

# 2009 AMMA Conference Abstracts

## Keynote Speaker

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A decade of disaster planning for burn injuries

*Fiona Wood*

Every intervention from the time of injury influences the scar worn for life. In a disaster situation the balance between best for most without compromising care and therefore outcome is the greatest challenge. To do the best for most, planning and preparedness are vital steps facilitating the response with the recovery being an essential time of reflection and learning to drive improved responses in the future.

Planning for a major burn disaster began in 1999 with the awareness of the need to work together as resources could be overwhelmed. There are specialist burns centres in each state providing the routine services for the community. There is evidence that burn injuries

are best treated in these multidisciplinary facilities, but what about mass casualties?

The history of the development of the AUSBURN plan will be described, illustrated by the Western Australian responses to 2 major disasters. Highlighting the need for education, bringing together the patients needs, the clinical experience and the resources available, to ensure care at every intervention from the time of injury is the best it can be.

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## Deployment & Mental Health

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What are the mental health outcomes of deployment? Disagreement amongst our allies

*Stephanie Hodson and Alexander McFarlane*

The post deployment studies in the United Kingdom have generally suggested that there are lower rates of post-traumatic stress disorder in contrast to the United States in troops returning from Iraq. These differences raise important questions about aetiology and the measurement of morbidity that is critical to the planning of services. This presentation will discuss the origins for the differences between two important bodies of epidemiological data in an attempt to assist in how emerging findings from the deployment health surveillance studies of Australian deployments are best interpreted.

There needs to be a careful consideration of the findings so as to not overemphasise the rates of morbidity whilst at the same time ensuring that the morbidity identified is not minimised. The optimal provision of treatment for returning veterans and the methods of dealing with the barriers to care which can produce substantial delays to treatment, are important factors to consider in this context.

The historical evidence would suggest that there tends to be a liaison between combat exposure and the symptoms of distress becoming manifest. The underlying biological process as well as the social factors that contribute to the late emergence of post-traumatic morbidity will be described.

The current conflicts and the prevalence of IED's have led to a refocusing of concern on the role of mild traumatic brain injury as a major cause of morbidity following deployment. However, there is a significant overlap between the symptoms of MTBI and PTSD. Evidence derived from civilian populations will be presented to assist in resolving this conundrum.

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A descriptive study of mental health morbidity in the RAP of a high readiness infantry battalion

*John Shephard, Kane Lavender and John Sanderson*

The Dunt Review of mental health care in the ADF highlighted the important role of primary health services and recommended that Medical Officers assume a central role in case management.

**Aim:** To investigate mental health case load in the primary care setting and to identify implications for both force sustainability and health service delivery.

**Methods:** Using clinical practice software (MIMI), we identified all mental health cases managed through the RAP of a high readiness Infantry Battalion over a twelve month period. Individual case notes were examined, and key data extracted including diagnosis, deployment history, principle precipitating stressors, outcome and presence of significant suicidality.

**Results:** We identified 69 cases requiring significant co-ordinated management through the RAP over the 12 month period under report. Adjustment Disorder was the most common diagnosis (49.8%), closely followed by Major Depressive Disorder (43.5%). PTSD accounted for 4.4% of cases. Approximately three out of every four cases (76.8%) involved members with fewer than two operational deployments. Workplace stress was the most common precipitating factor (28.9%), followed by drug and alcohol misuse (20.4%), relationship conflict (18.8%), whilst anger and impulse control accounted for 13.1%. With treatment, equal numbers (36.2%) proceeded to either discharge or retention within the ADF. Significant suicidal ideation requiring joint command and medical involvement was present in 15.9% of cases.

**Conclusions:** Mental health morbidity places a significant drain on ADF capability and is a challenging workload for ADF health services. In this study, mental health morbidity appeared to occur early in a member's career. Workplace environment and other everyday stressors seemed to play a more important role in precipitating illness than did combat related factors. Further research, including intervention studies targeting highlighted stressors, is recommended.

