld

Dr Peter Nasveld is the Project leader for the longitudinal Health Surveillance Platform at CMVH and is responsible for coordination and management of a wide range of studies conducted through the Centre related to physical health in areas such as injury associated with weight load carriage, evaluation of policy change in the areas of asthma and body mass index assessments, e-Health initiatives in mental health and dermatology and development of the Defence electronic health record. Dr Nasveld has also been a Clinical researcher and

Chief Investigator for a range of epidemiological studies and clinical trials in a Defence environment, and was awarded the Surgeon General Australian Defence Medal for excellence in Defence related health research in 2006. Additionally, Dr Nasveld provides to the Centre the high level engagement and liaison driving extensive studies into the Health Outcomes associated with deployment of Defence personnel, roles which ensure the operationalisation of research activities within the Defence organisation.

In recent years, several longitudinal health surveillance studies involving large military populations have been launched internationally to investigate any effects of military occupational and deployment-related exposures on long-term health. These prospective cohort studies with longitudinal follow-up are preferred to retrospective studies due to their ability to identify causal relationships between deployment exposures and outcomes. These studies are also expected to make significant contributions toward improving the health of military populations by ensuring emerging patterns of health outcomes can be responded to in a timely manner through prevention and / or early intervention.

This presentation will provide an analysis of preliminary results from such studies that have been reported in the USA, Canada, the UK and several European countries. The presentation will also review the study populations that have been selected, the sampling approach, the data sources used and the time frames for data collection, as well as data linkage methods for linking self-reported data to multiple complementary electronic data sources, including electronic health records. An assessment of study design implementation and achievement of study objectives based on these preliminary results will also be used to determine whether well-designed longitudinal health surveillance studies can be used to answer future health-related questions in military populations.

Some results indicate that longitudinal health surveillance studies allow the identification of subgroups of military populations that are at higher risk or more resilient to health problems. Concerns over generalisability, reliability of self-reported data, and loss to follow-up have also been identified as limitations of some of the designs of longitudinal health surveillance studies. lessons to be learnt in the Australian context will be drawn from this analysis.

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Deployment and post-deployment experience of women in the East Timor and Bougainville deployment health studies

Associate Professor Susan Treloar, Dr Annabel McGuire, Dr Katherine Kirk, Mr Michael Waller, Prof Annette Dobson

Associate Professor Susan Treloar (MSW, MSc, PhD) was appointed as Head of the University of Queensland Node Centre for Military and Veterans' Health (CMVH) in December 2008. She joined CMVH in 2007 as Principal Research Fellow and Head of the Deployment Health Surveillance Program. She was Principal Investigator of the Defence Deployed East Timor and Bougainville Health Studies and is a Chief Investigator on the current Middle East Area of Operations Health Study. She is also a Chief Investigator on studies investigating women's health in the DVA context. Prior to joining CMVH she was a Senior Research Fellow in Genetic Epidemiology at the Queensland Institute of Medical Research and Deputy Director of the Australian Twin Registry. Her previous area of expertise was in the epidemiology of women's health, both mental and gynaecological. Her PhD was in the field of Psychiatry. She has a long track record in leading and running large, collaborative, international and national, epidemiological, twin and family studies on common, complex health conditions. Her original background in the social sciences and public health has also allowed her to develop projects spanning these fields.

Background: Positive and negative deployment and post-deployment experiences, exposures and health concerns may differ between deployed women and men, and there may also be differences in how similar experiences affect women and men. Similarities and differences may be important in personnel management and planning for future health needs of serving and ex-serving personnel.

Aim: We aim to investigate possible differences between female and male serving and ex-serving respondents in 1) perception of stressful factors on deployment; 2) perceptions of positive and negative aspects of deployment; and 3) post-deployment experiences.

Methods: During 2007 and 2008 the Centre for Military and Veterans' Health conducted cross-sectional Defence deployment health studies focusing on effects of operational deployment to East Timor (1999-2005) and bougainville (1997-2003). Each of the studies included serving and ex-serving Australian Defence Force (ADF) members who deployed and a comparison group who did not deploy, frequency-matched by age band, gender, Service and service type (regular vs. reserve). Women comprised 10% to 14% of the study samples overall. Respondents completed a deployment experiences questionnaire if they were part of a deployed group.

Results: The overall response rates for each study were between 42% and 45. The response rate was higher from women than men in the East Timor Health Study, and similar to the response rate for men in the bougainville Health Study. The top 5 major stressors on deployment differed between women and men. For Bougainville, 'personal privacy' (54%) and 'living and with the same people' (50%) were among the 5 most frequently reported stressors for women, but they were not among the 5 stressors most commonly endorsed by men. For the East Timor deployed, 'risk of unauthorised discharge of weapons'(71%) and 'double standards' (68%) were amongst the 5 most commonly reported stressors for women, but were not for men. For men in the East Timor and bougainville deployed groups, 'sorting out problems at home' (64%, 61% respectively) and 'threat of danger' (66%, 58%) were in the 'top 5' most commonly endorsed stressors, but were not for women. For women who deployed to East Timor, risk of vehicle accidents (76%) was the most frequently reported stressor. For men in both studies 'separation from family and friends' was the most commonly reported stressor (70%, 68%). 'behaviour of others' was also reported in the top 5 by men and women in both studies.

