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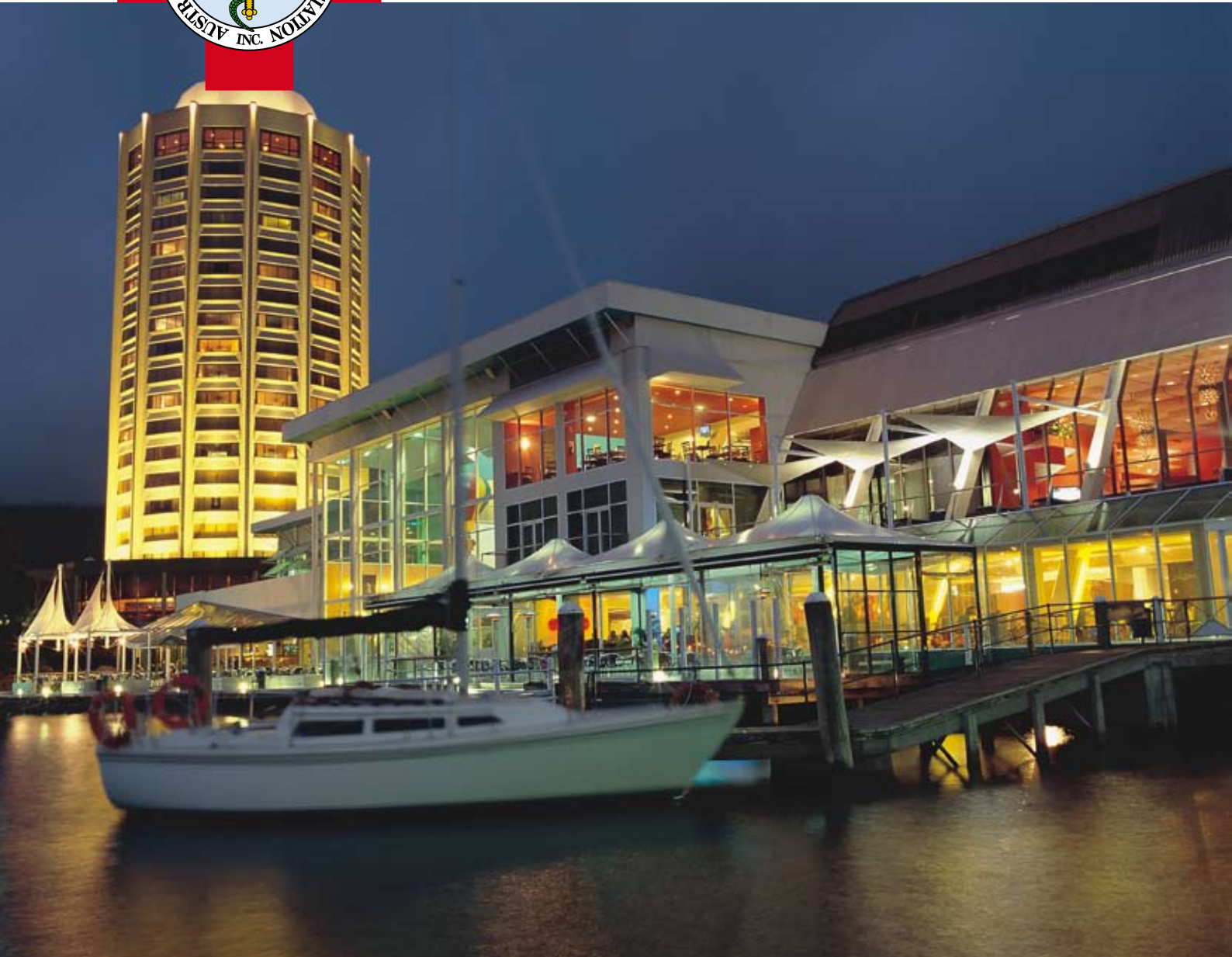
▪ Abstracts from the 2007 AMMA Conference

The Journal of the Australian Military Medicine Association





17th Annual AMMA Conference



Come to Hobart for the 17th Annual AMMA Conference and experience the beautiful scenery, wonderful people and gastronomic delights.

It will be held at the Wrest Point Conference Centre, Hobart, Tasmania from 17-19 October 2008.

The call for papers will be distributed in March 2008.

Registrations will open in April.

We look forward to seeing you in Hobart!

Journal of Military and Veterans' Health

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Inside this edition

This edition of the Journal is given over to the publication of the abstracts from a highly successful Association Annual Scientific Conference held in Melbourne in October 2007.

Around 70 papers were read from a wide range of international and local speakers ranging across all the health professions.

A full conference report follows the abstracts, highlighting the success and benefits to members and the disciplines of health and medicine in the military and veterans' contexts.

Journal of Military and Veterans' Health

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STATEMENT OF OBJECTIVES

The Australian Military Association is an independent, professional scientific organisation of health professions with the objectives of:

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

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

President's message

Another year has passed.

For psephologists, the six weeks of October and November were intriguing, with a result that was unclear to the last but ultimately became convincing. And so the next few years will be dominated by a Government of a different persuasion with some different strategic aims and directions.

Many of these are of only passing relevance (if not interest) to the Defence community and are similarly not critical to the military health professions. But some may be critical.

At the forefront will be the Government's strategic defence outlook and policy. There is already a clear difference in relation to Iraq, but much similarity with the remaining focus on Afghanistan. There is talk of a greater interest in our immediate region, and how this might play out in relation to troubled areas closer to home such as the South Pacific remains to be seen.

It can be expected that Defence capability will not change to a great extent, but the potential introduction of a separate Coastguard may have some implications in relation to maritime health care.

One initiative that was announced was the provision for free health care to be provided to Defence families, particularly in remoter Defence locations. How this develops in practice will be interesting to observe, as there will be key challenges of providing health care practitioners from a workforce that is already stretched thin across the nation.

Dependent care is a thorny issue for Defence Health Organisations around the world. It has been seen as one way of developing a Defence Health Service that is bigger and has a wider representation of specialties. In contrast, it is also seen as a potential liability as the political imperative to deliver care to dependents often impacts on the Services' ability to deliver operational health care.

Of course, in its current form, the proposal does not appear to be dependent health care in the sense described, but nevertheless the implementation of the proposal will be watched with interest.

The new Government has also committed to supporting a Lifecycle Approach to Mental Health that will seek to integrate the psychological and mental health needs of Defence personnel across the continuum of entry through to resettlement into civilian life.

This last proposal, transcending the active military member and the veteran, is remarkably congruent with the strategic focus that has been adopted by the Association's new Journal. We can therefore expect that the *Journal of Military and Veterans' Health* will contribute profoundly in supporting this continuum concept.

This year has also seen two important events for AMMA.

First was a highly successful conference. Building on the joint meeting in 2006, over 350 delegates attended a full three-day conference in Melbourne. By far the largest attendance at any stand-alone AMMA conference was treated to world-class international and national speakers as well as nearly 70 papers prepared and presented by Association members and others with an interest in military medicine. A full conference report is included in this journal.

The second event was the launch of this journal. Much has already been said and written about the *Journal of Military and Veterans' Health* and you are now holding the second issue. The Association has heavily invested in the Journal, aiming to take it to one of international standing. The journal web site - www.jmvh.org - complements the hard copy, with full access to each issue.

And so as we move into 2008, the Association can look forward to another year of success, with our conference in Hobart in October, and a continually evolving journal. We will continue to support and encourage the development of research and study across the spectrum of military medicine and veterans' health.

I trust you have all had a reasonable break, although I know some will have had to work and may have been separated from their families. I hope I will be able to catch up with many of you in Hobart.

Russell Schedlich
President, Australian Military Medicine Association

2007 AMMA Conference Abstracts

Trauma Control Surgery

Ortho/soft tissue DCS, US Vs Aust training

Greg Bruce

It is now four years since coalition forces occupied Iraq and battle injuries are occurring continuously. The U.S. defence forces now have good documentation and analysis of resulting casualties.

The evacuation system is very efficient and patients arrive for treatment very soon after injury. Soft tissue and skeletal injuries to the extremities occur in combination with multi-system injuries. This has required changes in management of extremity injuries. The principles have remained the same but the application is changing. There is more emphasis on initial treatment of the life and limb threatening features of extremity injuries and delaying definitive surgery until the general condition of the casualty is suitable. Debridement, external fixation and early amputation are the most frequent operations.

The information from the U.S. is supported by data and is driving the evolution of management of war injuries. It is important that the ADF has access to this data and seeks opportunities for training general and orthopaedic surgeons in U.S. facilities.

There are subtle differences in the clinical methods of U.S. and Australian orthopaedic surgeons which are partly cultural and partly training.

These casualties arrive in large numbers with multiple system injuries and multiple extremity injuries very soon after wounding. The ADF could face a similar situation during major combat or after terrorist bombing in an Australian city. The injuries and workload are quite different to that of civilian practice or humanitarian assistance.

Contact author: GPCAPT Greg Bruce, Defence Health Services, PO Box 1158, Hunters Hill, NSW, 2110
Email: gkbruce@tpg.com.au

Trauma-damage control surgery:

post-operative care

George Merridew

Aims in post-operative care after multiple trauma:

- Maintain the progress of substantial surgical and other treatments already given
- Seek then treat any additional problems as they develop

In military practice, those aims are addressed by conventional timely management in a surgical intensive care unit, pending evacuation to a higher level of care as soon as the patient is sufficiently stable and suitable transport medical capability is available. Typically, Coalition casualties from Iraq arrive at a US military hospital ICU in Germany by 24-36 hours after injury.

When given expert overall management, patients with severe multiple injuries can have a remarkably high survival rate. My observation in 2005 was that almost all post-operative patients at Balad Air Base (Iraq) reached Germany alive and had had few untoward events either in the Balad ICU or in flight.

The most common post-operative serious complication recognised at Balad appeared to be pulmonary embolism and that was despite assiduous prophylaxis. A more subtle problem was of multiply-resistant *Acinetobacter* species in patients in whom the organism was not isolated until after arrival in Germany or continental USA. *Acinetobacter* is a feared cause of hospital-acquired infection in the USA, but did not appear to cause us trouble, even in long-stay (Iraqi) patients in our Balad ICU.

Every day, an average of about 3 ventilated post-operative patients were delivered to Germany from Balad. Their smooth management reflects the disciplined application by specialist USAF Critical Care Air Transport Teams (CCATT) of their well-designed clinical protocols. Most transfers from Iraq to Germany are in C-17 Globemaster pure jet aircraft, with a flight time of 5 hours.

The ADF too aims for expert early surgical and post-operative care of critically injured patients, including their evacuation. The evolution of our AME capability includes:

- Accessing electricity from the C130 Hercules power system
- Acquiring C-17 aircraft to complement the RAAF C130 fleet
- Clinical experience in Iraq and Afghanistan
- CCATT training in USA of key ADF Health staff
- Establishing a CCATT-equivalent RAAF system
- Participation by the ADF in international and Australian national consultations with military and civilian groups with clinical, aviation and logistic expertise in prolonged transport of critically ill patients.

Contact author: GPCAPT George Merridew, PO Box 1328, Launceston, Tas 7250
Email: gans@a130.aone.net.au

Damage control head and neck surgery and the training of the military surgeon

Jeffrey Rosenfeld

Bomb blast causes combinations of blast injury, multiple penetrating injuries and burns. The injury pattern to the head and neck includes intracranial haemorrhage, brain swelling with multiple intracranial metal and bone fragments, cervical and facial vascular injury, pharyngo-laryngeal injury, acute airway compromise, facial and scalp burns, large scalp defects, and extensive skull base fractures. Head and neck teams consisting of neurosurgeon, head and neck (ENT) surgeon, ophthalmologist, and facio-maxillary surgeon are an integral part of the US Combat Surgical Hospitals in Iraq treating these often horrific injuries and serve as an excellent model of care for the civilian system. The principles of management include early tracheostomy, vigorous replacement of blood loss and correction of coagulopathy, nasal packing, neck exploration and management of carotid injury, early generous craniectomy, intracranial haematoma evacuation, removal of accessible fragments and debridement of devitalized cerebral tissue, ventriculostomy, duroplasty, and use of broad spectrum antibiotics. Repair of ocular injury or eye removal is often deferred. CT (if available) is invaluable for planning the extent of the neurosurgery and CT angiography is useful when cervical vascular injury is suspected. The timing and extent of the neurosurgery and facio-maxillary surgery must be

balanced against the relative priorities of the other injuries and the state of physiological stabilisation. The neurosurgery we have performed for these injuries is generally more extensive and aggressive than that which has been described for penetrating brain injury in the literature from previous wars. Civilian and military surgeons should become familiar with the injury patterns and management of bomb blast injury to the head, neck and spine. The challenge of training the generalist to manage these injuries in an austere isolated location will be presented.

Contact author: BRIG Jeffrey Rosenfeld
428 Dandenong Road, Caulfield North, Vic, 3161
Email: j.rosenfeld@alfred.org.au

Clinical priorities of perioperative care supporting damage control - the chain of survival for battlefield trauma

Sandy Zalstein

Despite protective countermeasures and enhanced protection, in current conflicts casualties suffer multiple mechanisms of high energy traumatic injury: high velocity penetrating wounds, compressive blast injury and burns. For these patients, the continuum of care involves measures to address reversible causes of death before during and after life-saving damage control surgery (DCS). At each stage correct application of the priorities of care permit patient survival, as they set the scene for continuous and ongoing expert clinician led clinical care in the next stage. The challenge for the prototypic Australian Defence Force DCS capability of the future is to eschew conventional linear echelons of care, and establish a system that delivers these patients rapidly from the field to specialist care, to which critical care physicians can contribute. This specialist led trauma service is clinically robust, with clear areas of specialist responsibility, strong clinical governance and operationally sound.

In the field, at the point of injury, non-physician operator/health providers trained in tactical medicine provide tactical combat casualty care in three phases.

During "Care under Fire", medical options are limited, but include tourniquet application to stop life threatening haemorrhage and haemostatic dressings, with deferment of airway management. During "Tactical Field Care" away from effective fire, medical efforts include limited airway procedures, needle thoracentesis of suspected tension pneumothoraces, and intravenous fluid bolus administration only for

shock with controlled external bleeding, or to maintain mentation in patients with uncontrolled haemorrhage from penetrating wounds of the chest or abdomen. In the "CASEVAC Care" phase first contact with expert clinicians and advanced life support commences.

Satisfactory rotary wing aero-medical evacuation forward of medical treatment facilities and inter-facility transfers is dependent on expert, credentialed clinicians capable of providing a critical care service in an austere environment. Priority of care involves preventing additional mortality and morbidity through failure to manage ventilatory and haemodynamic support needs, whilst attending to preventable risk factors for the coagulopathy of trauma and resultant exsanguination.

On reception in the MTF resuscitation is conducted on damage control principles, with initiation of life support, then rapid transfer to the operating theatre for damage control surgery and resuscitation.

Determination of the surgical priority of effort depends on robust radiology support. Whilst ultrasound is well established in ADF expeditionary health teams, high resolution CT scanning, "C-arm" image intensifier for orthopaedic and vascular injury angiography, on-site interventional radiology and 24 hour specialist reporting facilitate DCS and ongoing care. General care involves attention to the lethal triad of acidosis, hypothermia and coagulopathy, with targeted resuscitation, warming and transfusion support services capable of supporting haemostatic resuscitation with both stored blood components, as well as fresh whole blood. Adjuvants and novel haemostatic agents contribute. Massive transfusion protocols integrate the process.

Contact author: CAPT Sandy Zalstein, Bendigo Health Care Group, PO Box 126, Bendigo, Vic 3552
Email: szalstein@bendigohealth.org.au

Psychology 1

Psychological support to high risk groups: a review of the challenges faced in the middle east.