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Deployment stress, allostatic load and cascading family effects

*John Pead*

The unremitting stresses of deployment to Australia's Middle East theatres result in psychological responses that now commonly require significant adjustment on return to the Australian community. Two important models for understanding these responses and the promotion of adjustment upon return are the impact of allostatic load and the cascading effects on families that are in turn felt by the deployed person. Using video vignettes and recent case examples, seen by the author, these concepts are illustrated and their implications for practice improvement considered.

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Post-deployment psychological screening: a review of mental health trends for 2008

*Cherie Nicholson*

Mental health trends from the most recent post-deployment psychological screening annual report will be presented. Data will encompass Army, Navy, and Air Force ADF members deployed to the four main active operations (Anode, Astute, Catalyst and Slipper) who returned to Australia between Jan and Dec 2008. Data collected upon return to Australia will be compared to data collected 3-6 months later in order to examine the change in trends over time and check for effective reintegration. Topics covered include trauma exposure trends, organisational stressors, symptomology, and perceived deployment experiences.

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## Ability & Capability

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RNZAF medical branch – sink, swim or fly

*Peter Hurley*

Since the mid 90s, the Royal New Zealand Air Force (RNZAF) Medical Branch has been struggling to survive and discover its identity. In the mid 90s, a decision was made to civilianise the medical branch

and contract out services. This led to many personnel leaving the branch. Subsequently, a further decision was made to revert to a uniformed branch. By that time, the medical branch was in considerable disarray with a shortage of personnel and a fragmented health service. All the branch could do was to meet the needs of primary health care.

In an attempt to regenerate the medical branch, a project was developed to identify the areas in the

branch that needed attention and subsequently a second project followed to plan the implementation of the regeneration process. During the stages of the project, the New Zealand Defence Force (NZDF) as a whole also commenced a project to determine the future health needs of the NZDF and, this year, draconian measures have been introduced to curb spending and restrict expansion.

This presentation sets out the processes adopted for the two projects, the areas identified as crucial for the branch to function efficiently, the development of an ideal situation and subsequent interim measures to operate within the boundaries of a recession based operation.

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Australian Defence Force Reserve Dental Officers – their capabilities & suggestions for their employment

*Janet Scott*

The Surgeon General of the Australian Defence Force looks for specific advice from the Chairmen of his various Consultative Groups.

Upon assuming the Chair of the Consultative Group in Dentistry, a questionnaire was sent to all Dental Officers on the list of Australian Defence Force (ADF) Reserves. The aim was to produce a contemporary list of Defence Reserve dentists, their qualifications and interests which could then be used by any part of

Defence Dental Services or Joint Health Command. The questionnaire asked if members were still interested in remaining part of the ADF and if so, to ascertain how they felt they could contribute to the ADF. A total of 142 questionnaires were sent, 97 replies were received (70% response).

Nine members had retired from clinical practice, 4 were no longer interested in being part of the Reserves, and the remainder were still willing to be active within the Reserves, with most wishing to contribute either as mentors to junior officers or to provide support to military bases for periods of time. Several already visit their local bases on a sessional basis.

Of the 97 responses, there were 24 from Navy, 38 from Army and 35 from Air Force members. Many were specialists, with most dental specialists being represented.

From the results of the survey, a paper was submitted to the Surgeon General suggesting ways of employing the Reserve Dental Officers. A pilot study is underway to provide an oral surgery rotation to Darwin, where there is limited civilian oral surgical support.

The methodology and results of the survey are presented together with suggestions for the future.

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Chemical Warfare – a retrospective: the Great War 1914-1918

*Michael Tyquin*

This paper summarises developments in chemical (gas) warfare over the years 1915-1918 and its repercussions in the treatment of affected soldiers. It looks at the response of British and Australian military medical authorities to the German gas threat while detailing some of the diagnostic and clinical features of this unique type of warfare. There may also be value for current management of chemical warfare victims in the study of past practices.

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### Anthropometric limitation for the Kiowa Helicopter

*Adrian Smith*

In response to a number of recent Army student pilots who could not be accommodated in the Kiowa helicopter, despite meeting the current anthropometric limits for selection as a pilot, HQ 16 AVN BDE requested that AVMED define the maximum sitting height that can be accommodated in the Kiowa, and evaluate the potential impact that adopting such a limit might have on the selection pool for Army pilots.