Conclusions: Implications of similarities and differences will be discussed in the context of women's roles and tasks on operational deployment with the ADF.

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Post-traumatic stress disorder and hypertension amongst Australian veterans of the 1991 gulf war

Dr Helen Kelsall, Dr Marian Abouzeid, Prof Andrew Forbes, Prof Malcolm Sim, Prof Mark Creamer

Dr Helen Kelsall is a Senior Research Fellow at the Monash Centre for Occupational and Environmental Health, Department of Epidemiology and Preventive Medicine, Monash University. She was an investigator on the baseline Gulf War Veterans' Health Study in 2000-02 and is an investigator on the current follow up study of this cohort of veterans and military comparison group. She undertook her PhD (Epidemiology) on this study and received the Monash University Vice-Chancellor's Commendation for Doctoral Thesis Excellence in 2005. Helen undertook further NHMRC postdoctoral fellowship training at the Cancer Council Victoria. Helen is a public health physician and active in the Australasian Faculty of Public Health Medicine, particularly in Continuing Professional Development. She currently supervises several doctoral students.

Background: War veterans have elevated rates of psychological morbidity, including posttraumatic stress disorder (PTSD). There is evidence suggesting an association between mental and physical health, including cardiovascular disease and its risk factors such as hypertension. Clinical and public health implications of physical and psychological co-morbidity are profound. This study investigated the relationship between PTSD and hypertension amongst male Australian Gulf War veterans.

Methods: The Gulf War Veterans' Health Study was a cross-sectional study conducted from 2000-02 and included comprehensive medical and psychological assessments of 1456 Gulf War veterans and 1588 military comparison subjects. A postal questionnaire was administered and the likelihood of the diagnosis of self-reported medical conditions including high blood pressure were subsequently rated by a medical practitioner as possible/probable or unlikely. The Military Service Experience questionnaire assessed stressful military events and experiences. PTSD prevalence was assessed using 1) the psychologist-administered Composite International Diagnostic Interview (CIDI) - with individuals classified as CIDI-defined PTSD ever if symptoms meeting DSM-IV criteria for the disorder had ever been experienced and as CIDI-defined PTSD in the previous 12 months if symptoms meeting diagnostic criteria were present in the 12 months prior to the interview, and 2) the Posttraumatic Stress Disorder Checklist-Specific (PCl-S), a self-report rating scale for assessing symptoms of PTSD in the previous month. Anthropometric indices and blood pressure were measured. logistic regression was used to assess the odds of hypertension amongst veterans with and without PTSD for each of the three timeframes for the psychological disorder.

Results: This analysis was restricted to the 1381 male Gulf War veterans (veterans) for whom CIDI and medical diagnostic data were available, 1301 of whom completed the PCl-S. High blood pressure was reported by 156 veterans. A diagnosis of hypertension was considered possible or probable in 127 subjects (9.3%), unlikely in 23 (1.7%), and not validated for five subjects. The prevalence of CIDI-defined PTSD ever and in the previous 12 months was 6.6% (n=91) and 5.1% (n=71) respectively, and PCl-S caseness (score>50) in the past month was 7.9% (n=103).

After adjusting for possible confounding factors of age, employment status, education, marital status, service, military service experiences, rank, bMI, waist circumference and smoking, hypertension was more likely in veterans with CIDI-defined PTSD in the previous 12 months than in veterans without PTSD over this period (odds ratio 2.88; 95% CI 1.34–6.19)

and veterans with CIDI-defined PTSD ever were also more likely to have hypertension (odds ratio 2.37; 95% CI 1.19–4.72). PCl-S caseness in the month prior to assessment was not significantly associated with having hypertension (odds ratio 0.95; 95% CI 0.43–2.10).

Conclusions: Veterans with CIDI-defined PTSD diagnosis in the previous 12 months or ever had an increased likelihood of having a history of hypertension. A limitation of this study is that it is based on cross-sectional data. Further research is required to elucidate the causal pathways and directionality of such associations, and to examine for similar relationships amongst non-military personnel.

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Mental health of women in the near north area of influence deployment health studies

Associate Professor Susan Treloar, Dr Annabel McGuire, Dr Katerine Kirk Mr Michael Waller, Prof Annette Dobson

Associate Professor Susan Treloar (MSW, MSc, PhD) was appointed as Head of the University of Queensland node of the Centre for Military and Veterans' Health (CMVH) in December 2008. She joined CMVH in 2007 as Principal Research Fellow and Head of the Deployment Health Surveillance Program. She was Principal Investigator of the Defence Deployed East Timor and bougainville Health Studies and is a Chief Investigator on the current Middle East Area of Operations Health Study. She is also a Chief Investigator on studies investigating women's health in the DVA context. Prior to joining CMVH she was a Senior Research Fellow in Genetic Epidemiology at the Queensland Institute of Medical Research and Deputy Director of the Australian Twin Registry. Her previous area of expertise was in the epidemiology of women's health, both mental and gynaecological. Her PhD was in the field of Psychiatry. She has a long track record in leading and running large, collaborative, international and national, epidemiological, twin and family studies on common, complex health conditions. Her original background in the social sciences and public health has also allowed her to develop projects spanning these fields.