Neanne Bennett, Melissa Harries

It has been widely recognised that military service places personnel at risk of developing mental health conditions. Within the ADF, certain groups have been identified as being at higher risk of exposure to trauma due to the nature of the work they are involved in. Given the research that presently exists relating to exposure to trauma and the association with mental health conditions, such groups are monitored closely in an effort to ensure they are coping with the demands of their tasks. This paper reviews the psychological challenges faced by ADF personnel who are routinely involved with tasks that frequently involve exposure to events of a potentially traumatic nature which includes, but is not limited to, exposure to grotesque sights and smells, exposure to indirect and direct fire, IED threats, potential body handling, and information gathering under extreme conditions. Case studies and examples from the Middle East Area of Operations will be discussed as will the level of psychological support provided to these personnel. The ability and likelihood of enhancing and preparing high risk groups for combat environments will also be considered.

Corresponding author: MAJ Neanne Bennett, 1 Psych Unit, Department of Defence
Email: neanne.bennett@defence.gov.au

Temporal relationships between war deployment and subsequent psychological disorders

Dean McKenzie, Helen Kelsall, Andrew Forbes, Jillian Ikin, Malcolm Sim, Mark Creamer, Alexander McFarlane

Introduction: Although there has been a substantial body of literature on psychological health in veterans of the 1990/1991 Gulf War, there has been little research into the pattern of post-war onset and temporal progression of psychological disorders such as alcohol abuse or dependence, major depression and PTSD, in this or other veteran groups. Our study aimed to examine the progression of psychological disorders developing in Australian veterans post-Gulf War, in order to identify their sequence, the period in which they are most likely to develop, and whether this differs according to potential risk factors such as military rank.

Methods: The Australian Gulf War Veterans' Health Study included the retrospective collection of CIDI DSM-IV diagnostic and age of onset data on 1,232 male Royal Australian Navy Gulf War veterans. Analyses included discrete time survival analyses.

Results: Alcohol abuse or dependence is the most frequent psychological disorder to appear post-Gulf War, followed in frequency by depression and PTSD. In veterans with two or more post-Gulf War diagnoses, anxiety disorders, and alcohol disorders, tend to precede affective disorders.

When timing of post-Gulf War symptom onset is divided into four-year phases, symptoms peak in the first four years and then subside. Statistically significant interactions, involving phase and rank, and phase and time of deployment, were observed.

Discussion: These findings may aid veteran and defence organisations in the planning of effective mental health management and prevention policy, particularly in regard to symptoms of alcohol misuse or avoidant behaviours, which may lead to further psychological ill-health.

Corresponding author: Dean McKenzie, Centre for Occupational and Environmental Health, Department of Epidemiology and Preventive Medicine, Monash University, Melbourne, Vic 3000
Email: dean.mckenzie@med.monash.edu.au

Model of deployment factors affecting mental health of deployed Australian Defence Force (ADF) personnel
Cherie Nicholson

Mental health support among deployed ADF personnel continues to be a major priority for the ADF. This

support takes many forms including a debriefing process which uses a questionnaire to screen recently deployed personnel for mental health issues. The questionnaire is administered to personnel as they return home from deployment and a similar version is administered several months later to follow-up on their reintegration. The questionnaire includes several measures of psychological health, some basic demographic items and questions surrounding personnel's perceptions of the deployment.

Based on a review of the current literature, a model was developed that made hypotheses about the impact of traumatic events, morale, and the deployment experience on psychological well-being and reckless behaviours such as alcohol consumption. Relationships within the model were examined for personnel who were exposed to trauma and the results are discussed. It was also hypothesised that external factors, in this case the presence of a marital relationship, may have a greater impact on mental health outcomes than more traditional predictors.

Contact author: Cherie Nicholson, Psychology Research and Technology Group, Department of Defence, CP2-5-075, Campbell Park Offices, Campbell Park, ACT 2600
Email: cherie.nicholson@defence.gov.au

Operational Health

Provision of commercial AME solutions into an operational environment
Glenn Keys

Background: Aspen Medical has established itself as the pre-eminent Australia supplier of operational and project based health in the region. A key component to operational support is the ability to be able to evacuate patients either within an area of operations to a major healthcare facility, or from that healthcare facility back to a secure home base, such as Australia.

This paper discusses a range of issues relating to AME services within and from an area of operations, the use of civilian versus military AME capability, the issues relating to the use of civilian AME teams on military aircraft, and uses the recent events in Solomon Islands, Timor Leste and EXERCISE Talisman Sabre as case studies.

Aspen Medical has been contracted to provide AME services, along with all other required healthcare and environmental health services, to Australian

Government personnel in the Solomon Islands since 2004, Timor Leste since 2006 and for EXERCISE Talisman Sabre in from Mar to Jul 07.

Each AME requirement has very different needs and operational impacts that need to be considered and factored into the provision of services. Also Defence assets are becoming increasingly stretched due to operational demands, increased operational tempo and training requirements and increased flying hour costs, coupled with a Defence wide shortage of AME trained healthcare professionals.

Case Study 1 - Solomon Islands AME

This paper discusses the specific conditions of the AME requirements, including site specific issues, including:

- Original AME requirement (both tactical and strategic);
- Changing AME requirement due to long term deployments and changing demographic; and
- AME requirements during periods of high operational instability.

Case Study 2 - East Timor AME

This paper discusses the specific conditions of the AME requirements, including site specific issues, including:

- AME rollout combined with very rapid operational deployments;
- Requirement for Civilian AMEs teams to fly in both military and civilian AME aircraft;
- Integration of Military personnel into Civilian AME Teams in support of Defence activities; and
- Operating environment.

The current situation and services are then discussed and the future for continued support.

Case Study 3 – Exercise Talisman Sabre AME

This case study looks at AME support for a major Defence Exercise in a very remote location, including:

- Ability to respond immediately
- Flexibility to respond to as the operational situation dictated
- The use of multi-skilled personnel
- Provision of all logistics support (such as aircraft, fuel, airfield lighting, accommodation, catering, travel etc) in support of this task

What does the future hold

Paper summarizes the following:

- The ability for a commercial health provider to support ADF operations through the provision of a flexible and adaptable AME service;
- The ability to relieve the ADF of the constant requirement for the deployment of their limited health assets and expensive Aviation assets;
- The option for ADF Health Personnel to be embedded in a commercial AME contract to allow management by a commercial provider but still offer ADF personnel the opportunity for AME activities;
- Engagement of commercial AME providers in disaster planning in support of the ADF;
- The development of AME's service requirements in advance of ADF deployment requirements so that there can be easily deployed assets; and

- The increasing demand for harmonization of skills and training requirements between ADF and Civilian standards.

Contact author: Glenn Keys, Aspen Medical, Box 5108, Braddon, ACT, 2602
Email: gkeys@aspenmedical.com.au

Multi-trauma in Afghanistan, a pictorial essay

Anthony J Lourensen

Multiple trauma with serious injuries due to high-velocity gunshot wounds, improvised explosive devices and burns can be the norm rather than the exception in certain areas of Afghanistan. The number of victims often temporarily overwhelms the capacity of both smaller and larger medical facilities, and become by definition mass casualties. This situation can be further complicated by the presence of up to four different languages being spoken at any one time by victims and medical staff, different medical systems, different medical terminology, different medical equipment and different drug names.

The victim's cultural norms can also add complexity to trauma management, along with delayed presentations, and the presence of paediatric trauma is a further challenge to Australian medical officers who have no formal military training in paediatrics.

The author shares his experience of six weeks working with the Dutch medical facility at Tarin Kowt and the Canadian led multinational medical facility at Kandahar. This will include point of wounding details, evacuation, resuscitation and aeromedical evacuation, along with medical leadership issues. Notable cases include an IED incident involving own (Dutch) troops – highlighting the emotional factor when the victims are well known to the medical staff, paediatric airway burns and an overwhelming mass casualty due to a helicopter crash – with 14 priority one casualties presenting to the facility.

Contact author: Dr Anthony J Lourensen, CHP Leeuwin Barracks, East Fremantle WA
Email: tonylee@global.net.au

Abstracts

From ATH to EHF: developments in Royal Australian Air Force expeditionary health

Tracy Smart

Air Force (AF) operational health requirements have undergone a major change in recent years. Before 1999, the focus was on base health care, aviation medicine and occasional aeromedical evacuations (AME). While exercise deployments were common, operational deployments were extremely rare. Since the commencement of operations in Timor Leste, ADF health personnel have been continuously deployed on a wide range of operations, both within our region and beyond. Lessons learned from operations such as Bali and Sumatra Assist have included the necessity of a rapidly responsive mass casualty evacuation capability, formalised critical care in the air, flexible health planning and the benefits gained by health personnel of the three services working together to provide an overall ADF health response. These experiences have necessitated a major overhaul in all aspects of AF operational health. Previous capabilities were based around fixed airbase support elements such as the Air Transportable Hospital (ATH) and lacked the flexibility to meet the demands of the new global environment. The AF expeditionary health system involves the deployment of a modular Expeditionary Health Facility (EHF) tailored to the requirements of the mission - from EHF level 1 support to flying squadrons, to an EHF3 with basic surgical and critical care capabilities. While designed for its core role of airbase support, it can be tailored for other requirements. Not only has this new system improved AF's ability to undertake its core operational roles, but it has resulted in greater flexibility and a better overall health capability for the ADF.

Contact author: GPCAPT Tracy Smart, RAAF Amberley, Qld, 4306
Email: tracy.smart1@defence.gov.au

An "online period in the life" of an Air Force Health Squadron

Michele Walker

1 Air Transportable Health Squadron (1ATHS) at RAAF Base Amberley is one of the three deployable Air Force Health units. The unit was on line from the beginning of March until the end of Jun 07. This presentation will provide an overview of the multiple taskings the unit received and met during this 4 month period. As well as supporting numerous exercises and medical support tasks, including the provision of personnel for strategic AME, the unit deployed a significant number of personnel on two operations. "Operation Hat Trick" as it was informally known, saw personnel deploy initially to Timor, then Yogyakarta in response to the Garuda Airlines accident, followed by a period on cyclone alert back to Darwin. Three weeks later 1ATHS deployed an Expeditionary Health Facility level 2 (EHF2) as part of Operation Solomon Assist, the ADF response to the Solomon Islands tsunami. The team was deployed to the village of Sassamunga on the island of Choiseul where due to the remoteness of the location logistics became a huge challenge. As a result this deployment was dubbed "Operation Hump a lot of Stuff". Finally, this presentation will also touch on the challenges we faced in trying to balance our operational commitments with NSA health care requirements.

Contact author: WGCDR Michele Walker, CO 1 Air Transportable Health Squadron, RAAF Amberley, Qld, 4306
Email: michele.walker@defence.gov.au

Research and Ethics

Practical application of ethics submissions in Defence Health Research

Graeme Shirtley, Graeme R Cannell, John J Morrison, Rosemary Landy, Robert Starr

Submission of research protocols to a Human Research ethics Committee (HREC) for approval requires the provision of a considerable amount of supporting documentation and information. Commonly, one

is required to provide the research protocol, subject consent form, background summary, and details of any elaborate research tools or techniques to be employed. Over the years HRECS have developed ad hoc submission documents in the form of questionnaires or aide memoirs designed to facilitate not only the submission by the researcher but the review process by the HREC.

HRECs in Australia are established in accordance with

the principles and guidelines defined by the National Health and Medical Research Council (NHMRC) – principles which cover areas such as composition of members and the information which an HREC should consider when deciding whether to approve a research proposal in human health. Defence Health Services (DHS) established its HREC in 1987. The Australian Defence Medical Ethics Committee, since renamed the Australian Defence Human Research Ethics Committee (ADHREC) is constituted in accordance with the National Statement on Ethical Conduct in Research Involving Humans (NHMRC 1999). The new National Statement on Ethical Conduct in Human Research (NHMRC 2007) states that it must also ensure human research in Defence is in accordance with the Australian Code for the Responsible Conduct of Research (NHMRC, Australian Vice Chancellors' Committee), the revision of the 1997 document, which has not yet been published.

HRECs in Australia have, over the past 20 years, developed a number of formats where research submissions to several different committees were in very different formats. In addition, the current ADHREC Submission Form (as outlined in ADFP 1.2.5.3) was introduced in 2001, and in recent years the nature and complexity of research projects has changed considerably. In 2005 the NHMRC began the NEAF (National Ethics Application Form) project, designed to standardize the format and information required for HREC submissions and simplify the process of both submission by researchers and review by committee members.

Work is currently underway to develop a revised ADHREC submission form and incorporate the changes proposed by the NEAF and incorporated by a number of Area Health Services throughout Australia. The format will be designed to facilitate submission in a clear, logical format that is both easy to complete and straight-forward to review. Internal checks and checklists will be included. Provision will also be made to handle future likely areas of research for Defence.

*Corresponding author: LTCOL Graeme Cannell, Centre for Military and Veterans' Health, Mayne Medical School Building, Herston Road, Herston, Qld, 4006
Email: g.cannell@uq.edu.au*

Scientific review of research proposals to Australian Defence Human Research Ethics Committee (2005 - 2007)

Graeme R Cannell, John J Morrison, Graeme Shirtley, Cate D'Este, Rosemary Landy

The responsibility for the institutional review of research projects rests ultimately with the institutional Human Research Ethics Committee (HREC). HRECs in Australia are established in accordance with the principles and guidelines defined by the National Health and Medical Research Council (NHMRC). Requirements are set out for:

- institutions or organisations in establishing HRECs;
- researchers in submitting research proposals to HRECs; and
- HRECs in considering and reaching decisions regarding those proposals and in monitoring the conduct of approved research.

Institutions through the relevant HREC need to satisfy themselves of the scientific validity, scientific relevance, and ethical conduct of a research proposal before giving approval to proceed. With the growing number and complexity of research submissions in recent years, most Australian HRECs have found it necessary to establish some mechanism for the review of scientific content of research projects. This has included referring submissions for expert scientific opinion, or the establishment of HREC subcommittees to review scientific content or specific content related to the use of therapeutic substances or devices.

The Australian Defence Human Research Ethics Committee (ADHREC) was established by DHS in 1987 in accordance with the National Statement on Ethical Conduct in Research Involving Humans (latest version: NHMRC 2007). In 2005 it was recognized that there was a need for some form of scientific review of research projects. Two reserve health service officers were requested to review the scientific content of research submissions as required prior to approval by ADHREC. Both officers are professional research scientists holding higher qualifications, as well as adjunct professorial appointments, and bring considerable (more than 30 years each) of research experience to the task.

Submissions have been reviewed for a number of factors including –

- Scientific Design – including stated aims, schedule of assessments, statistical analysis plan, and power calculation
- Benefits to Defence
- Significance and Innovation

The scientific standard of submissions reviewed has been generally very good. However, a number of deficiencies have been identified, including –

- Lack of clear aim
- Unnecessary assessments, or assessments inadequate to elicit the stated objective of the proposal,
- Inadequate or non-existent sample size estimate
- Work that has already been conducted
- Work that represents no benefit to defence.

This presentation will focus on the specific deficiencies identified over the past two years, especially those that occur on a frequent basis.

*Corresponding author: LTCOL Graeme Cannell, Centre for Military and Veterans' Health, Mayne Medical School Building, Herston Road, Herston, Qld, 4006
Email: g.cannell@uq.edu.au*

Ethical issues identified from the review of research proposals by the Australian Defence Human Research Ethics Committee (ADHREC) 2005 – 2007.