**Method:** AVMED undertook a cockpit accommodation trial of 11 subjects with sitting heights between 89 cm and 103 cm, wearing HGU 56/P helmets. Results. Individuals with sitting height >94 cm bumped their helmet on the roof spar, whereas individuals with sitting height ≤92.5 cm had a 1.5-cm clearance between the top of their helmet and the roof spar. Individuals with buttock-knee lengths of up to 64.5 cm were able to operate the rudder pedals without their legs contacting the instrument panel. Sitting height recorded on the recruit medical examination was as much as 4.5 cm shorter than measured by the authors; discrepancies in buttock-knee lengths of 2-3 cm (but as much as 8.5 cm in one case) existed for buttock-knee length.

**Conclusions:** The Kiowa cockpit cannot accommodate individuals with sitting height >92.5 cm. This excludes up to 70% of men and 10-15% of women in the Australian community aged 18-30 years, and approximately 52% of

aircrew applicants. A sitting height limit of 95 cm would only exclude 24% of applicants. Where sitting height is a critical dimension to determine accommodation in the Kiowa, selection of aircrew based on a medical examination where the examination under-records the sitting height by up to 4.5 cm can have a significant impact on Army's ability to correctly select applicants who can fit into the Kiowa. Errors and inaccuracies in measurement would be minimised if all aircrew applicants were processed in a single centre with highly-trained staff experienced in aircrew anthropometry, especially if anthropometric dimensions were captured by a LASER scanner.

**Recommendations:** AVMED recommends that 95 cm be adopted as the maximum sitting height that can be accommodated in the Kiowa; however, applicants with sitting heights >92 cm but ≤95 cm should undergo a formal cockpit check to determine their fit. Applicants with sitting height >95 cm should not be selected to fly the Kiowa. If identifying an alternate training helicopter that can accommodate a greater section of the Australian population is not feasible, Army could consider retro-fitting the Kiowa with an adjustable seat capable of accommodating people with sitting heights up to 98 cm in order to increase their selection pool.

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## Veterans' Health I

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### The Australian Deployment Health Surveillance Program: an evaluation of recruitment and data collection strategies

*Colleen Loos, Lisa Nielsen, Tegan Cosgrove, Susan Treloar, Christine McClintock, Michael Waller, Annabel McGuire*

**Background / Objectives:** A series of cross-sectional studies exploring health outcomes in Australian Defence Force (ADF) personnel who deployed to the Solomon Islands, Bougainville and East Timor was recently conducted. We aimed to evaluate the effectiveness of mail and email approaches in the collection of questionnaires, the success of call strategies in telephone follow-up, and the characteristics of online and mail participants in questionnaires surveys.

**Methods:** For the Solomon Islands study conducted in 2007 (N=994) all invitations were sent by mail. For the larger Bougainville and East Timor cohorts approached in 2008 (N=12,742), two-thirds of invitations were emailed, with the remainder being mailed. Recipients

could complete the questionnaire online or request a paper copy. Those who did not reply were followed up by telephone and, where requested, invitations and/or questionnaires were re-sent.

**Results:** Emailing the invitations was twice as effective as mailing in the Bougainville and East Timor studies, with 24% of the sample participating after an emailed invitation, versus 12% for a mailed invitation ( $p<0.001$ ). During telephone follow-up for non-responders, the potential participant was actually reached on 65% of the mobile numbers, compared with 42% of landlines ( $p<0.001$ ). These studies received a 43% response, with 86% participants (N=4689) submitting data online.

**Conclusions:** There are significant advantages to using electronic recruitment and data collection methods, especially among young, mobile populations. Email is a cost-effective way to deliver study invitations, and mobile telephone numbers facilitate contact with potential study participants.

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The near north area of influence study group: comparison of health outcomes for personnel who had not been on a military deployment compared with those who had been to East Timor and the Middle East area of operations

*Jonathan Bleier, Michael Waller, Annabel McGuire, Susan Treloar, Alexander McFarlane, Annette Dobson*

Assessment of any kind of association between military deployment and health outcomes requires comparison with a group who could be considered representative of the people who deployed. It is clear that the general population is not suitable for this because the military selects, on entry, for a range of criteria that include measures of health.