Background: Deployment may affect female ADF members differently from males, even if they have similar exposures. US Millennium Cohort studies have shown that incidence of mental health outcomes such as PTSD was significantly higher in women compared to men. Although deployed combat exposure was the major risk factor for new-onset depression in both men and women, women in some categories (e.g. married/divorced, active duty, US Navy/Coast Guard) were at higher risk than others. Deployment to East Timor by Australian Defence Force (ADF) members has already been shown to be associated with subsequent increased levels of reported psychological distress and symptoms in deployed versus comparison groups in the Australian Defence Force.

Aim: We aim to investigate possible differences between female and male serving and ex-serving respondents in self-rated health, self-reported psychological distress (K10), and posttraumatic symptoms (PCl-C).

Methods: During 2007 and 2008 the Centre for Military and Veterans' Health conducted three cross-sectional Defence deployment health studies focusing on effects of operational deployment to the Solomon Islands (2003-2005), East Timor (1999-2005) and bougainville (1997-2003). Data from these studies are combined into a Near North Area of Influence studies data set. Each of the studies included serving and ex-serving ADF members who deployed and a comparison group who did not deploy, frequency-matched by age band, gender, Service and service type (regular vs. reserve). Women comprised 10-14% of the study samples overall. Respondents were asked to complete a health questionnaire, plus a deployment experiences questionnaire if they were part of a deployed group.

Results: The overall response rates for each study were between 42% and 45%. Response rates for women were the same or higher than for men in each of the three studies. Self-reported K10 data from 713 women and 4853 men in the combined NNAI data set showed a slightly higher median score in women (15) than in men (14). Median score on the PCl-C of 22 was the same for women and men.

Conclusions: Implications of similarities and differences between men and women on scores on these mental health scales will be discussed in the context of deployment, Service and literature from other studies.

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Mental Health

1 Psych Unit Support to ADF operations; current practices and future concepts

MAJ Jacqueline Costello and MAJ Kristi Heffernan

Nicole Sadler is currently the Commanding Officer of 1st Psychology Unit. This unit is responsible for providing psychological support to land-based operations. lTCOl Sadler joined the Regular Army in 1994 as a psychology officer and throughout her career has worked in recruitment, assessment, counselling, training and policy development. lTCOl Sadler has provided psychological services to deployed ADF personnel in bougainville and in Malaysia following the 2004 boxing Day Tsunami, and in 2007 and 2010 she deployed to the Middle East Area of Operations. She completed the Australian Command and Staff Course in 2004 and was awarded a Master of Psychology (Clinical) degree in 2005.

MAJ Jacqueline Costello is currently posted to 1st Psychology Unit. MAJ Costello joined the Regular Army in 2002 as a psychology officer and has worked in counselling and assessment settings, training establishments and more recently within the operational environment. MAJ Costello has deployed in support of ADF personnel in 2010 to Afghanistan and was awarded a Master of Organisational Psychology degree in 2003.

MAJ Kristi Heffernan is currently posted to 1st Psychology Unit. MAJ Heffernan joined the Regular Army in 2005 as a psychology officer and has worked in counselling and assessment settings, special forces selection and training; and the operational environment. She has deployed in support of ADF personnel in 2006 to East Timor, in 2007 to Iraq and between 2008 and 2010 to Afghanistan; and was awarded a Master of Clinical Psychology degree in 2004.

1st Psychology Unit is responsible for providing psychological support to deployed forces. This involves providing support across the deployment cycle and includes pre-deployment preparation, Return to Australia Psychological Screens (RTAPS); and back-briefs to commanders on the key mental health issues for the force element and reintegration considerations. Since the introduction of eight month deployments for Army personnel in late 2008, 1st Psychology Unit has been monitoring soldier's attitudes to extended deployments and the related impact on factors such as relationships, motivation for future deployments and longer term career intentions. A comparison of these attitudes between RTAPS and the follow-up Post Operational Psychology Screen (POPS) has revealed changes in reported relationship difficulties, discharge intentions and the motivation to do another eight month deployment. The implications of these findings for commanders, health and mental health professionals and force generation are discussed.

Additionally, 1st Psychology Unit has identified groups of personnel who are routinely exposed to more potentially traumatic events due to the nature of their role on operations. The evolution of this work will be discussed, with current anecdotal evidence highlighting the need for an increased focus on resilience training pre-deployment to prepare soldiers for what they may face on ADF operations.

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Rehabilitation

Force preservation and enhanced rehabilitation services: lessons from a high tempo environment

Dr John Shephard

Dr Shephard is a GP with over 20 years medical experience, much of this time spent in demanding primary care settings including South Sudan, remote Aboriginal communities and amongst inner city homeless. He has completed post graduate qualifications in Tropical Medicine, Public Health and General Practice. He has worked in the ADF environment for 5 years, including 3 years at 3RAR. He received a commendation from Commander 1st Division in 2008 in recognition of his work rehabilitating soldiers injured on deployment in Afghanistan and East Timor.

Background: The ADF environment is characterised by considerable physical and psychological risk. Injuries, when they occur, impact on force capability as well as scarce health support resources. Improving rehabilitation outcomes can have a beneficial effect on ADF effectiveness.

Aim: To discuss "lessons learnt" from the implementation of rehabilitation service improvements undertaken in high tempo ADF environment.