Graeme Shirtley, Graeme R Cannell, John J Morrison, Rosemary Landy

The responsibility for the institutional review of research projects rests ultimately with the institutional Human research Ethics Committee (HREC). HRECs in Australia are established in accordance with the principles and guidelines defined by the National Health and Medical Research Council (NHMRC) Requirements are set out for:

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- HRECs in considering and reaching decisions regarding those proposals and in monitoring the conduct of approved research.

Institutions through the relevant HREC need to satisfy themselves of the ethical conduct of a research proposal before giving approval to proceed. The NHMRC National Statement on Ethical Conduct in Research Involving Humans states that the primary role of an HREC is to protect the welfare and the rights of participants in research. ADHREC routinely reviews at least 50 submissions per year. As such, they are aware of a number of ethical issues of which researchers should be aware. These include -

- Recruitment/Consent - must include sufficient opportunity for subject consideration, minimized possibility of coercion, language understandable to subject, no language waiving or appearing to waive the subject's legal rights, and no language releasing sponsor, institution or researcher from liability for negligence
- "Captive" Nature of Defence personnel - Defence personnel are in dependant, hierarchical relationships. The NHMRC classify defence personnel as "At Risk" subjects.
- Quantitation of risk
- Benefits to Defence - ADHREC has also recognized the potential for exploitation of ADF personnel and the ADF generally
- Command approval - Before any research project involving defence personnel is undertaken appropriate Command approval must be obtained.
- Out of session approvals - Like all HREC's in Australia, ADHREC publishes well in advance a list of its proposed meeting dates.
- Project funding and support - Defence faces the same pressures as other organizations in minimizing overheads and expenditure. The conducting institution must not be required to 'subsidize' research projects or end up contributing resources (especially personnel) which are not reimbursed.

This presentation will focus on the specific deficiencies identified over the past two years, especially those that occur on a frequent basis.

*Corresponding author: LTCOL Graeme Cannell, Centre for Military and Veterans' Health, Mayne Medical School Building, Herston Road, Herston, Qld, 4006
Email: g.cannell@uq.edu.au*

Abstracts

Towards a framework for military health ethics: a CMVH think tank

Tracy Carthew, Gervase Pearce, Peter Saul

The Centre for Military and Veterans' Health (CMVH) is an academic centre jointly funded by the Department of Defence (Health Services) and the Department of Veteran' Affairs (DVA). The broad aim of CMVH Think Tanks is to identify and design opportunities to address health and performance related issues within the military and veterans' community.

Military health practitioners (doctors, nurses, medics and others) work in complex cultural environments where the traditional values of the health profession may come into conflict with operational military commanders with whom they operate and support and which are often further complicated by joint operations with international partnerships (allies). Specific recent global and national events have raised the issue of military health ethics for the Australian Defence Health Services (DHS).

In October 2006 CMVH invited key leaders from Defence Health, Defence Command, Veterans Affairs and other key stakeholders to identify:

- health ethics issues in the military which cannot be controlled through policy development and implementation by DHS alone;
- options for a conceptual framework for health ethics for consideration by Defence overall (ie not just DHS);
- examples of best practice in military health ethics at the organizational level.

The Think Tank's task was not to determine policy, but rather create a conversation around military health ethical issues such that it could provide an input to policy.

This presentation will address the main outcomes of the Think Tank and the areas identified for future deliberations.

*Corresponding author: CAPT Tracy Carthew, Centre for Military and Veterans' Health, Mayne Medical School Building, Herston Road, Herston, Qld 4006
Email: tracy.carthew@uq.edu.au*

Equipment Developments

Individual water purifiers for the warfighter

William J. Bettin, Arthur H. Lundquist

Warfighters need ample supplies of safe, drinkable water to fight and win on the battlefield. In cases where they do not have access to military-provided drinking water, they must rely on emergency individual water purifiers (IWP) to meet their drinking water needs. Current military-issued emergency water purifiers work slowly, and may produce microbiologically unsafe water. Commercial vendors have marketed alternate purifiers to the military, but none have been systematically tested by the U.S. Military. To remedy these shortcomings and to better protect warfighter health, the U.S. Army Center for Health Promotion and Preventive Medicine's (USACHPPM) Water Supply Management Program performed an in-depth study of commercial off-the-shelf individual water purifiers in order to develop simple, direct recommendations for the warfighter. The study team assessed 68 IWPs

produced by 27 different manufacturers. As part of this effort, USACHPPM developed specific scenario-dependent recommendations for "best" IWPs. Beyond reducing water-borne microbial pathogens, a "best" IWP also had to be small and lightweight; purify quickly; purify turbid (cloudy) waters; not make the water smell or taste bad; be simple to use; and be durable under field conditions. The study team developed its recommendations through an operational analysis, followed by a multi-attribute decision model analysis, which was performed by two multi-service, interdisciplinary, intradepartmental expert panels. The USACHPPM has presented the results of this study, as well as a web-based interactive IWP decision tool, at <http://usachppm.apgea.army.mil/WPD/>.

*Corresponding author: Major William Bettin, U.S. Army Exchange Officer to Directorate of Military Medicine, Defence Health Services, Campbell Park, ACT,
Email: william.bettin@defence.gov.au*

Development of a hot weather ration pack

Charina Kullen

Previous research has shown that for most exercise in hot weather, sensible drinking and eating behaviours can replace fluid and electrolyte deficits. However, it has been estimated that troops typically discard up to 40% of issued combat ration pack (CRP) food items, putting them at risk of not only decrements in physical and cognitive performance but also deficiencies of micronutrients and macronutrients.

As part of the Heat Injury Remediation (HIR) project, Army has requested that DSTO develop a Hot Weather Ration Pack (HWRP) that is both palatable and satisfies the nutritional requirements of ADF members operating in hot environments.

The HWRP project being conducted by DSTO-Scottsdale aims to identify, evaluate and provide Army with a prototype HWRP ready to be field tested by March 2008.

This presentation will describe all aspects of the project, including the nutritional specifications for a HWRP, the results of the 2007 HWRP Acceptability Survey and the results of a field trial conducted at Cultana Training Area in March 2007 aimed at determining nutritional intake and acceptability of the current Combat Ration One Man (CR1M). The presentation will also preview the proposed HWRP menus and future HWRP study design.

Contact author: Ms Charina Kullen, Defence Science and Technology Organisation (Human Protection & Performance Division), 74 George Street, Scottsdale, Tas, 7260
Email: charina.kullen@defence.gov.au

Bench testing PneuPac Ltd's compPAC 200, a new field ventilator

George Merridew, FRACGP FANZCA FFPMANZCA, RAAFSR; Sarah Hedges MBBS; Kyril Belle BE

The compPAC 200 (PneuPac Ltd, UK) is a robustly-built portable field ventilator designed for Intermittent Mandatory Ventilation (IMV) of patients weighing > 35 kg and is in use by military forces of several countries. The ventilator's circuit is simple; it delivers oxygen, ambient air or mixtures via a plain hose and Laerdal non-rebreathing valve \pm PEEP valve.

A feature of this ventilator is of being powered either electrically or by compressed oxygen. When powered by oxygen and set on "No Air Mix" the delivered

FiO₂ is 100% and on "Air Mix" 45%. On electrical power, the FiO₂ is adjustable from 21% to 65%, using supplementary oxygen up to 4 L/minute at any pressure above ambient. The electrical power system can use any AC or DC current to charge the ventilator's 2-hour Clansman internal battery.

All components are supplied along with a sturdy hard plastic suitcase-style transport box.

We extensively bench tested the compPAC 200 by ventilating a standard electronic model lung. We confirmed the comparable performance data in the Owners' Manual. In addition, we showed:

1. The compPAC 200 gives paediatric and neonatal IMV if a variable pressure-relief valve (PR100, Ulco Engineering P/L NSW; \$700) is in the circuit between ventilator and test lung.
2. Electrically-powered IMV of a simulated ICU adult patient with stiff lungs for 112 continuous hours revealed no drift in performance of the ventilator.

Conclusions

1. As supplied, the compPAC 200 is suitable for IMV \pm PEEP of adult and adolescent patients, for days if necessary. In addition, with a simple modification it also suits children and neonates.
2. It has many other desirable features for IMV use in the field and no obvious disadvantages

Corresponding author: GPCAPT George Merridew, Depts. of Anaesthesia & Biomedical Engineering, Launceston General Hospital, Tasmania
Email: gans@a130.aone.net.au

Defence recruiting colour vision study - phase one

John Parkes, CSC, Peter Nasveld, Barry Cole AO, Ruth McLaughlin, Jenny Firman

Congenital red/green colour vision defects affect around 8% of males reducing the pool of personnel available for recruitment into the Australian Defence Force. Current ADF Colour Perception standards have, in the most part, been in place since World War 2, and their current relevance is questioned. This paper reports Phase One of an investigation of the validity of the standards applying to electrical and mechanical trades in the ADF by the Centre for Military and Veterans' Health (CMVH) and comprises: a literature review, a risk assessment, and a proposal for research to determine an appropriate screening protocol.

A limited risk assessment of ADF electrical and

mechanical trades in relation to their Colour Perception Categories was conducted. This showed:

- Some occupations involve tasks with complex use of colour, detailed recognition of surface colour codes or recognition of signal lights. It is unlikely that the Colour Perception Categories for these occupations would be lowered. (Level 1 occupations)
- Some occupations involve tasks with less complex use of colour and where the recognition of surface colour codes is less detailed. These occupations might well be considered for a more lenient,

intermediate standard (referred to as CP2B in the discussion in the literature review). (Level 2 occupations)

- Other occupations appear to have little need for colour vision ability. These occupations might well be considered for removal of the colour vision requirement (that is, made CP3). (Level 3 occupations)

*Corresponding author: Adjunct Professor John Parkes, Level 3, 535 Flinders Lane, Vic, 3000
Email: john_parkes@bigpond.com*

Trauma

Cautionary tales in sports rehabilitation medicine

Tony Delaney

Case 1

When Low Back Pain is not quite Low Back Pain

A 39 yo RAAF member was referred with low back pain of gradually increasing severity. The pain apparently started after falling from a log in 2004, although he had experienced low back pain since 2000. Analgesic, NSAID medication, physiotherapy had no effect. Clinical examination and MRI of the Lumbosacral spine were unremarkable. The pain was worst in the early morning and the member had dry irritable eyes and constipation. Review of earlier plain X-rays of the spine revealed fluffy, cystic changes of the upper sacro-iliac joints. A brief review of ankylosing spondylitis and other seronegative arthropathies will be presented.

Moral: Most low back arises from discs, meninges or facets. A history of trauma may be incidental to the presenting pathology.

Case 2

Shoulder Pain

A 50 yo sailor was referred with 4 week history of left shoulder pain and weakness -TMU Sea., Provisional diagnosis -rotator cuff tendinitis.

Examination revealed normal cervical spine, Supraspinatus, subscapularis power was normal. Apprehension and O'Briens tests were normal. Power in Left infraspinatus was 0/5. There was a history of flu-like illness 2 weeks prior to the onset of symptoms. MRI and nerve conduction studies confirmed a denervation pattern in Left infraspinatus, confirming the diagnosis of brachial neuritis and suprascapular nerve mononeuropathy.

Moral: Not all shoulder pain in the 50s plus is rotator cuff or frozen shoulder.

Case 3 and 4

Two soldiers were referred with increasing arm numbness and weakness during pack marching. They found they had to hitch their rifles over their webbing. They were unable to perform fine motor skills i.e. operate weapons, until some minutes after dropping their packs.

Roos test in case 1 demonstrated subclavian artery entrapment.

A treadmill pack march with case 2 revealed subclavian venous entrapment.

Moral: Functional thoracic outlet syndromes have operational implications.

*Contact author: COL Tony Delaney, Chair, ADF Musculoskeletal Medicine Consultative Group, Building 87, Victoria Barracks, Oxford Street, Paddington, NSW, 2012
Email: Tony.Delaney@defence.gov.au*

The use of tourniquets in the Australian Defence Force

James Marcus McLean MBBS, Robert Atkinson MBBS, MA, DCH, FRACS FAOrtho, Luke Mooney MBBS, Susan Neuhaus PhD MBBS FRACS,

The value of the tourniquet in an exsanguinating patient on the battlefield is irrefutable. However, there remains controversy regarding the use of tourniquets in patients with poorly controlled haemorrhage and in those where evacuation may be prolonged.

Issues regarding tourniquet use in large frontline

operations have been raised in the recent literature, and recommendations based on these experiences have been implemented by US Forces. However, the application of this experience to Australian Defence Force (ADF) deployments remains controversial.

Most ADF Specialists agree that combat tourniquets are a potentially life-saving device, however there remains divided opinion regarding their implementation. Between Units, Corps and Forces, there has not been a unified approach to tourniquet indication, training or implementation. The suitability of introducing tourniquet guidelines for ADF personnel being deployed on operations has been raised, given the spectrum of combat casualty, and variation in time and distance to reach a treatment center.

This paper discusses the history of tourniquet use on the battlefield. After consultation with senior medical ADF Specialists, we propose a model for the appropriate use of battlefield tourniquets.

Contact author: Dr Luke Mooney, Dept of Orthopaedic Surgery, University of Adelaide, Modbury Public Hospital, Smart Road, Modbury, SA, Australia, 5092
Email: luketmooney@gmail.com

Maxillofacial injuries -
highlights and caveats
Darryl Tong

Maxillofacial injuries are common both in civilian and military medical practice and range from simple fractures to significant avulsive type wounds. Although often non-life threatening, injuries to the face nonetheless carry a significant emotional and psychological impact for the patient in addition to their surgical needs.

Furthermore, with the advent of modern tactical body armour offering better protection for the torso, the face and extremities remain vulnerable to ballistic injury. With this increased likelihood of injury, the initial management of maxillofacial trauma becomes an important part of resuscitation team training.

This presentation aims to provide an overview of maxillofacial trauma management including surgical anatomy, patterns of injury, other injuries associated with maxillofacial trauma and principles of stabilisation and reconstruction.

Contact author: MAJ Darryl Tong, University of Otago, PO Box 647, Dunedin, New Zealand
Email: darryl.tong@stonebow.otago.ac.nz

Haemostatic and damage control resuscitation: addressing the coagulopathy of exsanguinating trauma

Sandy Zalstein

Method: The author deployed to Afghanistan as part of the Australian Defence Force (ADF) contribution to the International Security Assistance Force (ISAF) during the period November 2006 to January 2007, and participated in developing a Massive Transfusion Protocol (MTP) in a North Atlantic Treaty Organisation (NATO) field hospital. Massive Transfusion Protocols (MTPs) are institutionally based approaches to provide for the transfusion and resuscitation requirements of exsanguinating patients. On return to Australia, the author reviewed and compared Australian MTPs with practice in Middle East conflicts.

Results: The MTPs reviewed in Australian civilian centres show substantial variability in the absence of a definitive evidence base or consensus guidelines.

Discussion: Haemostatic resuscitation (HR) is the management of transfusion requirements to prevent and treat coagulopathic bleeding in exsanguinating trauma patients. The trauma patients of concern are those with non-compressible haemorrhage not amenable to control by local measures, including tourniquets and haemostatic dressings. The coagulopathy associated with coagulation factor-deplete crystalloid resuscitation of exsanguinating trauma patients is a component of the lethal triad including acidosis and hypothermia. HR involves combining multiple aspects of haemostatic support as an element in the "bundle" of therapeutic interventions to address this triad, as part of a damage control approach.

HR principles may be used to shape MTPs for ADF use, and have increasingly been applied by multinational forces deployed to the Middle East and other conflicts abroad.