Throughout military careers, people continue to experience assessment and selection, and are offered medical care, as well as having the opportunity, and often a requirement, to participate in physical training. The consequence of this process has been called the "health soldier effect". Military people, as a group, are expected to be fitter and healthier than the general population.

Not everyone in the military experiences deployment. A proportion are deployed once and some people experience multiple or prolonged deployment. Entry to this cadre is also selective as subsequent deployment is almost certainly conditional that the person was fit to deploy. Therefore a person who has deployed many times may have been healthier to begin with than someone who has deployed fewer times, or not at all.

How should the effect of deployment be assessed for these people? Who can they be compared to?

The Near North Area of Influence (NNAI) data set consists of information collected from three separate studies of ADF deployments to Bougainville, East Timor and the Solomon Islands. These studies are part of the Deployment Health Surveillance Program, a research program funded by the Department of Defence and with scientific input from the Department of Veterans' Affairs. The studies were conducted between 2007 and 2008 by the Centre for Military and Veterans' Health (CMVH).

Collectively 5,911 people responded to questionnaires about their general health and deployment experiences. Within this group there were people who had never deployed overseas and those who had been on multiple deployments.

This presentation will discuss a comparison of self-

reported general, psychological and social health outcomes between ADF personnel who had never deployed and those who had deployed both to East Timor and the MEAO.

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Analysis of self report symptoms reported by the Australian Defence Force in the near north area of influence health studies

*Annabel McGuire, Michael Walle, Jonathan Bleier, Catherine D'Este, Malcolm Sim, Susan Treloar, Annette Dobson*

**Background/Objectives:** A number of international studies have reported on the prevalence and patterns of symptoms in military populations deployed to different locations. The results of three Cross-sectional studies of Australian Defence Force (ADF) deployments to the Solomon Islands, Bougainville and East Timor between November 1997 and December 2005 will be used to assess the reported health symptoms in these samples.

**Methods:** Survey participants were asked to complete a symptoms checklist, which consisted of 67 items. Data are represented graphically to compare the prevalence of self reported symptoms between deployed and non deployed exposure groups. The prevalence of specific symptoms was compared using logistic regression and the difference in the total number of symptoms reported between exposure groups was assessed using negative binomial models.

**Results:** In each study the most common symptoms recorded in the deployed groups were Fatigue, Feeling unrefreshed after sleep and Sleeping difficulties. Overall Solomon Islands and Bougainville veterans did not report more symptoms than their respective comparison groups. However, the prevalence of symptoms was generally higher in East Timor veterans than the comparison group.

**Conclusions:** The deployment to East Timor included both warlike and non-warlike operations. In comparison, the deployments to Solomon Islands and Bougainville were predominantly peace keeping operations. The results are discussed in this context and compared with international studies of different deployments which have utilised similar techniques.

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The defence deployed East Timor health study:  
overview of findings

*Susan Treloar, Annabel McGuire, Christine McClintock,  
Michael Waller, Jonathan Bleier, Lisa Nielsen, Colleen  
Loos, Peter Nasveld, Annette Dobson*

**Background:** The Defence Deployed East Timor Health Study is part of a series of studies aiming to research the health and well-being of Australian Defence Force (ADF) veterans who have deployed on active service overseas. The studies are being conducted by the Centre for Military and Veterans' Health (CMVH) as part of the Deployment Health Surveillance Program (DHSP).

**Aims:** The aim of the DHSP is to examine the physical, emotional and environmental effects of deployment in order to identify, prevent and manage health care needs of current and former ADF members. The aim of the East Timor Health Study was to investigate the health status of Australian Defence Force personnel who deployed to East Timor relative to a frequency matched comparison group who did not deploy.