Setting: like much of the ADF, the dependant population of 3RAR RAP has experienced high operational tempo in recent years. They undertake ongoing preparedness training for short notice deployments, including via

parachute insertion. A significant burden of injury is managed though the RAP.

Actions: Following a review of evidenced based guidelines, we instigated a process of rehabilitation service improvements which can be broadly summarised as follows:

a. enhanced co-ordination through engagement of all stakeholders, with an emphasis of patient-centredness

b. early return to work, enhanced vocational rehabilitation and improved rehabilitation "culture"

c. enhanced program management, including goal setting and data management.

Discussion: In this presentation, we will discuss the key enablers and barriers to the introduction of these service improvements.

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The HMAS Kuttabul clinical pilates rehabilitation programme

Dr Anna Lewis

Anna lewis is a physiotherapist at HMAS Kuttabul and a RAAF Specialist Reservist Physiotherapist. She holds postgraduate qualifications in Sports Physiotherapy and recently completed a Doctorate in Clinical Physiotherapy through the University of Melbourne.

With a strong clinical interest in low back pain and rehabilitation, she developed and implemented a Clinical Pilates rehabilitation programme to provide effective treatment programmes for injured Defence personnel. This programme was the subject of doctoral thesis research (2008-09) and will be submitted for publication in a peer reviewed journal in the near future. Through the clinical doctorate, further study was undertaken in musculoskeletal dry needling, exercise for women and publication skills, including a publication in Physical Therapy Reviews in 2008.

Implementation of this programme into other Defence health sites has now commenced and Anna hopes to continue strong professional relationships and sharing of skills between Defence physiotherapists across Australia.

The nature of Australian Defence Force (ADF) work exposes members to workplaces where the challenges faced to perform inherent occupational duties are diverse, plentiful and often unpredictable. Work risk factors for ADF members are amplified by postings and deployments to exigent work environments on warships, planes and foreign land bases. The implications of injury to ADF members extend beyond the pain and disability of the individual to the broader picture of the operational readiness of the unit to which they belong. A medical downgrade of an individual unable to return to operational work in a fully functional capacity may also impose a negative impact on the unit to which they belong.

The Clinical Pilates Rehabilitation Programme was established in 2003 in recognition of the requirement for effective rehabilitation programmes for ADF members. This need is reinforced through Strategic Objective 5 of the Defence Occupational Health and Safety (OHS) Strategy (2007-12). Despite the popularity of the pilates treatment approach, there is limited research evaluating the efficacy of clinical pilates as a treatment tool, and in particular for the pain and dysfunction associated with chronic low back pain (ClbP). To date, only four clinical trials have been conducted on patients with ClbP with conflicting results.

Research aimed at improving pain and function for ADF members with ClbP is necessary to ensure effective clinical management of this patient population. The HMAS Kuttabul Clinical Pilates rehabilitation programme has undergone evaluation through pilot studies (2004-05) and a feasibility study as part of a doctoral thesis (2008-09). Results from this research showed that clinical pilates is a feasible intervention for patients with ClbP in the ADF. The changes in pain and function were statistically significant on all primary and secondary outcome measures and, most importantly, were clinically meaningful. There were very few adverse effects associated with the programme and excellent compliance was experienced with both treatment attendance and home exercises.

One of the major strengths of this study (and execution of the programme in the clinical setting) lies in the individualised treatments based on the patient's presenting history, signs and symptoms. This enables the most appropriate exercise programme to be designed and progressed. The uniqueness of this programme ensures each patient commences treatment at an appropriate level. Previous studies have not individualised treatments but delivered a standardised generic programme of exercises to a heterogeneous patient population.

Broader ADF application of this programme has commenced with the successful implementation into the physiotherapy department of a WA army base in June 2010. Due to the exceptionally high operational tempo and particularly physically demanding workloads of this unit, the requirement to return to work expediently at full functional capacity, is critical. Within this unit, the programme is providing rehabilitation for wounded soldiers, and is being used as a screening assessment for performance enhancement and injury prevention for members throughout the unit. The broader application

of this programme across Defence is being successfully achieved through the strong working relationship now established between the physiotherapists at these two bases.

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Understanding the impact of military deployment on families: an Australian study

Dr Annabel Mcguire

Dr Annabel McGuire joined the Centre for Military and Veterans Health (CMVH) in January 2007 as a Research Fellow within the Deployment Health Surveillance Program. She has played a leading role in development of research instruments, analysis of data and writing of major reports for the Defence Deployed Solomon Islands, East Timor and Bougainville health studies. Within these areas Annabel has been particularly responsible for the self-report questionnaire and analysis of the Defence Psychology data. She has also had significant input into the design of the questionnaire for the Middle East Area of Operations Study. Currently, she is the Chief Investigator on the Timor-leste Family Study, a natural progression from the veteran to the family.