Options for a prototype MTP for ADF use and investigation are presented: triggers; a resuscitation plan with 1:1:1 transfusion of packed red blood cells, plasma and platelets mimicking whole blood; adjuvants including cryoprecipitate, calcium, recombinant activated factor VII, and strategies to reverse acidemia related changes in the function of coagulation factors; resuscitative end-points; and exit points from the MTP.

Contact author: Dr Sandy Zalstein Intensive Care Unit, The Bendigo Hospital, Bendigo, Vic, 3552
Email: szalstein@bendigohealth.org.au

Health Surveillance

Risk analysis and injury surveillance of the Ground Based Air Defence (GBAD) trade

Renee Attwells, Alison Laing, Rodney Pope, Evelyn Graham, Dan Billing

Workplace injuries result in considerable cost to the ADF. They also comprise an often preventable and significant setback to retention within the ADF. A trade-task risk analysis and trade related injury snapshot of the GBAD trade was completed. The risk analysis utilised subject matter expert advice, and observational analysis of data collected during simulated in-role deployments and formal exercises. The major high risk activities identified were heavy load carriage over sustained duration, heavy lifting, and deploying/storing camouflage nets on the top of vehicles. Risk mitigation strategies were developed and included trade-specific manual handling guidelines, recommendations for equipment use and/or modification, and changes to standard operating procedures to ensure appropriate distribution of load across personnel.

Accompanying the risk analysis was the Snapshot Injury Surveillance Tool. GBAD soldiers (n=55) were surveyed to assess the number of separate injuries carried and, for a maximum of two injuries, the location, severity, nature and length of carriage of each injury. Participants nominated the activity engaged in when each injury occurred, allowing differentiation between trade-task related injuries and those sustained during sport and other non-trade activities. Thirty soldiers reported carrying a total of 44 injuries, with one in five soldiers carrying a trade-related injury. These trade-related injuries appeared to be chronic, with an average sustainment duration of 558 days (152 – 326 days).

Information gained from this process has allowed the GBAD trade to begin to implement additional risk mitigation strategies. A further injury snapshot is planned to assess the success of these strategies in the future.

*Corresponding author: Renee Attwells, Human Protection and Performance Division, Defence Science Technology Organisation, 506 Lorimer Street, Fishermens Bend, Vic
Email: renee.attwells@dsto.defence.gov.au*

An international comparison of approaches to health surveillance in military populations

C McClintock, L Neilsen, C Barton, A McGuire, C Loos, S Treloar, A Dobson

Historically the long term health impacts of overseas military service have been investigated retrospectively, usually in a context of veterans seeking recognition and compensation for adverse outcomes potentially associated with service. Internationally the focus is now shifting to one of prospective studies commencing prior to or shortly after return from overseas deployment with repeated measurement of health outcomes over regular intervals.

This prospective longitudinal approach is more rigorous in terms of identifying causal relationships between deployment exposures and outcomes. It also enables active surveillance so that emerging patterns of health outcomes can be responded to in a timely manner through prevention and / or early intervention.

This presentation will compare the methodology being used in such studies by the United Kingdom, the USA and Canada with the methodology that is being developed within the Deployment Health Surveillance Program in Australia. Comparisons will be made of the study populations that have been selected, the sampling approach, the data sources used and the time frames for data collection.

Some of the differences in approach identified include focus on particular deployments and use of routinely collected data. The comparisons will also be made in the context of the size and operational tempo of the particular Defence Force. Lessons to be learnt in the Australian context will be drawn from the analysis.

*Corresponding author: Dr Christine McClintock, Centre for Military and Veterans' Health, University of Queensland, Mayne Medical School, Herston Road, Herston, Qld, 4006
Email: c.mcclintock@uq.edu.au*

Communication technologies and response in deployment health studies

A McGuire, C McClintock, C Loos, L Nielsen, C D'Este, S Treloar, A Dobson

Response rates are critical to the validity of survey based research.

In recent years it has become more challenging in general populations and particularly in Defence populations to achieve adequate response rates. One of the primary challenges of the Deployment Health Surveillance Program (DHSP) is achieving suitable response rates to the self-reported data collection component of the research. This challenge is not unique to Australian Defence populations and has been faced by both UK and US researchers in health surveys of deployed personnel.

Many factors contribute to low response rates including: survey fatigue; generational change in attitudes towards participation for public good; privacy concerns; and restrictions on some of the methods used to encourage participation (reimbursement or reward). The recruitment strategy is key to maximising the response in light of these other factors, most of which are outside the influence of the research team.

This presentation will summarise findings on different contact strategies and the outcomes of each. Strategies include mail out of questionnaires, mail out of preliminary invitations, telephone contact and email contact.

The results will be profiled by age group, service and currently serving versus ex-servicing groups. The key to cost effective recruitment in the DHSP is the best combination of contact strategies.

*Corresponding author: Dr Annabel McGuire, Centre for Military and Veterans' Health, University of Queensland, Mayne Medical School, Herston Road, Herston, Qld 4006
Email: a.mcguire@uq.edu.au*

The Annual Health Assessment (AHA): does it contribute to operational readiness?

John M. Shephard, Richard Mallett

Aim: To critically analyse the process of AHA's in the ADF, benchmark these activities against evidence-based guidelines and identify potential opportunities for improvement.

Methods: We reviewed 50 consecutive AHA's performed routinely in the LMA extracting results for key lifestyle and psychological data. We then identified how these factors were clinically reviewed by the health service. Finally, we conducted a search of medical literature to identify best practice in the delivery of workplace health promotion.

Results: The AHA is a reliable tool for identifying cigarette smoking, overweight/obesity and elevated blood pressure. It is less reliable in detecting harmful alcohol intake and psychological distress. Follow up these lifestyle risks is unstructured and piecemeal. The literature review revealed a number of best practice features of workplace health promotion programs including personalised self-management programs, targeting of specific at risk groups, disease registers and recall systems, strong community and organisational commitment, program sustainability, quality initiatives, including information management and professional development and best practice guidelines.

Discussion: The AHA is a compulsory component of AIRN compliance. It offers a potentially powerful vehicle for health promotion activities to reach the entire ADF population. Current processes identify at risk individuals for many lifestyle factors, their follow-up however, is not maximised. A more targeted and systematic approach, including the development of supportive IT systems could help to greatly improve the impact of such activities and through them, contribute to improving operational readiness.

*Corresponding author: Dr John Shephard, 82 Warren Road, Marrickville, NSW, 2204
Email: john.shephard@defence.gov.au*

Veteran's Health

Mortality and deployment in a large cohort of Australian Defence Force personnel

Michael Waller, Catherine D'Este, Lisa Nielsen, Ruth McLaughlin, Christine McClintock, Annabel McGuire, Christopher Barton, Susan A Treloar, Alexander MacFarlane, Annette Dobson

Three current military and veterans' health studies, focusing on deployments to the Solomon Islands (SI), East Timor (EM) and Bougainville (BV), aim to collect self-report and Defence health data from deployed and non-deployed serving personnel and exposure data relating to each deployment. The full nominal rolls and comparison groups of these three studies form a larger North Area of Influence (NNAI) cohort, as part of the Deployment Health Surveillance Program (DHSP) in the Centre for Military and Veterans' Health.

In total 45936 personnel are included in the NNAI mortality studies. These include the veterans of NNAI operations and frequency matched comparisons.

An important part of these health studies is the availability of mortality and cause of death data for the entire NNAI cohort from the National Death Index from the Australian Institute of Health and Welfare. We compare death rates in the NNAI cohort with death rates in the general population. We discuss mortality findings in the context of the "healthy soldier effect", a special case of the healthy worker effect in studies of military personnel. We describe patterns of mortality in the NNAI cohort according to each of the specific deployments and the number and combinations of deployments versus no deployment.

*Contact author: Michael Waller, Centre for Military and Veterans' Health, The University of Queensland, Mayne Medical School, Herston Road, Herston QLD 4006
Email: michaeljosephwaller@hotmail.com*

Dapsone exposure, mortality and cancer incidence amongst Australian Vietnam war veterans

Eileen J Wilson, Keith W Horsley, R van der Hoek

Introduction: Malaria prophylaxis was a top priority during the Vietnam War. When an increase of cases was noted in 1968, Dapsone was added to the standard Paludrine prophylaxis. This study investigates the mortality and cancer incidence amongst Vietnam veterans who consumed Dapsone during their service compared to those who did not.

Materials and Methods: The study was a retrospective cohort study of male Army Vietnam veterans. Cause of death and diagnosed cancers were ascertained by matching the study roll against the National Death Index and the National Cancer Statistics Clearing House. Cumulative Dapsone consumption was obtained from data compiled in a previous study. Relative mortality and cancer incidence rates were calculated for personnel who consumed Dapsone compared to those who did not. Standardised ratios comparing the two treatment groups to the Australian population were also calculated. Models were developed to assess the effect of the total cumulative Dapsone dose received during Vietnam service on mortality and cancer incidence.

Results and Discussion: The all cause mortality did not differ between the two exposure groups, RR = 1.00 (95% CI 0.94, 1.07). Overall cancer incidence was 10% lower amongst the Dapsone exposed group, RR = 0.90 (95% CI 0.83, 0.97). There was no significant relationship between increasing Dapsone dose and all cause mortality or cancer mortality. There was borderline significant inverse relationship between Dapsone dose and cancer incidence.

This study concludes that the anti-malarial Dapsone/Paludrine prophylaxis did not cause adverse health, as measured by mortality and cancer incidence.

*Corresponding author: Dr Eileen Wilson, Department of Veterans' Affairs, 13 Keltly Street, Woden, ACT, 2602
Email: eileen.wilson@dva.gov.au*

Human Performance

High performance physiological training for the military aviation environment

Greg Hampson

The RAAF Institute of Aviation Medicine (AVMED) has been providing ADF aircrew physiological training for over half a century. Over that time military aviation has changed significantly. Similarly some of the challenges faced by today's aircrew are unique to modern times, however some of the challenges are perennial. AVMED's mission to enhance "safe and effective ADF aerospace operations" requires unique equipment, specialist knowledge and a flexible approach. This presentation will outline the current operational challenges and AVMED training in the areas of Hypoxia, Acceleration (or G) and Night Vision Devices.

Contact author: WGCDR Greg Hampson, RAAF Institute of Aviation Medicine, AVMED RAAF Base, Edinburgh, SA, 5111

Email: gregory.hampson@defence.gov.au

Human performance standards for selection and service in the incident response regiment

Troy Park

The Incident Response Regiment (IRR) is a part of the Australian Army's Special Operations Command (SOCOMD). The role of the IRR is to provide integral support to SOCOMD units, particularly in the area of chemical, biological, radiological and explosive threats. SOCOMD units have traditionally had specific physical and psychological standards of entry. However, the IRR is relatively new to SOCOMD and, up until now has not had a standard of entry commensurate with that of other SOCOMD units.

Members of the IRR conduct specific tasks in a contaminated environment and therefore must be able to work for extended periods in individual protective equipment (IPE). The physical and psychological stressors of working in IPE are well documented, and these are compounded when conducting operations in a high risk contaminated environment.

In order to effectively screen personnel who consider posting to the IRR, a set of human performance standards has been developed. These standards aim to screen for physical and psychological risk factors

relating to working at height and in confined spaces, encapsulation and biomechanical injury. This paper will present the human performance analyses conducted to determine appropriate performance standards, and the development and subsequent validation of the model.

Contact author: Troy Park, Incident Response Regiment Department of Defence, Holsworthy Barracks, Holsworthy, NSW, 2173

Email: troy.park@defence.gov.au

CRM training for aeromedical personnel

Jeff Stephenson

The origins of crew resource management (CRM) are usually traced back to a workshop sponsored by the National Aeronautics and Space Administration (NASA) in 1979. Over time the key concepts in CRM have evolved via a series of generations. The lessons learnt from each generation were incorporated into CRM. There have been six distinct generations of CRM to date. Crew resource management has been in existence for over twenty five years, and is now an integral component of aircrew training. Aircrew and aeromedical evacuation (AME) personnel both operate in hazardous environments and their duties involve interaction with complex technologies and other people. More recently, CRM has been applied to a variety of other industries including nuclear power facilities, surgical teams and obstetric care. Current generation CRM involves looking at factors external to the aircraft, as well as all of those personnel who are on-duty whilst in the air. Aeromedical transfers have historically been high risk activities, with increased accident rates especially for rotary wing operations. It is now time for the aeromedical fraternity to consider incorporation of the lessons learnt from our aviation colleagues into a program of aeromedical crew resource management (ACRM).

This paper traces the development of CRM and those events that shaped it. A training program for ACRM is proposed. The ultimate aim of aeromedical CRM is to improve the safety and efficiency within the AME environment.

Contact author: Dr Jeff Stephenson, 3 Combat Support Hospital RAAF Richmond NSW 2755

Email: jeff.stephenson@defence.gov.au

Caffeine maintains both physical and cognitive performance in night SUSOPS

David Voss, Gary Kamimori, Harris Leiberman, Tom McLellan, Sarah Smith

We studied the effects on 31 soldiers of caffeine on cognitive and physical performance over a simulated sustained operations task of four days and three nights, with sleep limited to 4 hours (in day-light hours) per 24 hour period. Primary mission tasks occurred in the night hours. Participants were randomised into two groups, group A (caffeine recipients) and group B (placebo (control group)). 800mg of caffeine was administered in 4 equal doses over the night hours. Physical performance was assessed during a 4km assault and obstacle course run. Cognitive function was tested by participants observing various real-time activities in the environment around them (OP activity);

psychological tests (by portable hand-held computer); response and accuracy in identifying friend-foe target on a military live-firing exercise range; and a task in which the effect of information modalities (audio-visual) on situational awareness (observation of events in a simulated (DVD) scenario). We found over the period of four days and three nights both physical and cognitive performances were sustained in the caffeine group (A), and significantly differed from the placebo group (B). Caffeine is a readily-available, safe and effective agent at maintaining both physical and cognitive function throughout the night hours in a variety of real and simulated military activities.

Corresponding author: MAJ David Voss, New Zealand Defence Force, 13 Sprott Road, Kohimarama, New Zealand, 1071
Email: david@kidneykare.co.nz

Psychology II

Who psych's the psych? challenges facing embedded psychological support teams in the Middle East area of operations

Neanne Bennett

It is well recognised that war and war-like experiences can impact on the psychological well-being of individuals and as a result the use of psychologists and psychiatrists by military forces during war can be traced back to World War 1. Whilst traditionally the use of psychologists in the military was primarily focussed on personnel selection, today's Army psychologists have a much broader focus and provide a range of services both in Australia and on deployment. With current operational tempo, Psychology Support Teams are being embedded in various Areas of Operation and contribute to force maintenance and sustainment, monitoring the mental health of deployed personnel, providing clinical services as well as preparing personnel to return home through the Return to Australia Psychology Screening (RtAPS) process. This paper reviews the personal experiences of a Psychology Support Team embedded in the Middle East and discusses the role and challenges faced whilst on deployment.

Contact author: MAJ Neanne Bennett, 1 Psych Unit, Department of Defence
Email: Neanne.Bennett@defence.gov.au

Mental health and retention of deployed Australian Defence Force (ADF) personnel

Helen Wood

The retention of ADF personnel is of the highest priority with high operational commitments and shortages in numerous trades. The recent Australian Government Budget 2007-2008 has addressed this threat with a further \$2.1 billion to be spent on growing military numbers over 10 years. In addition, due to the high operational tempo environment, the screening and monitoring of the impact of deployments on ADF personnel is vital. In light of current retention targets and high operational tempo impacting Defence capability this paper aims to explore the relationship between mental health measures and ADF personnel discharge intentions and actual leaving behaviour.