**Methods:** The study was conducted in 2007-2008. It included analysis of data gathered from mortality and cancer incidence registries, a comprehensive self-reported questionnaire, and health and psychology records retained by the ADF. A random sample of 3999 ADF personnel from the 19710 who deployed to East Timor between June 1999 and May 2005 as part of Operations FABER, SPITFIRE, WARDEN, TANAGER, CITADEL and SPIRE were invited to participate. A comparison group of 2501 individuals who were eligible to deploy to East Timor, but did not, were also invited to participate. Participation involved completing a questionnaire on current physical and mental health and another on a range of potential exposures and stressors associated with their deployment. Consent was sought to link questionnaire information to ADF medical and psychological screening records. Response was obtained from 43% of the living sample. Because the operations varied substantially in nature over time, comparative analyses of health status for personnel who deployed on the early and late operations over the period were possible.

**Results:** We present an overview of key health findings from the different East Timor study components. We focus particularly on results of deployed versus comparison group analyses, the early versus late deployments, differences between Services and between currently serving and ex-serving respondents.

**Conclusions:** Findings are interpreted in the light of methodological advantages and limitations, comparable international studies, and implications for prevention and service delivery.

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The defence deployed Bougainville health study:  
overview of findings

*Christine McClintock, Susan Treloar, Annabel McGuire,  
Michael Waller, Jonathan Bleier, Lisa Nielsen, Colleen  
Loos, Tegan Cosgrove, Peter Nasveld, Annette Dobson*

**Background:** The Defence Deployed Bougainville Health Study is part of a series of studies aiming to research the health and well-being of Australian Defence Force (ADF) veterans who have deployed on active service overseas. The studies are being conducted by the Centre for Military and Veterans' Health (CMVH) as part of the Deployment Health Surveillance Program (DHSP).

**Aims:** The aim of the DHSP is to examine the physical, emotional and environmental effects of deployment in order to identify, prevent and manage health care needs of current and former ADF members. The aim of the Bougainville Health Study was to investigate the health status of Australian Defence Force personnel who deployed to Bougainville relative to a frequency matched comparison group who did not deploy.

**Methods:** The study was conducted in 2007-2008. It included analysis of data gathered from mortality and cancer incidence registries, a comprehensive self-reported questionnaire, and health and psychology records retained by the ADF. All 4775 ADF personnel who deployed to Bougainville between November 1997 and June 2003 as part of Operations BEL ISI I & II were invited to participate in the Bougainville Health Study. A comparison group of 2363 individuals who were eligible to deploy to Bougainville, but did not, were also invited to participate. Participation involved completing a questionnaire on current physical and mental health and another on a range of potential exposures and stressors associated with their deployment. Consent was sought to link questionnaire information to ADF medical and psychological screening records. Response was obtained from 45% of the living sample.

**Results:** We present an overview of key health findings from the different Bougainville study components. We focus particularly on results of deployed versus comparison group analyses, differences between Services, between currently serving and ex-serving respondents and on the deployment experience of the deployed group.

**Conclusions:** Findings are interpreted in the light of methodological advantages and limitations, comparable international studies, and implications for prevention and service delivery.

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### Army Medical Training

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The new army medical technician training continuum

*Jo-Anne Hem*

As with most technical trades there is a constant need to continually update skills and training. Health Services Trades in the Military are no exception. To that end a new training continuum has been developed by the Army School of Health to address training issues and concerns for Medical Technician Training, ECN 031. This training has been endorsed for commencement as of 27 July 2009. The requirement has come about due to the medic's increasing role on operations, standardisation of clinical experience and the decreased opportunities able to be provided in the workplace for clinical practice and ongoing skills maintenance for Basic Medical Operators (BMOs) and Advanced Medical Technicians (AMTs). There has been a constant push from our "customer", the units at the coalface, for the School to produce a better product in a shorter timeframe and this new continuum is the response to this need. All the training provided by the Army School of Health is subject to a continual process of evaluation and validation to ensure best current practices are being taught on all our courses.

Today a number of my staff will provide information to you, not only of the New Medical Training Continuum for Medics; why it was developed and how it is going to be implemented, but also what is the "gap" for those currently trained BMOs and AMTs. Further, all military health practitioners and health practitioner students need to understand what the requirement for civilian national registration in July 2010, is going to mean to our Military Health Providers?