The effect of military deployment on the serving member has been extensively researched with most literature linking deployment with poorer health and more symptoms of ill health in veterans relative to comparison groups. Whilst most literature investigating the effects of deployment has highlighted numerous mental and physical implications for veterans, less attention has been directed to investigating these effects on the partners and families of the deployed member. The current research aims to determine what, if any, physical, mental or social health impacts families experienced as a result of deployment. This research presents a qualitative description of the unique strengths, challenges and relationship processes in Australian Defence families. Four in-depth focus groups were conducted with partners of Royal Australian Navy, Australian Army and Royal Australian Air Force personnel who were deployed to Timor-leste. Content analysis procedures were used to analyse the data. The findings support aspects of prior research, but also provide new insights by exploring the influence of work family conflict and family dynamics and revealing how these factors impact the ability of families to cope with deployment separation.

In light of the existing literature, conclusions and implications of these findings are addressed.

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E-Health

How did we get there and where are we going

Colonel Graham Durant-Law

Colonel Graham Durant-Law joined the ADF in 1977. In 2000 he was seconded to command the hospital element in Bougainville. On returning he retired from the regular Army but continued to work in a Reserve capacity.

In 2008 Colonel Durant-law commenced fulltime service once again, and was posted to Headquarters Joint Health Command. He has had two concurrent roles; the first as the Chief of Staff, and the second more important role leading the strategic change reform agenda. In the later role he initiated and is responsible for the development and acquisition of an eHealth system, colloquially know as JeHDI (Joint eHealth Data and Information system).

- Elements of the Army, Air Force and • Navy, as well as contracted individuals and organisations provide Health care delivery within the Australian Defence Force (ADF).
- To provide effective health care, it is a requirement that an individual's medical information is available irrespective of location in a timely and efficient manner.
- Recent reviews and studies commissioned by the ADF have found the ability to manage health data is unsophisticated and immature.
- A review of the existing systems identified distinct capability gaps in these systems including:

- an inability to universally meet Defence clinical user needs or management requirements;

- they are below clinical contemporary Australian practice;

- the systems are unable to provide aggregated governance data, such as the cost of fee for services delivery or after hours care.

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Pilot selection anthropometry - a comparison with measures taken by a single AVMO

Dr Adrian Smith

Adrian Smith is an aviation medicine specialist, contracted to Army to provide aviation medicine research support to the RAAF Institute of Aviation Medicine.

Background and Method: During its review of the maximum sitting height for the Kiowa, AVMED observed a number of large differences between anthropometric measurements obtained by the two researchers conducting the project and the measurements obtained from the participants during recruiting. To explore this observation further, 56 student pilots at the Army Aviation Centre were measured by a single experienced Aviation Medical Officer, and their anthropometric dimensions compared to the measurements recorded on their recruit medical examination.

Findings: On the whole, stature measurements were highly correlated (r=0.85), with most differences ≤2 cm. by contrast, the correlation was weaker for buttock heel length (r=0.77), sitting height (r=0.70), and buttock knee length (0.58). With the exception of stature, the correlation for the other anthropometric dimensions was significantly lower for measurements obtained in military centres than those from civilian Defence Force Recruiting Centres (DFRCs). Sitting height was increasingly under-recorded as the measured dimensions approached towards maximum cut-off limits for selection (100 cm). Measurements that differed by > 2cm were significantly more common above a measured sitting height of 98 cm, and the mean difference in the two sitting height measurements where the measured sitting height is ≥98 cm (4.43 cm) is significantly greater than the difference where the measured sitting height is ≤98 cm (2.25 cm)(t-test, p5cm (accounting for 20% of all sitting heights), 73% of which originated in military centres. Overall, 29% of sitting height measurements taken in military centres differed by >5 cm from the measurements taken for this project, compared to only 12% of sitting heights measured in DFRCs. Differences of up to 12 cm were observed in those who were recruited in the previous 12 months, and the mean difference was greater from military centres (5.28 cm) than for DFRCs (1.43 cm)(t-test, p.

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Civilian aeromedical evacuation in support of the ADF

Dr James Ross

Dr James Ross is the Medical Director for Aspen Medical and the Remote Area Health Corps (RAHC). Dr Ross is an Occupational Physician and Public Health Physician with experience in health services management, aviation medicine, medical research, sports medicine and policy development. Dr Ross has spent most of his career in the Australian Defence Force and has had operational deployments to Iraq and East Timor, and is still a member of the Specialist Reserves. He is an Adjunct Associate Professor at the University of Queensland through the Centre for Military and Veterans' Health.

A critical part of health services that have been outsourced in some operations and exercises, both offshore and domestically by the ADF, is Aeromedical Evacuation. The AME services to be discussed are in support of Op Astute (ISF East Timor) and Op Anode (RAMSI Solomon Islands) and various Army exercises in northern Australia. In all cases these are both rotary and fixed wing AME platforms. There is also the situation where civilian AME teams have been required to operate in military aircraft.

The services are administratively complex due to often complicated contractual arrangements, with interfaces not just between the military and/or police, with the medical services provider, but also between a prime contractor, aviation subcontractor and health subcontractor. There is also usually a different provider of strategic, fixed wing AME and this interface can also present difficulties.

This presentation will present:

- Information on missions performed
- The contractual arrangements and how these can be potentially modified
- Suggestions on how to best integrate civilian providers into deployed capability
- Crew structures, qualifications, credentialing and skills maintenance.