Previous research into this topic by Deans (2002) utilised Return to Australia Psychological Screen (RtAPS) questionnaires and Mental Health Screens (MHS) focusing on deployments dates of Jan 1999 to Mar 2001. Since then, the mental health instruments used to examine ADF personnel have been updated and no research has been conducted to provide a current snapshot of the relationship between mental health and discharge intentions and leaving behaviour. Consequently, in an attempt to explore and compare this relationship with past research, ADF mental health, discharge intentions and leaving

behaviour will be analysed with revised mental health instruments.

Data from RtAPS questionnaires were examined to address the current research question, drawing from personnel from the three Services deployed to Operation Catalyst (Australia's Defence contribution to the rehabilitation and reconstruction of Iraq). The relationship between mental health and associated factors (such as morale) and ADF personnel discharge intentions/leaving behaviour will be discussed.

*Contact author: Ms Helen Wood, CP2-5-072, Department of Defence, Canberra, ACT 2600
Email: helen.wood1@defence.gov.au*

You fear most what you do not understand:
the need for mitigation strategies to deal with
health related psychological threats in deployed
environments.

Stephanie Hodson

People fear most what they do not understand and psychological screening of deployed land based ADF personnel has supported this proposition. Fear of exposure to toxic agents in deployed populations is a consistent theme in Return to Australian Psychological Screening (RtAPS) processes. The RtAPS process is conducted for all land based personnel either immediately before return to Australia or within seventy-two hours of arriving back in country. As part of this process trends and potential psychological threats are identified for action by the chain of command. This paper will summarise some key health related themes that have emerged from this process. Understanding of these threats in order to develop mitigation strategies should be a very high priority for joint health planners, as mitigation of these threats is not only important for the longer term health and well being of the individual, but is an important issue for force protection and maintenance.

*Contact author: LTCOL Stephanie Hodson, Psych Unit, Department of Defence, Randwick Barracks, Avoca Street, Randwick, NSW 2031
Email: Stephanie.Hodson@defence.gov.au*

Workforce Issues I

What to do when you run out of doctors and nurses? An update on strategies to meet future health workforce needs

Niki Ellis, Genevieve Liebich

In December 2005 the Productivity Commission released its report on Australia's health workforce. This recommended changes to accreditation and registration in the health profession, closer alignment between the education and health sectors to ensure education better meets the needs of the industry, changes to the MBS to allow for delegated care and facilitation of health workplace innovation.

Research and community trends in health workforce innovation since the release of the Productivity Commission will be summarized. The NHS Skills Escalator will be described.

CMVH's work in positioning the ADF as a health workforce innovator will be considered. In particular work on mapping the competences of Australian medics against the proposed competences for physician assistants in Australia will be described.

*Corresponding author: CAPT Genevieve Liebich, Centre for Military and Veterans' Health, Mayne Medical School, Herston Road, Herston, Qld, 4006
Email: g.liebich@uq.edu.au*

New Zealand Army Medics

– competing to win

Peter Jacobs

The New Zealand Army Medic is a well trained and unique professional. All New Zealand Defence Force (NZDF) Medics are trained under the auspices of the NZDF Joint Services Health School. They are NZDF health providers who are trained to provide medical therapies for acute and non-acute medical conditions under the direction of a competent medical practitioner. The training investment in a Medic is considerable and includes NZDF Medical Treatment Protocol competencies, the Diploma of Military Medicine and the emerging Health Sciences Degree focused on military requirements. Some undertake further training in other medical disciplines, including radiographer and anaesthetic technician. The fully trained New Zealand Army Medic has become highly

sought after by external agencies and other military organisations, including the UN. This paper explores the development of strategies by Army designed to compete with external agencies to retain and protect its Medic investment.

Contact author: MAJ Peter Jacobs, NZ Defence Force,
Private Bag 905, Upper Hutt, New Zealand
Email: peter.jacobs@nzdf.mil.nz

The deployment of ADF reservists: working
towards best practice

Geoff Orme

Historically, the Australian Defence Force has utilised military reservists for overseas deployments on an individual basis for the delivery of specialist services such as medical and nursing to augment the regular force. This situation has changed considerably over the past few years with the deployment of larger numbers of reservists in a wider range of roles on military operations both within Australia and overseas. This is also the case for other allied nations. At present for example, fifteen percent of the Canadian force in Afghanistan is comprised of reservists. This situation is unlikely to change.

The enactment of legislation to protect reservist's jobs, the funding to employers such as employee support payments for their deployed employees, and increasing opportunities for service generally, have contributed to this situation.

In this context, the development of best practice is critical for the effective management of reservists. This is a significant retention issue for the ADF and opportunities to deploy stimulate interest in joining the ADF. The desire to utilise reservists for subsequent deployments rather than a 'one off' deployment requires active engagement of reserve units, employers, and a reservist's family and their community.

Reservists often reside in areas not co-located with Defence establishments, have civilian careers and local social networks, and have competing demands from their family members who may not be a 'military family', in the sense that they may have a very limited understanding of military service including the support services available.

The approach to best practice in this important area has been constrained by a limited amount of research on the reservist's experience pre and post deployment. Recent research indicates that reservists

may have more difficulties with readjustment on return from deployments (Homecoming) than their regular counterparts (Hotopf, Wessely *et al* 2006, and Browne, Hotopf, Wessely *et al* 2007).

This presentation will draw upon a two year longitudinal study of reserve personnel who deployed as A Company 5/7RAR on active service in East Timor from October 2002 to May 2003. Personnel were followed up for over two years post deployment covering retention, adjustment and also their reintegration to their reserve units and also their communities. A direct comparison with a regular company which completed the same deployment will also be presented.

Additionally, current research on reservists deployed in the Solomon Islands will be included.

Finally, the direct application of key approaches identified to achieve best practice will be discussed. These will cover pre-deployment, deployment, post deployment and reintegration stages. It will also include improved approaches to engage employer, family and community stakeholders.

LTCOL Geoff Orme, Citipsych Pty Ltd, PO Box 950,
Paramatta, NSW 2124
Email: geoff@citipsych.com.au

A practical view of retention of ADF health reserve
personnel

Julie Webber, Jennifer Dillon, John J Morrison, Graeme R
Cannell and Graeme Shirtley

The ADF relies on a mix of professions to support its functions and to achieve goals in operations. All military forces find recruitment difficult when employment is high and national unemployment rates are low. Employer support for Reserve members is lower than that provided 10 to 20 years previously and the current structure of initial training courses directly discourages Reserve enlistment. Individuals who are self employed have a different set of parameters affecting their service which have not always been considered in the past. The reverse side of the coin is retention of personnel to provide a significant period of service and benefit to Defence Health. The ADF is increasingly relying on Reserves for operational deployments such as rotations through the Solomon Islands.

The demographics of Reserve Health personnel is predominantly busy individuals who are time poor and willing to contribute but who require certainty in commitment.

Practical issues:	Pay Conditions Commitment Benefits
Significant changes:	Retirement age Pay Conditions Enlistment age Potential benefits such as super
Difficulties:	Lack of continuity Unrealistic length of training courses Timetabling of courses Security of civilian job
Initiatives:	What could we do to make things work better ?
Support:	Unit and National positions

This presentation will consider some practical aspects of retention of health reservists. Continued support is critical in specialized disciplines such as surgery, anaesthetics and nursing to maintain Defence on an operational footing. The input of Reserves for Reserve management has been downgraded over the last decade when the focus has shifted to financial drivers rather than the key human management aspects as most, if not all, health Reservists do not provide service based on remuneration.

*Corresponding author: RADM Graeme Shirtley SGADF, Defence Health Services, Campbell Park Offices, Canberra, ACT 2600
Email: graeme.shirtley@defence.gov.au*

Dental and Other Health Research

Six month observational study of the measures of salivary, plaque and lifestyle factors and their associations in a defence population
Nick Cusack, Greg Mahoney, Laurie Walsh

Dental caries and to a lesser extent dental erosion are major dental health risks for new military personnel. Salivary profiling and plaque testing are two contemporary techniques for risk assessment for dental caries and dental erosion. This project was based upon tracking longitudinally certain key salivary and plaque parameters in Navy trainees at HMAS Cerberus within the Health Centre Cerberus (HCC). In total 106 adolescent subjects of varying caries risk levels were recruited for the study. It has been established that lifestyle changes occur in much of the target population during initial training, which reduce hydration and may have the consequential deleterious effect on oral health. Two commercially available test kits were used to collect saliva and plaque samples. In addition a lifestyle questionnaire relating to diet, smoking, exercise and oral hygiene was completed to gather baseline data on each subject. Plaque and Saliva sampling was repeated at the 6 month evaluation as was the completion of the lifestyle questionnaire and comparisons made to the baseline data obtained initially. This paper will present the analysis of the trends in dental caries risk and associated lifestyle data. By completing similar

studies with differing interventions it may be possible to determine the most effective oral hygiene education and intervention regime to limit the numbers of members in the high risk zone.

*Corresponding author: LCDR Nick Cusack, Centre for Military and Veterans' Health, 5/300 Queen Street, Brisbane, Qld 4000
Email: nickcusack@queenstreetdental.com*

Determination of sample size for research projects

Cate D'Este, Graeme R Cannell, John J Morrison, Graeme Shirtley

Research protocols designed to address issues in human health usually require involvement of participants in the data collection and study phase. This involvement may be direct in that participants would actively participate, for example, by completing a questionnaire or by actively participating in the trial of a new device to potentially decrease heat stress. Indirect involvement could occur when medical records are to be accessed as part of a protocol where any participant interaction is passive and the individuals may not be aware that their records have been used for a study. In all cases the investigators must consider the number of individuals required to

participate to ensure that a meaningful outcome is possible. Both scientific and ethical issues must be considered. The number of participants chosen must provide a statistical basis to test the hypothesis and provide an outcome based on set criteria. An HREC would consider, among other issues, whether there was under or over sampling and whether the study, and the research aims, had been conducted earlier.

An ongoing observation has been that determination of sample size for protocols has not always been rigorously addressed. The accepted approach is to conduct a power calculation based on predicted or known variability expected in a population.

Associated with determination of sample size is choice of an appropriate population and sample for a study relevant to the actual population within Defence who will directly benefit from the outcomes. Care must be exercised to ensure that results are valid as intended.

This presentation will consider both population choice and matching and provide a practical description and solution for sample size calculation for investigators who may not have ready access to a statistician. Individuals within Defence often do not have the statistical knowledge or access to statisticians to complete the framework for a project. The goal is to establish a support system with tools and educational resources to support investigators. This will also provide encouragement for new investigators who identify a health problem with the confidence to consider finding a solution.

Corresponding author: Prof. Cate D'Este, University of Newcastle, Level 3, David Maddison Bldg, Callaghan, NSW, 2308
Email: Catherine.Deste@newcastle.edu.au

Lifetime fluoride exposure and dental caries experience with Australian Defence Force personnel

Greg Mahoney, Gary Slade, Scott Kitchener, Adrian Barnett

While there is good evidence of caries-preventive benefits of fluoride in drinking water among children and adolescents, there is little information about effectiveness of water fluoridation among adults. Objectives: To determine whether exposure to fluoride in drinking water is associated with caries experience in Australian Defence Force (ADF) personnel. Methods: Cross sectional study of 876 deployable ADF personnel aged 17-56 years. At each person's mandatory

annual dental examination, military dentists recorded the number of decayed, missing and filled teeth (DMFT) using visual, tactile and radiographic criteria. Participants also completed a questionnaire, listing residential locations in each year from 1964 to 2003. People were classified into four categories according to the percentage of their lifetime living in places with fluoridated water: <10%, 10-<50%, 50-<90% and ≥90%. Mean DMFT was compared among those categories of fluoridation exposure and the association was evaluated statistically using analysis of variance to adjust for age, sex, years of service and rank. Results: Without adjustment for confounders, the mean DMFT (±95% confidence interval) was 6.3±0.8 for <10% fluoridation exposure, 7.8±0.8 for 10-<50% exposure, 7.5±0.7 for 50-<90% exposure and 4.6±0.6 for ≥90% exposure (P<0.01). However, age was inversely associated with mean DMFT and in the <10% exposure group, 91% of people were aged <35 years. Service rank was also significantly associated both with fluoridation exposure and DMFT. After adjustment for all covariates, mean DMFT was 24% lower among people in the two groups with ≥50% exposure compared with the <10% exposure group. Conclusions: Degree of lifetime exposure to fluoridated drinking water was inversely associated with DMFT in a dose-response manner among this adult military population. Supported by: Centre for Military and Veterans' Health; Australian Dental Research Foundation.

Corresponding author: WGCDR Greg Mahoney, Centre for Military and Veterans' Health, Herston Road, Herston, Qld 4006

Email: g.mahoney@uq.edu.au

Evaluation of methods for rapid cooling of heat induced injury, is intravenous normal saline an option?

Susan Winter, Steven Rudzki, Mark Patterson, Wade Sinclair

Heat illness and its treatment remains a significant problem for the ADF, both in operational and exercise environments. A combined study by James Cook University Defence Science and Technology Organisation and the Army (Army Safety and 3 Brigade) was conducted recently in Townsville to address this.

Whilst immersion in an ice/water bath is considered the gold standard, this is prohibitively difficult in the environments above. Cold IV saline is used post cardiac arrest for brain protection but has not been

validated for cooling those with heat induced injury.

We studied three methods of cooling fit soldiers, exercised in a controlled environment to a core temperature of 40 degrees centigrade. Each soldier was cooled on three separate occasions by (1) infusion of 2 L of Normal Saline over 20 minutes, (2) application of icepacks to groin, armpits and back of neck or (3) skin wetting with a high speed fan. Core temperature was monitored using an ingested radio pill, and vital signs were monitored throughout.

All methods were efficacious and safe. Skin wetting with a high speed fan appeared to be the fastest but was limited by a plateau effect. Ice and IV saline were similar in temperature reduction, but ice was the least preferred technique.

This study will aid development of doctrine to treat heat illness in the operational environment.

*Corresponding author: COL Stephan Rudzki, Department of Defence, R8-2-034, Russell Offices, Canberra, ACT 2600
Email: stephan.rudzki@defence.gov.au*

Rehabilitation and Health Promotion

Chronic low back pain in the defence forces; effective treatment, evidence based outcomes and research proposal

Anna Lewis

Chronic Low Back Pain (CLBP) is a major health and socio-economic problem in our society today. There is a high prevalence of Low Back Injuries within the Defence Forces particularly due to the unique environment and duties performed, often in very challenging circumstances. CLBP is extremely costly in terms of medical expenses, absenteeism and disability and constitutes the second most common symptom presenting to general practice and is the leading source of musculoskeletal health system expenditure. In Australia, annual LBP expenditure exceeded \$9.2 billion in 2004 (Walker 2004).

Exercise is one of the few clearly effective treatments for CLBP and the two highest levels of evidence for treatment, levels I and II, strongly support physiotherapy supervised exercise programmes (NH&MRC 2007). Despite evidence to validate exercises, uncertainty still surrounds whether any specific type of exercise is more effective than another.

In March 2003, a rehabilitation area was established within the Navy Indoor Sports Centre (NISC) at HMAS Kuttabul, Fleet Base East, Sydney. The aim of this programme was to facilitate Defence members' rehabilitation and consequent return to sea-going status and operational readiness in a more expedient manner. This area was purpose designed and fitted with Clinical Pilates equipment and the programme has produced some excellent outcomes since inception. Significantly, results include the reversion of at least four members from medical discharge and subsequent return to sea going status.

Pilot studies conducted in 2004 and 2005 produced some excellent outcomes and a research project is now being formulated to commence in 2008. The aim of this research is to investigate the effect of Clinical Pilates treatment on pain and function for patients (Defence personnel) with Chronic Low Back Pain.