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#### RCC/RPL policy for the Gap

*Michelle Wyatt*

The Royal Melbourne Institute of Technology (RMIT) who assists ASH to provide the Basic Medical Assistant Training have mapped the Gap requirements and devised a Gap course and a RCC/ RPL policy to grant those who can meet the criteria outlined. Timeframes of when existing medics can apply for gap training or RCC / RPL for the Certificate IV qualification will be advised. Once registered as a Cert IV Nurse it is the member's responsibility to maintain it. Further, Health Services Wing, Army School of Health also has in place a robust RCC/ RPL policy which is often not utilised correctly. This is an appropriate opportunity to highlight some key issues to the target audience.

The introduction of civilian National Registration for all Health Practitioner and Health Practitioner students imposes the need for our training to meet the Certificate IV standards and for military health practitioners to maintain their registration. The impact comes from the need for the Military to have access to clinical placements for students and strategic alliances for units to provide professional development and ongoing clinical skills maintenance. It also provides the added advantage to Medics to gain additional employment outside of the military. New developments need continual management and this is the task of Standards Cell at Health Services Wing.

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#### Military advanced resuscitation course/regimental medical officer introduction course

*Bronlyn Jones, Peter Zimmerman*

The Military Advanced Resuscitation Course is a tri-service course for Military Nursing Officers and some Dental Officers now being conducted over five weeks. It has also be developed into two modules being Module One (two weeks) – Medical and Module Two (three weeks) – Trauma.

This allows the attendance of part-time members on the course, by module, if they are unable to attend the whole five weeks up front. Although it is recommended that attendance on both modules is completed within a 12 month period. Three courses are conducted each training year by Health Services Wing.

This course is up for review this year again with an occupational analysis planned. Outcomes are expected to identify more commonality between the three services. Other developments have included some sequencing changes raised since developing the course into the two modules, the development of a more flexible pre-course package that is readily available on line, and development of a recertification package. The recertification package is currently being piloted utilising visiting directing staff for the course prior to the student's attendance. The expectation once rolled out is that members will complete annually and have recorded on PMKeys.

The Regimental Medical Officer Introductory Course is also undergoing review. A pre-course package – An Introduction to Military Medicine taps into two modules from the Masters of Public Health provided by CMVH at University of QLD. Competencies include managing mass casualty situations, deploying health

facilities and understanding the provision of health care in the Army. The Medical Officers new to Army also look at care of the trauma casualty and interventions for life-threatening conditions. One of the benefits is that these courses are being conducted concurrently at Health Services Wing alongside Military Advanced Resuscitation Course or the Advanced Medical Technicians Course. This opportunity allows interaction in joint scenarios making the training provided relevant and realistic. Still a little way to go at getting this package complete but all will be ready for the next course due June 2010.

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A new way forward to improving the provision of mental health support.

*Emma Garrett, Peter Zimmerman*

The importance of mental health support within the military became paramount following greater understanding of the psychological impact on veterans of the Vietnam War. Since then, the provision of mental health support within the ADF has seen continuous development to ensure the support meets the psychological needs of military personnel.

High quality training of our mental health professionals and providers is vital in the provision of timely and appropriate mental health support to ADF personnel. The nature and content of this training has become more pertinent given the recent release of the Dunt review, recommending that mental health training of ADF personnel is to be more widely implemented. Consequently, this has implications for the nature and type of training that our mental health professionals and providers will need to undertake.

Psychology training within the military is currently in the very early stages of redevelopment and improvement, with the predominate goal being increased mental health capability and enhancement of the quality of mental health care provided to soldiers. Additionally, training improvements will attempt to focus on the opportunity to provide standardised and best practice training to APS staff employed as mental health professionals and providers of tri-service ADF personnel.

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## ADF Deployable Healthcare

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ADF deployable healthcare – a vision for the future  
*Andy Williams*

This presentation will discuss emerging concepts in operational health support. It will consider some of the emerging trends in operational medicine drawing upon the experiences of our Coalition partners in the Middle East Area of Operations. Having drawn out some of the key lessons, especially in the areas of initial trauma care, evacuation and early surgery, it will then outline one potential future for the ADF's deployable health capability, drawing upon the work of the Directorate of Health Capability Development.