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Contagious diseases, international health regulations and aeromedical evacuation

Dr Jeff Stephenson

Dr Jeff Stephenson is a member of RAAF Specialist Reserve and is the Senior Medical Officer at 3EHS, RAAF Richmond. He is a Senior Aviation Medical Officer in the ADF and lectures on RAAF AME courses on aviation physiology and clinical considerations. He has operational experience both within Australia and overseas, including East Timor, Sumatra and the Middle East. He has an appointment as Senior Lecturer in Aeromedical Retrieval and Transport at the University of Otago.

In the 14th century the governing bodies of Venice, recognising the risk to the city of incoming communicable disease, imposed a period of isolation of 40 days on travellers and goods arriving from overseas. Since that time the awareness of infectious diseases and their transmission has dramatically increased. With over two billion people flying annually, transmissible diseases are readily moved and spread around the globe. A review of the modes of transmission of infectious diseases is discussed as well as current regulations. The physics of the aircraft cabin environment is explained and a practical approach to the transfer of patients with infectious diseases is outlined. High level biocontainment and patient transfer are also explained with examples from civilian, US Army and the RAF aeromedical units.

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Introduction of the MRH90 Helicopter and TopOwl helmet for operational use by the Royal Australian Navy

Dr Glenn Pascoe

WGCDR (RAAFSR) Glenn Pascoe, MbbS, FRACGP, DAvMed (UK), is currently contracted to Defence as SOAVMED-Navy, Navy's Single Service Aviation Medicine Advisor. Prior to transferring to the RAAFSR, his final posting in the PAF was as CO AVMED. Glenn joined the RAAF Undergraduate sponsorship scheme in 1994, graduated from UQ in 1996, and completed RACGP training program 2001.

Previous postings include Health Services Flight Pearce 1999-2001; 1 ATHS, Amberley 2002-2004; RAF Center of Aviation Medicine, UK in 2005 to complete the DAvMed, UK OPAvMed, and an exchange posting as an instructor; and Chief Instructor AVMED 2006-2007. Glenn has deployed to bougainville and East Timor as the AME Medical Officer, and the Middle East as the Senior Health Officer and AEOO.

Introduction: Australia is introducing the MRH90 helicopter to replace the Navy Sea King and Army blackhawk helicopters. The Thales TopOwl helmet is integrated into the Australian MRH90. The MRH90 will be the first embarked Australian helicopter to utilise this new helmet mounted sight and display technology. Ship's Helicopter Operating limits and suitability of the TopOwl helmet needed to be determined prior to certifying the aircraft package as fit for use in the maritime environment.

Methods: Ground and flight testing by the Fleet Air Arm's Aircraft Maintenance and Flight Trials Unit (AMAFTU) in conjunction with the Australian Defence Science and Technology Organisation (DSTO) has been undertaken to determine suitability of the MRH90 and TopOwl helmet. Test results from other nations have also been taken into account in the design and aims of the Australian testing.

Results: Certain aeromedical issues with the TopOwl helmet have been raised and addressed as part of the MRH90 testing.

Discussion: Define the aeromedical concerns of this new helmet mounted technology as relevant to Australian maritime helicopter operations.

Learning Objective 1: Identify the unique aeromedical issues of the Top Owl helmet.

Learning Objective 2: Outline the Australian ground and air testing to determine suitability of the TopOwl helmet and MRH90 aircraft for use at sea.

Learning Objective 3: Understand how the aeromedical issues of the TopOwl helmet have been addressed through the Australian testing.

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Trauma/Defence Research

Revised management strategies for urological injuries during wartime

Professor Arthur Smith

Captain Smith provided the Keynote Address to the Annual Meeting of AMMA in Sydney on 17 October 1998, and returned to offer the Keynote Address to the AMMA Annual Scientific Session in launceston, Tasmania on 16 October 2005)

Member of the International Advisory board of the Journal of Military and Veterans' Health

Differing rules of engagement exist for management of urological injuries acquired in peacetime civilian settings compared to theaters of armed conflict. Are urological injuries acquired during wartime perhaps different? And how does their treatment differ from that available during peacetime civilian conditions?

Penetrating urological injuries certainly do occur in the civilian setting (somewhat less so, perhaps, than blunt trauma) and their treatment is generally implemented in a relatively straightforward fashion within an organized and well supported health care system.

During wartime, however, urological injuries rarely occur in isolation, since victims of weapons utilized in war commonly receive multiple injuries concurrently.

Consequently, treatment priorities must change to first sustaining the life of the patient through active resuscitation and haemostasis, and subsequently intervening with priority management given to the most life threatening injuries. beyond the overall physiological status and stability of the patient, other variables commonly affect field surgical intervention as well, such as the number and status of other casualties accrued concurrently, the status of resources, and of course the tactical situation which can be quite variable across the entire spectrum of armed conflict.

The varied weapons of war include high velocity small arms munitions, artillery and heavy weapons, ballistic and cruise missiles, antipersonnel mines, booby traps, multiple fragmentation munitions, and in recent times suicide bombers and improvised explosive devices (IED). Each can create a wide spectrum of significant human damage. Furthermore, despite new improvements in body armour and vehicle protection, the victims of IEDs and armour piercing munitions still suffer from a combination of fragmentation wounds, blast injuries (prominently to the lungs) and burns. These often require priority intervention among those surviving the initial insult.