*Contact author: Ms Anna Lewis, Senior Physiotherapist HMAS Kuttabul, Fleet Base East Medical Centre, Potts Point, NSW, 2011
Email: Anna.Lewis@defence.gov.au*

ADF rehabilitation program
– outcomes and experiences

Jim Porteous

The Australian Defence Force Rehabilitation Program (ADFRP) is much more than clinical treatment or health care of military personnel. It is an holistic assessment and management system that combines the elements of health care, occupational health and safety, and personnel capability management.

Through effective rehabilitation the ADF maximizes the personnel dimension of capability with the intent to return an injured or ill member to maximum effectiveness within the ADF environment, or if this is not possible, the civilian environment.

The new program was implemented across Australia between June and September of 2006. Since implementation we have received more than 5000 referrals to the ADF Rehabilitation Program.

*Contact author: Mr Jim Porteous, ADF Rehabilitation Services, PO Box 1341, Tuggeranong, ACT, 2901
Email: jim.porteous@defence.gov.au*

An ambulatory vision for Navy (Balmoral Naval Hospital)

Tammy Thomas, Narelle Holmes, Melanie Okane

Ambulatory Health Care can be described as 'effective efficient care required for routine patients that have predictable needs and outcomes' (Western Australia Health Department, 2007). Primarily, Ambulatory Care can be considered as healthcare that occurs external to a hospital and most often within the Community. Balmoral Naval Hospital (BNH) in consultation with the Greater Sydney/NSW Area Health Service has recognised the significant benefits of providing Ambulatory Health Care to ADF members. As a result, BNH has implemented a trial program,

in which appropriate patients can receive health care delivery within in the Community, primarily their own home. This program was originally introduced to address the potential costly use of inpatient services within civilian hospitals during BNH's closure for refurbishment. The current Ambulatory Health Care program is an element of the Navy Patient Co-ordination Cell, which is a broader BNH initiative, which includes a Pre-admission Clinic, Community Nurse, Navy Patient Hospital Divisional Officer, and eventually Rehabilitation Co-ordinator.

*Corresponding author: LCDR Tammy Thomas, Balmoral Navy Hospital, Middlehead Road, Mosman, NSW, 2088
Email: tammy.thomas@defence.gov.au*

Workforce Issues II

12 months on... what's changed

Anne Craig

Last year I presented a paper on the ADF Undergraduate Schemes for nurses. A lack of interaction with the military environment, poor communication, the need to streamline administrative procedures and a lack of effective mentoring left nurses from all three Services feeling disenfranchised.

Air Force has taken on board the criticisms levelled by Undergraduate Nurses at the Scheme and this paper will demonstrate what we have done to address them. By far the greatest proportion of our 126 Undergraduates belong to a Health Specialisation and when they were surveyed at the beginning of this year they vociferously echoed the comments made by the Nurses. Retaining Health Specialisation members can be challenging for Air Force and as such it behoves the organisation to do everything in its power to ensure that that morale is good and satisfaction high, in order to positively influence retention.

We examined all of these results and started to work towards solutions that would benefit every member. We re-surveyed our members recently and the results demonstrate a greater level of satisfaction among the Undergraduates.

People remain the ADF's greatest asset and I believe that in The Air Force Undergraduate Cell we have tried to 'put our money where our mouth is' and show it. The strategies we have used have shown our Undergraduates just how valuable they are to the Air Force. More importantly, we hope that they will translate into greater satisfaction and better retention rates for all our Health Specialisations.

*Contact author: FLGOFF Ann Craig, RAAF, C/- Box 1279, Nowra, NSW, 2541
Email: anne.craig@defence.gov.au*

Occupational medicine: an essential component of military health services

Warren K Harrex, MSc(OccMed), BMedSc(Hons), MBBS, DObstRCOG, DAuMed, FAFOEM, FAFPHM

Defence forces are complex organisations and their priorities change rapidly depending on operational tasks, exercises and training.

A defence health service is a subset of this complexity, yet the resources required to address all the tasks expected to be undertaken are rarely available. Such tasks include operational health support, casualty and aeromedical evacuation, medical fitness surveillance, clinical treatment services, health promotion, environmental health services and occupational health.

These competing tasks place extraordinary demands on the availability of resources and are exacerbated by the additional management required for cost-containment and outsourcing. Undue focus on the tasks at hand can result in distortion of priorities, high levels of organisational and personal stress, and excessive health personnel wastage.

The core business of occupational medicine is protecting the wellbeing of both employees and employers by identifying and preventing occupational illness and injuries. This presentation reveals how to identify and measure employer-based demands

and occupational disease and injuries in a military organisation. Evaluating the reasons why personnel use military health services can reveal unrecognised and uncoded employer demands, and identify occupational illnesses and diseases that distort cost-effective comparisons with treatment health services.

The occupational medicine paradigm allows a perspective and balance to be maintained irrespective of the level of activity and demands on a military health service. In addition, it provides a suitable framework for policy development, determination of strategic priorities and evaluation of resource requirements.

An understanding of occupational medicine provides an essential paradigm when assessing the role and cost-effectiveness of military health services.

Contact author: ACDRE Warren Harrex, 22 Drevermann Street, Farrer, ACT, 2607
Email: wharrex@bigpond.net.au

A career in occupational medicine... or how to get your FAFOEM

Neil Westphalen

Last year the author became a Fellow of the Australasian Faculty of Occupational and Environmental Medicine (FAFOEM). As of February 2007 he also became the only full-time occupational physician in the ADF. This presentation therefore describes how to become an occupational physician.

Occupational Medicine is the study and practice of medicine related to the effects of work on health and health on work. It has clinical, preventive and population-based aspects related to preventing and managing illness and injury due to work, and rehabilitating people to return them to work. They also manage people with illnesses or disabilities that are unrelated to work, but for whom their workplace may require adjustment.

It is noted that many medical practitioners in Defence are already engaged in these activities. The presentation reviews the AFOEM competencies, eligibility, training and mentoring requirements and assessment components.

Contact author: CMDR Neil Westphalen, Fleet Base, West Health Centre, HMAS Stirling, WA
Email: neil_westphalen@bigpond.com

Medical Standards

Healthy weight management in ADF members: the Robertson Barracks experience

Cathy Ellingsen MBBS (QLD); FRACGP; DRANZCOG, Richard Sager

Overweight and Obesity affects a larger than acceptable percentage of Robertson Barracks members and, despite good efforts by health professionals, long term prevention and management has not been greatly successful. This presentation summarises collated AHA data to determine the extent of the problem within Robertson Barracks, current management strategies, reported barriers and challenges facing Darwin health professionals and ADF members, and potential solutions to successful weight management in the ADF setting.

Obesity is rapidly becoming Australia's biggest health care problem and contributes to a significant number of serious diseases. In the ADF setting, where members are expected to have a high level of physical

performance, the ramifications of being overweight also include a higher incidence of training injuries and their slower recovery, prolonged MEC downgrades and its associated costs and loss of defence capability. The new relaxed ADF BMI entry standards, whilst improving recruitment numbers, potentially puts new recruits at risk of injuries during their initial training and ongoing military service.

Without an effective holistic weight management strategy for all ADF members, ADF health professionals will continue the management struggle to provide defence with its capability. It is the aim of this presentation to promote discussion in the direction of overcoming barriers and developing effective solutions for healthy weight management in the ADF.

Corresponding author: Dr Cathy Ellingsen, MBBS (QLD); FRACGP; DRANZCOG, Civilian Medical Officer, 1st Armoured Regiment RAP, Chauvel Lines, Robertson Barracks, Darwin, NT
Email: cathy.ellingsen@defence.gov.au

The Australian Defence Force in the pandemic of 1918-19

Keith Horsley, MB, BS MPub Admin

Beginning in early 1918, an influenza pandemic swept the World, popularly known as the Spanish Influenza. It affected the Australian Defence Force in many ways. First, the pandemic affected force capability, greatly reducing the effective strength of many units on the Western Front for short periods of time. Secondly, it complicated the repatriation of AIF personnel, making the use of quarantine necessary on troopships that returned to Australia. In general, the quarantine was very successful, although influenza did break out on a small number of troopships. This, and the fact that a soldier was the index case for New South Wales, gave rise to the myth that troops brought the influenza to Australia. In fact, I show that it is highly likely that the HMAT Ayrshire, an empty troopship, brought the influenza to Australia. The pandemic was also the cause of several mutinies, such as on the Argyllshire. Lastly, the pandemic gave rise to Australia's first humanitarian military mission – that of the cruiser HMAS Encounter to Samoa. Today, the records of the AIF are the finest surviving records of the pandemic known to be extant, and are the focus of important ongoing research. A case-control study of those that died of influenza in the AIF has commenced.

*Contact author: Dr Keith Horsley, Australian Institute of Health and Welfare, GPO Box 570, Canberra, ACT, Australia, 2601
Email: keith.horsley@aihw.gov.au*

A review of the recruiting standard concerning asthma

Mariko Koh, Louis Irving, Ruth McLaughlin, Sandra Anderson, Karen Donald, Jenny Firman, Peter Nasveld

Background: Asthma is a common condition in Australia and is a leading cause of rejection from the ADF. However within this diagnosis there is a wide spectrum of disease activity and clinical outcomes. Also asthma assessment and management has developed so that many asthmatics are now fully active without any significant disruption or risk to their lives.

Hypothesis: There is a subgroup of asthmatics who are at very low risk from significant adverse effects from asthma and who could be considered for recruitment to the ADF.

Aims: 1. to identify the subgroup of asthmatics who could be considered for recruitment to the ADF. 2. to develop an assessment process to identify this subgroup (screening). 3. to develop a process to evaluate the outcomes of any change to the recruitment standard for asthma (evaluation).

Methods: 1. A literature review of the natural history, assessment, management and response to treatment of mild episodic and mild persistent asthma. 2. A literature review of asthma in the military. 3. A clinical review of the outcomes of known asthmatics in the ADF. 4. An expert group to review the above and to develop a screening process and an evaluation of the program.

Results: The literature reviews identified a subgroup of asthmatics, defined as mild episodic and mild persistent, who with appropriate management, have a low risk of significant adverse asthma outcomes. They can be identified by a combination of questionnaire, spirometry and bronchial provocation testing. A recruitment screening process has been developed. It will be presented along with a methodology to evaluate this program.

*Corresponding author: A/Prof Lou Irving, Dept Respiratory and Sleep Medicine Royal Melbourne Hospital, Royal Parade, Parkville, Vic 3050
Email: louis.irving@mh.org.au*

Clinical

HPD 250 (surveillance of individuals for melanoma, DGDHS, 2002) - time for a rethink?

Scott Kitchener

HPD250 outlines the evidence-based use of clinical photography surveillance of Defence members at high risk of melanoma. Screening for melanoma has advanced significantly in the past 5 years with the introduction and wider availability of dermoscopy. Used with clinical photography a reduction in biopsy rate and earlier melanoma detection is possible (Banky *et al.*, 2005). While dermoscopy in clinical practice used independently from clinical photography has demonstrable screening and diagnostic benefit in specialist hands, recent research has indicated at least screening benefits in the hands of generalists following concise targeted training programs (Menzies, 2006). Moreover, sequential monitoring by recording and comparing digital dermoscopic images in a clinical record moves screening towards detection of earlier more manageable melanoma (Menzies and Zalaudek, 2006) including in the primary care environment (Kitchener *et al.* 2007) the results of which will be presented here.

In light of these recent developments in clinical medicine, it is proposed to introduce dermoscopy to HPD 250 as an adjunct to routine medical examinations of high risk and concerned Defence members. Introduction into HPD250 will necessarily include development of competency standards for use, credentialing of courses to develop competency and privileging of health officers to practice within the HPD. Training programs employed in research to upskill GPs in dermoscopy are available in Australia and will be discussed for suitability towards incorporation into an ADF program.

*Contact Author: Assoc. Prof. Scott Kitchener, Centre for Military and Veterans' Health, The University of Queensland, Mayne Road, Herston, Qld,4006
Email: s.kitchener@uq.edu.au*

'Should Leishmaniasis be a concern for Australian Defence Force members on deployment in the Middle East and Afghanistan?

Clint Morton

Leishmaniasis is an ancient zoonotic disease that has been estimated to put at risk of infection at least 350 million people across 88 countries. The disease involves an infection by a protozoon that is spread to man by the bite of an infected female Sandfly. The Phlebotomine sandfly is capable of spreading leishmaniasis in the area of the Middle East and Afghanistan. The topic of discussion focuses on two particular forms of leishmaniasis, being Cutaneous Leishmaniasis and Visceral Leishmaniasis. Australian Defence Force (ADF) members have been working in Iraq or Afghanistan for a number of years. Morbidity data for US forces for the period from 2001 has indicated that a large number of United States Defence personnel have presented for treatment for infection with the reviewed forms of leishmaniasis. Iraq and Afghanistan both have a reputation for a high incidence of Leishmaniasis in their respective populations. In addition, Afghanistan has a reputation of being one of three countries in the world where 90% of all cases of cutaneous leishmaniasis have been reported. A number of information sources were reviewed to determine the possibility of an infection with leishmaniasis for an Australian Defence Force member. The review also looked at the protection barriers in Australia given that antibodies to leishmaniasis have been found in some Australian native animals post 2001.

*Contact author: FLTLT Clint Morton Environmental Health, Health Services Flight, RAAF Darwin, Winnellie NT 0820
Email: clint.morton@defence.gov.au*

Abstracts

Managing occupational and non-occupational exposure to HIV

George Nisyrios MBBS MPH+TM MHSc (Sexual Health) MACTM FRACGP

It is estimated that HIV infection affects 40 million people worldwide. HIV presents an occupational risk to active duty members especially those working in the health care profession through needle stick injury. Defence members are often deployed to countries with high prevalence rates of HIV and work with military and NGO forces from high prevalence countries. Active duty members are often young, sexually active males accustomed to risk taking and exposed to peer pressures leading to high risk sexual behaviour. Sexual assault of defence members and other populations for which deployed health care teams offer care represent a further group which may be exposed to HIV through non-occupational means.

Understanding an individual's risk following exposure to HIV is critical for timely and correct medical management. Recent guidelines have attempted to better understand risk and describe appropriate post exposure prophylaxis with antiretroviral medication. The choice between two or three antiretroviral agents in a post exposure regimen has recently been made clearer although data to support these choices is limited. Managing occupational or non-occupational exposure to HIV is an important skill for health care professionals in the Defence Force.

*Contact author: MAJ George Nisyrios, Sexual Health Physician Clinic 275, Royal Adelaide Hospital, 3 Health Support Battalion, Adelaide, 5000
Email: georgenisyrios@mac.com*

Norovirus outbreak in a visiting Australian regular army unit: a case report

Dr Dale Thomas, MB BS (Qld), FRACGP, MRACMA and Lieutenant Commander RANR & Dr Alison Thomas, MB BS (Monash), DipAvMed (UK)

In February 2007, there was an outbreak of gastroenteritis in a group of Townsville-based Australian Regular Army personnel visiting Gallipoli Barracks in Brisbane, Queensland. Of the 23 patients hospitalised, the majority presented with fevers, vomiting, abdominal cramps and diarrhoea. One patient's presentation mimicked acute appendicitis and he underwent appendicectomy. Stool specimens were negative for parasitic and bacterial pathogens; however, two of the later cases were confirmed as having Norovirus infection. The characteristics of the remaining cases were consistent with Norovirus infection. To our knowledge this is first reported Norovirus outbreak in Australian Defence Force (ADF) personnel.

*Corresponding author: Dr Dale Thomas, Manager Medical Services, Gallipoli Barracks Health Centre, Enoggera, QLD 4051
Email: nnavmedc@bigpond.net.au*

Health Capability

Defence Health Service or Health Advice Agency: an alternative reality to the Stevens Review

Kerry Clifford

In 2003 MAJGEN Paul Stevens AO (Retd), assisted by GPCAPT Helen Doherty, commenced a review of the ADF Health Service on behalf of HDPE. He tabled his recommendations, colloquially referred to as "The Stevens Review", in 2004.

The purpose of the Review was to:

"evaluate whether the Defence Health Service will be able to meet Defence needs for health services in the short to medium term – broadly until 2010; and

propose any changes that may be necessary in order to ensure it can do so" (Stevens Review, p.i).

The Review made a number of recommendations for future DHS business. In establishing revised outputs for the Defence Health Service Division, staff has found it useful to refer back to the underlying philosophy, environment and recommendations of the Review to better understand intended future development requirements.

But did MAJGEN Stevens get it right or was he limited by the terms of his commission? By applying an alternative filter to the background conditions of the report and its subsequent recommendations, it is apparent that an alternative reality may have possible for the Defence Health Service.

This paper will substitute these base assumptions and offer up an alternative Defence Health Service that may have been considered within this hypothesised alternative reality. In doing so, the speaker intends to present the Review as a background for comment and in no way intends to critique either the persons or professionalism of MAJGEN Stevens, GPCAPT Doherty, or any other person or organisation, in any way.

*Contact author: LTCOL Kerry Clifford, SO1 Allied Health, Directorate of Strategic Workforce Development, Defence Health Service Division, CP2-7-046, Campbell Park Offices, Campbell Park, ACT, 2600
Email: kerry.clifford@defence.gov.au*

Teledermatology: a force sustainment instrument for the deployed environment

Bob Curtis, Anthony Hopcraft

The areas and environments in which ADF and allied forces have been deployed, are deployed and are likely to be deployed, are by their nature liable to cause a plethora of acute dermatological conditions and exacerbate chronic ones.

Teledermatology as a specialty of telemedicine can be practiced in either synchronous, i.e. video teleconferencing (VTC) or asynchronous (web server attachment or e-mail) modalities. The former can be significantly more bandwidth intensive than the latter. There is considerable literature as to the benefits and comparative clinical outcomes of teledermatology when compared to a face to face (F2F) dermatological consultation. Often telemedicine is of greatest benefit when there is no economical or safe means of evacuating a patient or casualty; however, in the military context a large number of casualties that could benefit from a telemedicine intervention would, by virtue of a predetermined evacuation pathway, be evacuated in any case. This may to a greater or lesser degree negate the effect or the requirement for telemedicine. Where teledermatology differs from these examples is that a telemedicine intervention can prevent a low grade seemingly benign condition from deteriorating into a far worse condition that may then necessitate medical evacuation. In the deployed environment where all 'force assigned' units are critically staffed, the loss of even one individual from what could have been a preventable condition can be detrimental to the combat or combat support capability of that unit.

This paper describes the current technology involved in the provision of teledermatology in the rural

and remote setting and therefore, its application to the military. It describes the clinical, business and technology 'rules' and conditions that are required to develop and sustain a viable teledermatology network between the AoR and NSA that could support the Commander, the deployed clinician and the patient. The conclusion is that teledermatology is a viable telemedicine modality for the ADF in current and future operations.

*Corresponding author: LCDR Bob Curtis, Centre for Military and Veterans' Health, Mayne Medical School Building, Herston Road, Herston, Qld, 4006
Email: b.curtis@uq.edu.au*

Single service health care in a tri-service system: the (re)development of the Air Force health service

Tracy Smart

Since the establishment of the Defence Health Service (DHS) in 1997, ADF health care has consisted of two components: health care delivery within the National Support Area (NSA) and provision of health services in support of military operations (operational health). The tri-service NSA health system is controlled through the Joint Health Support Agency (JHSA) via nine Area Health Services (AHS); Air Force (AF) operational health is managed by Health Services Wing (HSW). This division is ill-defined and considerable overlap exists, with the result a confused chain of command and lack of clear responsibility for health delivery at RAAF bases. This has led to a lack of standardisation and consistency across bases and the neglect of key areas of health support. In 2005, Chief of Air Force (CAF) directed the development of a model to consolidate command of all AF health units, standardise AF base health delivery, and develop a formal agreement with DHSD. With input from Head DHS, the AF health strategic roadmap was further modified to include the development of a new AHS based on functional requirements rather than geography. This "AHS-AF" or Air Force Health Service (AFHS), to commence operations in mid 2008, will include all AF health facilities and for the first time marry chain of command with technical oversight of health care delivery. It is hoped that the new construct will assist in the seamless delivery of health care to ADF personnel, both at home and in the field, and with equal importance placed on both.

*Contact author: GPCAPT Tracy Smart, RAAF, Amberley, Qld, 4306
Email: tracy.smart1@defence.gov.au*

Abstracts

Priorities for the Defence Health Services

Robyn Walker

Health is a key contributor to fighting power, as only a health military force can function at, and sustain, maximum effort. Health is not merely the absence of injury or disease, but in the widest meaning, includes physical and mental well-being, spiritual welfare and a balanced private life.

As such, the role of the Defence Health Services includes not only the treatment of disease and injury, but also preventive measures and post injury rehabilitation across the physical and mental spectrum. It includes the identification of and testing for, occupational parameters in order that personnel with the appropriate level of physical and mental

fitness, as well as the appropriate aptitudes are identified, so that the right person is put in the right job.

The Defence Health Services mission is to optimise the health of the ADF personnel. The strategy to achieve this mission involves minimising the effects of injuries and disease on ADF unit effectiveness, readiness and morale.

The key priorities for the Defence Health Services in 2007/2008 include people, capability and governance. These priorities will be discussed.

*Contact author: CDRE Robyn Walker, Defence Health Services, CP2-7-094, Campbell Park Offices, Campbell Park, ACT, 2600
Email: robyn.walker@defence.gov.au*

Miscellaneous

Modelling Defence Health Service continuing professional development

Nigel C Carlton, Margaret M Cherry

Aim: To develop and test a conceptual framework for assessing the Continuing Professional Development needs of the Defence Health Service.

Design, Setting and participants: A literature search of contemporary concepts of military and health professionalism led to the development of a conceptual framework for Continuing Professional Development (CPD) combining a Professional Environments Concept with the Learning, Education and Professionalism (LEAP) framework. This informed a conventional Needs Assessment with data evaluated using descriptive analysis and simple cross-tabulation. ADF health service providers were asked to complete an anonymous survey delivered on both the internet and Defence Restricted Network. Corporate perspectives were assessed by semi-structured interviews with senior executives (one star appointment) within the Defence Personnel Executive.

Results: The study identified an overarching theme of inequity of access to CPD activities with a strong need for flexible delivery, practical learning opportunities and workforce/place support. This theme was broadly supported by the Corporate Group with the caveat that capability and the broader Defence need direct the priority of effort. A low response rate to both surveys along with inconsistencies in PMKEYS data prohibited the accurate extrapolation of the study results across the DHS population.

Conclusion: The proposed CPD conceptual model, combining the Professional Environment concept and modified LEAP framework components of CPD, proved appropriate to the ADF health sector. While the study results cannot be generalised across the Defence population, the study represented a successful pilot of the conceptual model.

*Corresponding author: CMDR Nigel Carlton, Defence Health Services, CP7-2-137, Campbell Park Offices, Campbell, ACT, 2600
Email: nigel.carlton@defence.gov.au*

Physical Employment Standards (PES) for the Ground Based Air Defence (GBAD) trade

D. Billing, A. Laing, R. Attwells, D. Ham, M. Patterson, A. Fogarty, G. Moorby

The PES Project includes the development of trade-specific assessments to evaluate the physical capability of personnel relative to job requirements. Four physical employment assessments (PEAs) have been developed for the GBAD trade.

Development of PEAs involves the quantification of the physical demands required to safely perform trade-tasks. Tasks inherent to the GBAD trade were observed within an operational context and heart rate, metabolic rate, global positioning system and sensory perception information was collected. The key physical demands on GBAD personnel were identified as aerobic and anaerobic capacities, strength and

muscular endurance. The PEAs developed assess these capacities using movement patterns and muscle groups relevant to the GBAD trade-tasks.

Performance standards set were based on the measured requirements, in consultation with SMEs and doctrine. As trade-tasks are performed in series, not isolation, standards were set to ensure soldiers can complete tasks without reaching maximum capacity, allowing continued operational effectiveness. Three capability zones were set to classify personnel: Green, ready to go and low risk; Amber, medium risk with minor remedial conditioning required; and Red, high risk with major remedial conditioning required. These PEAs provide a risk-management tool for commanders to minimise injuries and sustain performance.

Corresponding author: Alison Laing, Human Protection and Performance Division, Defence Science Technology Organisation, 506 Lorimer Street, Fishermens Bend, Vic 3206
Email: Alison.Laing@dsto.defence.gov.au

Provision of mental health first aid to the ADF

Annette Owtrim

Background: Aspen Medical has established itself as the pre-eminent Australia supplier of operational and project based health in the region. Through its strong association with the ADF and operational health support, Aspen has become active managers in the area of mental health.

The ADF have issued a comprehensive Mental Health Strategy which provides numerous resources and information to Commanders and members.

Aspen, through other Contracts has identified that this level of support is not widely available in other commercial or government organisations. This prompted Aspen to develop a Mental Health First Aid package which it is delivering to institutional health care providers such as Detention Centres and Correctional Services.

Increasing familiarity and awareness of mental health in the Military and civilian sector has seen an

increase in the incidence of reported mental health conditions. Organisations have a duty of care to their dependants to either provide the appropriate help or offer resources that may assist in the management of the condition.

Aim of the Course: The Aim of the Mental Health First Aid Package was to develop and deliver a half day course that is designed for non-medical personnel.

Course Content: The Course covers the major components of mental health which are found in the community and within institutions. The key areas covered include:

- Depression;
- Anxiety;
- Suicide;
- Changes to normal behaviour.

Signs and symptoms for each aspect are covered to assist non clinicians to recognize these conditions in the dependant population and to alert health professionals or encourage others to seek support.

Basic Mental Health First Aid is provided for each major condition.

Course Design: The course is a combination of didactic and interactive sessions.

The purpose is to allow non health care providers to recognise and seek assistance before a major or catastrophic events occur. In addition, the work conducted within institutions can itself be demoralising and this course provides an opportunity for self awareness amongst employees.

Relevance to the ADF: The ADF provide a range of media and other opportunities for ADF Commanders and members to become informed about Mental Health Conditions. However, in some instance members may not seek out assistance and Commanders and psychology resources are overstretched to provide such courses. Aspen could trial the relevance of this course at Puckapunyal and other sites to assess the effectiveness in knowledge.

Contact author: Annette Owtrim, Aspen Medical, PO Box 5108, Braddon, ACT, 2612
Email: aowtrim@aspenmedical.com.au

CO Satisfaction Surveys (COSS):
the other survey management tool?

Neil Westphalen, Dave Parry

Patient satisfaction surveys have been mandated by the ADF's health services since the late '90's but there has been no equivalent for the commanders for whom local health facility OC's, OIC's and SMO's provide health services and advice.

This presentation describes the development and presents the results of the first AHS-WA CO Satisfaction Survey (COSS).

The focus of the development process was to have something that would provide useful information while remaining quick and simple.

The instrument was done on an Excel spreadsheet to facilitate easy completion and easy emailing. It had seven questions designed to meet the outcomes of the AHS-WA Strategic Plan. Each question was rated from 1 (completely dissatisfied) to 5 (completely satisfied), with additional space for comments.

The response rate from all CO's in AHS-WA was 87.5%. The rating for the whole AHS was only 2.85. Whilst this is disappointing, there were no major surprises regarding the outcome, and it was noted that the good and not-so-good areas varied considerably between the various health facilities.

What is important however, is that the health facility OC's, OIC's and SMO's within AHS-WA have better information as to what aspects of their services need to improve with respect to the CO's that they deal with.

It is intended to repeat this survey every 12 months, with the aim of achieving overall ratings over three throughout the AHS. It seems apparent however, that the COSS is capable of nation-wide application by local ADF health facilities, as a means of improving their day-to-day operations, and at the strategic level, with respect to health policies as they impact on COs (for example patient confidentiality, TMU and MEC issues).

*Corresponding author: CMDR Neil Westphalen, Fleet Base,
West Health Centre, HMAS Stirling, WA
Email: neil_westphalen@bigpond.com*

16th Annual Conference –
Melbourne 19-21 October 2007

The Australian Military Medicine Association held its 16th Annual Scientific Conference at the Crown Promenade on the banks of the Yarra in Melbourne from 19 to 21 October 2007.

Without a doubt, this conference, building on the achievements of the 2006 joint Defence Health Services/AMMA Conference in Brisbane, was the most successful in the Association's history. This became evident early on when the large number of papers and sponsors attracted led to the need to move from the original venue to one that was large enough to cope with the expected attendance. This did not disappoint either, with over 350 delegates attending.

Over 70 papers were submitted and as a consequence the duration of the conference was increased to cover three days rather than the usual two.

The conference attracted some high quality local and international speakers.

The conference was opened by the Chief of Defence Force, Air Chief Marshal Angus Houston AO RAAF, who spoke eloquently on the commitment of the Defence Force to support the health and welfare needs of its personnel.

The keynote presentation, on the latest surgical techniques of reconstruction following severe burns, was read by the Director of the Concord Burns Unit, Dr Peter Maitz. Because of the nature of modern warfare, burns are now one of the most common forms of battle injury. If anyone doubted the miracles that can now be achieved for the long-term benefit of injured personnel, this paper dispelled those.

Of note also, this first session was attended by the then Shadow now Minister for Veterans' Affairs, Mr Alan Griffin MP.

The remainder of the first day was taken up with eight concurrent sessions covering themes including Mental Health, Trauma and other varied subjects.

Day two was highlighted by the two Simons – Professor Simon Wessely, Director, King's Centre for Military Health Research in the United Kingdom and Simon

O'Donoghue RAF, Director-General Medical Services (Royal Air Force). Simon Wessely delivered a highly entertaining, informative and possibly controversial paper on the Gulf War and related Syndromes and Simon O'Donoghue brought us up to date with the RAF Medical Services contributions in Iraq and Afghanistan.

Packed concurrent sessions on Saturday themed into Workforce, Mental Health, Veterans' Health, Human Factors, Dental and Research, among others.

The highlight of the third day was the closing session with a hypothetical Panel discussion on mental health issues in the ADF led by Mark Creamer. A lively discussion ensued on the challenges and possible strategies to address them. The conference was rounded out with another paper from Simon Wessely on the reactions of populations to terrorist-like climates – using the London Blitz and the current spate of terrorism as key examples.

As always, the opportunities to network at social gatherings and during the breaks at the Trade Exhibition were among the most valuable parts of the conference.

The Welcome Reception held in the conference venue broke the ice on the first night.

The conference dinner, held at the Melbourne Cricket Ground, was another highlight, with the location and the food, both exceptional, being eclipsed by one of the most entertaining after dinners speakers that many present had ever heard. The Reverend Harlin Butterly spoke entertainingly and humorously on a variety of themes and, to the delight of all, led the assembled throng in a military medicine-themed operatic rendition.

The conference also provided the venue for the Annual General Meeting of the Association (covered in a separate article).

As at every conference, the Weary Dunlop Prize was hotly contested, and the winner by unanimous decision of the judging panel was Alison Laing who read a paper entitled *Physical Employment Standards*

AMMA Council and AGM
19-21 October 2007

(PES) for the Ground Based Air Defence (GBAD) Trade.