Although approximately 60% of surviving wounds during wartime have historically involved the extremities, massive blood loss still characterizes war wounds, associated with common systemic physiological deterioration from the lethal triad of acidosis, hypothermia, and coagulopathy, metaphorically characterized as the "Triangle of Death". Clearly, medical evacuation times have been dramatically reduced in the existing Middle Eastern theaters, and the implementation of "Damage Control" resuscitation and surgical techniques have improved the potential for casualty survival. Nevertheless, patients bearing injuries to the kidneys, ureters and bladder will still experience significant blood loss and very high complication and death rates due to their concurrent association with other visceral injuries. likewise, while injuries to the genitalia still remain the most common urological entity seen in combat, no doubt due to the extensive utilization of ground based munitions, the surprisingly high associated blood transfusion rate speaks for the complexity of their management, given their association with multiple associated sites of anatomic injury as well.

During the Vietnam conflict, urological casualties placed into medical evacuation chains following initial surgical treatments in-country, were transported to hospitals in the Philippines and Japan. In these facilities, they commonly manifested significant complication rates due to sepsis, anastomotic breakdowns, bleeding, missed injuries, fistulae, urinary ascites, flank infections, pelvic abscesses, pelvic osteomyelitis, and peritonitis. In the wartime context of required transfer of casualties into protracted geographic evacuation chains, many with potentially limited capacities for intercurrent specialty interventions, primary surgical techniques to obviate the occurrence of these therapeutic failures must always be considered, since the ground rules for peacetime injury management, with such items as stents and upper urinary tract drainage tubes, may be practically unrealistic.

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The cost and outcomes of spinal surgery in a military cohort

BRIG Stephan Rudzki

Rudzki is currently the Director General Strategic Health Coordination in Joint Health Command. He is currently responsible for health policy and health projects. He is a Fellow of the Australian College of Sports Physicians with an interest in injury prevention. He has served in Western Sahara, bougainville, East Timor and the Middle East.

The paper presents the findings of an observational study examining the functional outcomes of all lumbar spine surgical procedures performed on a group of soldiers over a three year period. Follow-up questionnaires were sent to the cohort at a minimum of 2 years post procedure. Costs of each treatment episode were estimated based on MbS fee schedules and lost productivity (sick leave and restricted duty). This study found a large variation in diagnoses and a wide range of surgical procedures performed. Investigations also varied with some patients undergoing multiple x-rays and CT of the spine. Subjective measures of success appeared to be decoupled from pain score at lower levels, and very few patients reported being pain free at follow up.

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Recognising early deteriorating signs - a project at Kapooka Health Centre

Vicki Pocius

For the past 2 years Vicki has been working as a NUM, Health Contractor for Defence Health at the Kapooka Recruit Training Centre in Wagga Wagga, NSW. The Kapooka Health Centre she manages has a hospital facility of 48 beds and an outpatient facility for Defence staff members. There is no surgery conducted at our facility, the majority of our patients are those involved in

their recruit training. Vicki has a background in intensive care nursing, and was the first Nurse Clinician employed in the ACT to set up and manage the initial nurse only Pre admission clinic in a Public hospital, at Calvary Healthcare in 2000. She then duplicated and managed an identical clinic in the Calvary Private Hospital.

Early Recognition of Deteriorating Patients has been, and continues to be the focus of many States and Health Service Providers. There have been numerous programs and studies done across the country. The Australian Commission on Safety and Quality in Healthcare had initiated the development and use of observation charts to identify patients at risk at a national level in 2008.

Kapooka Health Centre, in particular the ward setting, experienced several episodes of patient's conditions deteriorating requiring admission to a civilian hospital. In particular, a young man admitted with symptoms of a cold, deteriorated over a period of 12 hours, and was transferred to the local civilian hospital. The diagnosis on admission was meningococcal disease. Retrospective evaluation of the observation chart highlighted the failure of staff to recognise early signs that the patient was slowly deteriorating. The current observation chart used in Defence facilities did not adequately highlight these early signs. An observation chart based on the ACT Health Compass Project chart, was developed and a six month quality improvement project began in October 2009 and concluded in April 2010. The aim of the project was to improve the earlier recognition of signs of a deteriorating patient condition by 100%. This turn would reduce the potential and actual incidences of deteriorating conditions, and reduce the need to transfer members to civilian facilities. Audits were conducted prior to the trial project commencing, during the period of the trial, and again at the completion of the trial, and all staff were given a post-project questionnaire to complete. The return rate for the questionnaire was 82%, and the results confirmed that the majority of staff found the trial observation chart a valuable tool for recognising small changes in a patient's condition much sooner than had been the case previously.

The preliminary results of the project have shown a 100% increase in the frequency of all vital signs, and the staff survey results have been very favourable. There were two cases of patients diagnosed with pneumonia, whose scores on the trial observation chart alerted staff to involve the medical staff of the decline in condition, much sooner than would have previously happened.

The Australian Commission on Safety and Quality in Healthcare in March 2010, released a concensus statement about the essential elements for recognising and responding to clinical deterioration. NSW Health have introduced a state wide program (between the Flags) to reduce the frequency of adverse events caused by failure to recognize and respond to deteriorating patients. both of these have been released during the period we were conducting our quality project at Kapooka. As part of this Quality Improvement project colour coded observation charts and an escalation plan, have been designed and developed to incorporate defence specific health requirements. The development of this tool already incorporates these essential elements. The chart we designed and utilised is better suited to rural and remote areas, and would be easily adapted for all Defence Force sites.