The success of a conference is due to many. Fundamental are those who take the time to prepare papers and the delegates who attend. But these must be brought together effectively, and I would like to thank the Organising Committee – Nader Abou-Seif, Peter Habersberger, Helen Kelsall and Bob Stacy for their efforts in pulling together the scientific programme and coaxing our overseas and keynote speakers to come. Our Secretariat – Leishman Associates – and particularly Paula Leishman, Leanne Bleatham and Renee Brown – got all the detail together to make it happen as well as working enthusiastically to get sponsorship.

I must also thank our sponsors for their tremendous support at last year's conference, support that makes the cost of your attendance more affordable. Without them, none of our conferences would be able to achieve the high standard and great value that AMMA conferences have always represented.

This year's conference has been moved... to Hobart. The reason for this is that last year's event has demonstrated our ability to run much bigger conferences than we have in the past. The interest in Melbourne was so great that we had to move to a larger venue at the last minute, and so Council has had to make the decision to plan on this size conference. Unfortunately, Adelaide did not have any suitable larger venues available in October/November 2008 hence the move to the Island State.

Council has also made the decision to take the Conference to Perth in 2010 after a third Joint AMMA/Defence Health Services Conference in 2009.

So, I look forward to seeing you all again at the Wrest Point Convention Centre in Hobart from 17 to 19 October 2008.

Russ Schedlich
President, AMMA

The 16th Annual General Meeting of the Australian Military Medicine Association was held in Melbourne in conjunction with the Association conference on Saturday 20 October 2007.

117 members attended.

The Annual Report was presented by the President, Russ Schedlich, and the highlights were:

- Membership has slightly increased
- The Association's assets have increased from \$101,741 to \$198,512 over the 12-month period;
- The operating surplus for the financial year 2006/07 was \$50,400
- The Joint AMMA/DHS conference in Brisbane, which attracted 570 delegates and was opened by the then Minister for Defence, The Hon Brendan Nelson MP.

As a consequence of the health of the Association's finances, no increase in membership fees was proposed.

Russ Schedlich noted the retirement of Graham Boothby as Treasurer of the Association, and paid tribute to his work in that position, which he had held for a number of years. His dedication to the task and sound advice has seen the Association's financial position grow whilst maintaining membership fees at a very reasonable rate.

Elections for Council were concluded, with the addition of Kerry Clifford to the team.

Office bearers for 2007/08 are:

- President – Russ Schedlich
- Vice-President – Nader Abou-Seif
- Secretary – Janet Scott
- Treasurer – Scott Kitchener
- Editor-in-Chief, The Journal of Military and Veterans' Health – Russ Schedlich

The 2006/2007 Annual Report and Financial Statements can be found on the AMMA website at amma.asn.au.

Russ Schedlich
President, AMMA

1. Purpose and scope

The Journal of Military and Veterans' Health is a peer reviewed journal published by the Australian Military Medicine Association. The aim of the journal is to promote excellence in the discipline of military and veterans' health, to promote research and to inform and educate all those practicing as health professionals or who have an ongoing interest in this area. The scope of the journal covers all aspects of health of service personnel from enlistment and service within a military organisation to post service health care as a veteran. Environmental and related aspects of employment are included in this scope so that the journal provides a unique forum for discussion and research related to a wide range of health issues arising from exposure to military environments. This scope is very broad including, for example, mental health, trauma, health training and effects of environment on health.

Editorial Office

Please address all non-electronic correspondence to:

Journal of Military and Veterans' Health
113 Harrington Street
Hobart TAS 7000

Email: editorial@jmvh.org

Tel: 6234 7844

Fax: 6234 5958

URL: <http://www.jmvh.org>

Submission of manuscripts

Electronic submission of manuscripts is mandatory.

Manuscript requirements

Manuscripts submitted to the Journal of Military and Veterans' Health must conform with the *Uniform requirements for manuscripts submitted to biomedical journals* (www.icmje.org).

2. Categories of manuscripts

The Journal of Military and Veterans' Health publishes articles related to health of military personnel and veterans within two broad areas of interest:

Research and practice related	Informative and commentary
Original Research/ Original Articles	Editorials
Short Communication	Letters to the editor
Review articles	Biographies
Reprinted Articles	History
Case Studies	Obituaries
Abstracts from the Literature	Book reviews
	Commentary
	View from the Front

Each issue may not contain all categories of articles. The word limit does not include text in the abstract, references, figures and tables. The requirements for submission categories, which are peer reviewed, are summarised below:

Category	Maximum word count	Maximum number of	
		Tables and/or figures	References
Editorials	1000	1	3
Original research	3500	6	30
Short communication	1500	3	10
Review article	5000	8	60
Case studies	1000	3	10
Letters to the editor	800	2	10
History	3000	6	20
Commentary	1500	3	10
View from the Front	2000	5	20
Obituaries	200	1	4

Instructions to Authors

Original research

This category is the primary mode in the journal for communication of findings from original research studies.

Short communications

This category is for communicating the findings from small-scale research studies however other subject material will be considered.

Review articles

Authors who wish to submit a review should first contact the editors to determine its suitability for publication in the journal. The editors encourage authors to submit systematic reviews for publication.

Reprinted articles

This section will include full length copies of articles reprinted with permission from other journals. These articles must be keynote and valuable contributions to health issues in the military and veterans' areas. Readers are invited to email details of papers that should be considered for this category. Any proposal should be accompanied by a short commentary (maximum 200 words) outlining why this historical paper was important in shaping some aspect of military or veteran health practice. The commentary will be published with the keynote article.

Case studies

This category is primarily designed to present details of interesting or unusual clinical cases and a summary is required with a limit of 100 words. The text should be presented using the following headings; background, history, examination findings, special investigations, discussion including differential diagnosis. The article should succinctly illustrate important points.

Abstracts from the literature

This category will include abstracts of seminal work published in other journals which is related to the scope of the Journal of Military and Veterans' Health. Readers are invited to email references to papers that are considered to be valuable to healthcare professionals and others in the military and veterans domains. The editors acknowledge that many of our readers may not have facilitated access to comprehensive reference libraries.

Letters to the Editor

Letters may comment on material that has recently been published in the journal or may address new topics, such as use of new equipment or

instrumentation in the field or a new technique applicable to preventive medicine. Where the subject matter is directed towards a previous publication the editors will usually send the letter first to the authors of the original paper so that their comments may be published at the same time as the letter.

Editorials

Submissions are encouraged for publication in this category and these will be subjected to the peer review process. Topics of interest must fall within the scope of the Journal of Military and Veterans' Health. Guest editorials may be invited from time to time by the editor; suggestions for topics for editorials should be directed to the editor.

Biographies

Biographical accounts of the work of individuals who have made outstanding contributions to the health and care of military personnel and veterans will be considered for publication. If you wish to submit a biographical article the editor should be consulted prior to preparation of the article. The editorial board may solicit such articles directly.

History

Articles describing notable themes related to health and care of military personnel and veterans are invited for publication. The scope is broad and could include, for example, the conduct and outcome of military operations, effect of climate, improvements in trauma care, surgical techniques and mental health. The article should focus on health care delivery and practice as the main theme and may compare changes from earlier practice to those in use today. The editorial board may invite such articles directly however if you wish to submit a manuscript the editor should be consulted in advance. The style of this category will be the same as that applied to a review article.

Obituaries

The editorial board will accept obituaries for individuals who have served as health professionals within the Australian Defence Force. These have been very successful in the British Medical Journal (BMJ) to provide information to the wider health readership. Guidance for preparing an obituary can be found on the BMJ web site, www.bmj.com (e.g. *BMJ* 1995;311:680-681 (9 September) and *BMJ* 1995;311:143-144 (15 July)). Obituaries should be submitted within one month of death and will be subject to editing if required.

Book reviews

Reviews of publications which have a direct focus on military and veterans' health for educational, informative, reference or other reasons will be invited. The author/s would be expected to be independent, have considerable experience and/or a track record and a direct involvement in the field which is addressed by the publication.

Commentary

Commentaries will be short articles which provide incisive, informative and balanced comment on current health issues. The editors may invite commentary on a research paper published in the same edition of the journal. All commentary articles will be peer reviewed and the article style will be that of an editorial.

A view from the front

This category will consider submissions from health individuals at the front line of health care and health delivery to serving personnel and veterans. These articles should be topical, recent, may contain an individual's personal view of a health delivery system and will be subject to peer review.

3. Editorial policy

Original material

The Journal of Military and Veterans' Health publishes original work describing health related research studies. Submitted manuscripts must not have been published or submitted for publication elsewhere, either in whole or in part. This applies to both paper and electronic methods of publication but not to abstracts presented to scientific meetings. Authors planning to submit review articles should first contact the Editorial Office to ensure the appropriateness of the subject material.

Disclaimer

While the Editorial Board makes every effort to ensure that no inaccurate or misleading data, opinions or statements are published in the journal, all data, results and opinions appearing in articles and advertisements are the responsibility of the contributor/s and/or the advertiser concerned. Accordingly the Editorial Board and their respective employees, officers and agents accept no liability whatsoever for the consequences of any such inaccurate or misleading data, results, opinions or statements. While every effort is made to ensure that all data are accurately presented, new methods and

techniques should only be considered in conjunction with published literature from manufacturers.

Ethics approvals

All studies that involve participation of humans, information on participants or which would otherwise be considered to require ethical approval related to the principles set forth in the Helsinki Declaration should be conducted in accordance with such principles. Studies of this nature must contain a statement indicating that approval has been granted by a properly established Human Research Ethics Committee.

All studies involving experiments with animals must contain a statement indicating that the protocol *was approved by an appropriately constituted ethics committee or institutional review board in compliance with guidelines* established by that country's government. A statement must be included that indicates that all animals received humane care in compliance with these guidelines.

Confidentiality

Confidentiality must be maintained in relation to all participants. All presented data must be de-identified. If a participant is able to be identified from illustrations, photographs, case studies or other study data then release forms or copies of permission for publication must be submitted with the manuscript.

All potentially identifying information (including patient likenesses, identification numbers, names and initials) must be removed from images, tables, graphs, charts and text before the manuscript is submitted.

If a reference is made in the text to personal communication (oral or written) as a source of information, a signed statement of permission is required from each source. The year of receipt of these statements should be provided in the text. Use of personal communication as a reference will only be accepted in special instances.

Informed consent

A statement must be included indicating that informed consent was obtained from all participants if data were obtained from or were related to human participants.

Authors Process form

Each author must complete this form and forward the original signed copy to the editorial office. A faxed or scanned image may be submitted electronically to

Instructions to Authors

maintain the editorial process however the original completed form must be received by the editorial office before publication.

Copyright assignment

Copyright for each submission is to be assigned to the Journal of Military and Veterans' Health or provision for a licensing arrangement must be completed (*Authors Process* form).

Conflict of interest and funding

Authors are responsible for recognising and disclosing financial and other conflicts of interest that may bias or could be perceived to bias their work. They should acknowledge in the manuscript all financial support for the work including any control over publication by funding bodies and other financial or personal connections to the work. Each author must complete the conflict of interest and funding section of the *Authors Process* form.

Authorship and acknowledgments

Each author must indicate their contribution to preparation of the manuscript (*Authors Process* form). The corresponding author is responsible for ensuring that all individuals who do not satisfy the criteria for authorship are noted in the acknowledgements section together with a brief description of their contribution.

Sole submission

Authors must indicate that the work is original and has not been published or submitted for publication in another journal (*Authors Process* form) as the same or similar material. This includes submission by the authors and their colleagues in the interval before this work is published. Submission by authors of similar material to advertising, news media or other forms of publication must be indicated when the Journal of Military and Veterans' Health receives your manuscript and a copy of that material should be provided with your manuscript.

Peer review

Two or more referees are assigned to review each submission (except for Book Reviews and Reprinted Articles). Acceptance of original articles is based on significance, originality, scientific quality and interest to the Journal of Military and Veterans' Health readership. If the submission is accepted for publication, editorial revisions may be made to aid clarity and understanding without altering the meaning. Authors are given the opportunity to nominate reviewers whom they believe are expert and

impartial in their area of interest.

Offprints

A copy of the final paper will be provided to the corresponding author in pdf format. A copy will be available from the journal website (www.jmvh.org) for interested individuals to download. These copies are made available for single, personal use only and are not available for commercial or other use.

Rights and permissions

Written permission to reproduce any previously published tables or figures must be obtained from the copyright holder (and authors as applicable) and a copy of this permission provided with your submission. Any reproduced material must be clearly identified and its source and permission noted in the manuscript.

Clinical trial registration

We define a clinical trial as "Any project that prospectively assigns human subjects to intervention and comparison groups to study the cause-and-effect relationship between a medical intervention and a health outcome (ICMJE definition). These should be registered, including early phase uncontrolled trials (phase I) in patients or healthy volunteers (WHO Recommendation)".

The Journal of Military and Veterans' Health requires all clinical trials to be registered with a registry that is accessible to the public (at no charge); is searchable using standard, electronic (internet) means; is open to all prospective registrants at minimal or no cost; validates registered information; identifies trials with a unique number; and includes basic information related to the researchers and the trial.

If you are submitting a randomised controlled trial, add the registration number of the trial and the name of the trial registry in the acknowledgements section of your manuscript. Other trial registers that currently meet all of the International Committee of Medical Journal Editors (ICMJE) and World Health Organization (WHO) requirements can be found at <http://www.icmje.org/faq.pdf>.

Registries that meet these criteria include:

- Australian Clinical Trials Registry (www.actr.org.au/)
- US National Library of Medicine (sponsor) (www.clinicaltrials.gov)
- The International Standard Randomised Controlled Trial Number registry (www.controlled-trials.com)

Instructions to Authors

- The National (UK) Research Register (www.update-software.com/national/)
- European Clinical Trials Database (<http://eudract.emea.europa.eu/>)

Language

All manuscripts must be written in English. Spelling and phraseology should be to either standard English or standard American usage and should be consistent throughout the manuscript. Contributors with a non-English native language are encouraged to seek the help of a competent linguist who is familiar with medical terminology prior to submission. It is the author's responsibility to have the language revised before submitting the work for publication. Only minor language revisions are provided after submission.

Review process

Receipt of all submitted papers is acknowledged by email. Manuscripts are initially assessed by the editors and then sent for external review to experts in the field. The corresponding author will be notified by email when a decision is reached. To aid in the peer review process we invite authors to suggest potential reviewers, with their contact details, in the cover letter.

Reproduction of articles, figures and tables

If you would like permission to reproduce an item from material published by the Journal of Military and Veterans' Health, contact the editorial office by email editorial@jmvh.org.

Software and format

The manuscript must be supplied in Microsoft Word in .doc format (Word 2007 file format not accepted at this point in time) or in rich text format. Files prepared in other packages will only be accepted and considered provided they are compatible with Microsoft Word and that *any reformatting is minor*. Files prepared in various desktop publishing proprietary formats will not be accepted.

4. Organisation of manuscripts

Papers will differ in structure depending on category. These instructions refer to sections of manuscripts independent of category where these sections are included. For original research articles the structure should follow the order below with each section beginning on a new page. Reviews should commence with an abstract and then be organised such that the information is presented in a logical sequence with

informative headings and sub-headings related to the content.

Title page

The manuscript should be preceded by a title page which includes the following information:

- Concise title of manuscript
- Name, address, title, highest qualification, affiliation and contact details (email, postal address, telephone and fax) for each author
- Identify corresponding author
- Identify (email) address for correspondence (corresponding author)
- Short running title (maximum 50 characters including spaces)
- Word count (text of paper only – excludes abstract, references, figures and tables)

Abstract

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