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Posters

On target: Hemorrhage control in deployed settings

Dr Axel Schubert

Haemorrhage control is one of the main challenges to sufficiently decrease combat injury mortality. In deployed settings, this task is complicated by short supplies of blood products and multiple casualty admissions at 2nd and 3rd echelon medical support lines. The situation is compounded in actual conflicts by increased use of highly effective first-aid bleeding control devices such as clotting agents, clotting gauzes, and tourniquets.

Fast, targeted treatment of injury-related coagulopathies is needed to rebalance haemostasis and stop bleeding as soon as possible. Conventional diagnostic technologies lack sufficient speed or specificity to enable targeted and timely therapy. Recent improvements in thromboelastometry technology have now generated a powerful diagnostic tool for near-patient application to help differentiate between all relevant bleeding disorders. Corresponding therapies with blood products or other substitutes can be guided and monitored. Moreover, thromboelastometry permits the rapid detection of acute traumatic coagulopathies and suggests specific transfusion requirements.

British forces have used this technology in Afghanistan since the beginning of 2009 with great success. General feasibility was demonstrated and improved outcomes have been reported at ATACCC 2009. Accordingly, several NATO members have recently started equipping their 3rd echelon hospitals in Afghanistan with ROTEM® technology. After FDA clearance in March 2010, the system became available for the US forces, too.by combining several new technological advancements, ROTEM® is currently adapted to the specific requirements of the most challenging settings. These enhanced capabilities include protection against dust, humidity, high environmental

temperatures, mechanical shock or vibration, and temporary power failures. Moreover, the improved system can be applied in environments with pitch, roll and yaw, such as naval vessels, planes, or helicopters. The background and impact of these recent advances is presented with respect to improved bleeding control in certain settings and simplified blood-product supply logistics.

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The longer term physical and psychological health of Australia's gulf war veterans

Dr Jillian Ikin

During 2000-2003 researchers at Monash University led a national study of the health of Australia's veterans of the 1991 Gulf War and an era-matched Australian military comparison group. This extensive baseline study comprised comprehensive medical examinations including physical, neurological and respiratory health assessments, psychological interviews, laboratory testing of blood and urine and storage of serum for future analyses, additional self-reported health and fertility outcomes, also self-reported exposure to chemical and environmental toxins and stressful military events, and assessments of the study cohort's cancer and mortality rates compared with national levels.

Multi-symptom illness based on self-reported symptoms, and some self-reported medical conditions were found to be more common in the Gulf War veterans than the comparison group. Veterans also demonstrated poorer psychological health and increased risk of alcohol related and fatigue related outcomes including medically unexplained chronic fatigue. No differences were observed between the study groups in relation to blood abnormalities, examination of the neurological system and lung function.

In 2010-2013 this important study group (Gulf War veterans and comparison group) of almost 3,000 people will be invited to take part in a 4-part follow-up study comprising:

1. A postal health survey and phone interview to investigate predictors of, and persistence or recovery from, multi-symptom disorder, fatigue and psychological disorders, and associated health service utilization, disability, quality of life, physical and psychological functioning and other social outcomes.

2. linkage with DVA healthcare utilization data and other public health data sources to assess objective health measures and functioning.

3. Analysis of the stored serum samples from the previous study. The methodology is yet to be finalized, but one option is to investigate differences in paraoxanase, which is responsible for the metabolism of organophosphates in serum and is a determinant of their toxicity in humans.

4. linkage with the national cancer and mortality registries to determine all-cause mortality and cancer incidence in the veterans and comparison group relative to national levels.

This will be the longest follow-up of the health of Gulf War veterans internationally and will provide important insights into the longer term effects of deployment to a war zone.

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Electronic health record adoption: perceived barriers and facilitators

Cristina Cotea

While electronic health records (EHRs) promise to improve healthcare delivery, efficiency, quality and safety, these improvements will occur only if users and stakeholders have access to the key functions they expect, and use them regularly. To guarantee the success of an EHR system implementation, a good understanding of the factors that contribute to the adoption of EHRs is therefore essential. A literature review was conducted by the Centre for Military and Veterans' Health to identify the current knowledge related to perceived barriers and facilitators to EHR adoption.

This poster will provide an overview of factors affecting EHR adoption as perceived by users and stakeholders involved in EHR implementations, from an international perspective, in various clinical settings. While not all findings can be generalisable to the Australian context, they can be used as an inventory of commonly reported factors affecting EHR adoption to be considered when exploring change management strategies designed to increase EHR adoption for current national initiatives such as the Joint e-Health Data and Information System (JeHDI) project.

A review of the literature has identified several common themes: nine personal perceived barriers to HER adoption, five organisational barriers, seven perceived facilitators and ten EHR adoption predictors. Attitudes towards EHRs were also summarised by stakeholder type (primary care physicians, multispecialty physicians, nurses, patients and other stakeholders), as this presentation of the findings may be useful for devising EHR adoption strategies tailored to the needs of each stakeholder.

A summary of recommendations from the literature for addressing the perceived barriers will also be presented.

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