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Is health doctrine irrelevant?

*Michael Penman*

This presentation will discuss what doctrine is and what it is not. It will discuss the rapid technological changes in health. With the formation of Joint Health Command, Commander Joint Health (CJHLTH) has

taken over the responsibility of joint health doctrine from what was the Head Personnel Executive. Single service health doctrine is not affected, yet there is very little health doctrine that is purely of a single service nature. Should CJHLTH have a greater input into single service health doctrine? With this in mind, is health doctrine also keeping up with technological change and does it need to be made more relevant?

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Simulating times ahead – or are there?

*Merilyn White*

This presentation will discuss the relevance of the future of simulation in operational healthcare considering its use in routine garrison training, pre-deployment mission rehearsal and in the deployed environment. It will consider:

- The Defence Health Simulation Analysis (ADSO) and the awarding of the contract;

- The work conducted by Booz & Co and the findings of Defence Health Simulation Requirements Study and Report;
- The Defence Health Simulation Strategy and Implementation Plan.

The presentation will then focus the likelihood of achieving the objectives of the Implementation Plan, especially as it relates to operational health support, given single-Service governance of health training and activities and the limited budget available for health simulation within Defence.

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Joint project 2060 – can it still deliver?

*David Thomas*

This presentation will outline Joint Project (JP) JP2060 – ‘The ADF Deployable Health Capability’. It will provide an overview of the transition from a whole of capability concept under Phase 1 to an equipment buy during Phases 2 and 3. The presentation will then move on to a review of recent purchases, about to be acquired capabilities and immediate future capability purchases within Phase 2B of the project. Finally, a broad discussion of the capabilities being considered for purchase in Phase 3, which will be a mixture of low, medium and a few potentially high risk technologies.

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## Anaesthesia in Remote and Austere Environments

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Anaesthesia in remote and austere environments

*Brian Pezzutti, David Scott, Stuart Green, Marty Graves*

This session will explore the variable options available for anaesthesia in difficult environments. Each of these very experienced speakers will consider a class of agents with particular respect to the pros and cons of their use in disaster or warlike situations. A practical approach to anaesthesia in these situations are considered.

Robust debate will be generated in the discussion phase following the presentations.

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## Mental Health Developments

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The reformation of mental health in the ADF

*Stephanie Hodson*

In 2002 Defence launched the ADF Mental Health Strategy. A recent review of mental health in the ADF by Professor David Dunt considered that the introduction of the ADF Mental Health Strategy in 2002 was far-sighted and that it compares favourably and in some ways surpasses similar strategies in Australian workplaces and other military forces. Nevertheless, Professor Dunt’s benchmark review necessarily highlights the gaps in the delivery of mental health services in the ADF, and he made 52 recommendations to reform and enhance the delivery of ADF mental health programs and Defence and DVA transition services. Furthermore, it calls for the next generation of the mental health strategy and the need to comprehensively evaluate the current and future

programs. This presentation will provide a framework for the reformation of mental health in the ADF as part of the Joint Health Command transformation process. It will summarise the strategic direction of the ADF Mental Health Strategy for the next four years, as well as exploring the challenges of conducting health evaluation.

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Post deployment psychological screening: a preliminary review of referrals, follow-up and screening instruments

*Helen Benassi, Cherie Nicholson, Nicole Steele, Cate Wren*

The 2009 Review of Mental Health and Transition Through Discharge (Dunt, 2009) identified a lack of knowledge about the effectiveness of screening in the ADF and proposed the dissolution of intensive screening immediately post-deployment to focus resources at a critical period three to six months post deployment. To address this lack of knowledge regarding screening effectiveness, the Directorate of Mental Health began a quality assurance process in 2009, reviewing a trialed version of the RtAPS questionnaire and conducting a comprehensive file audit. This presentation will outline results of the file audit targeting RtAPS referrals and follow-up, as well as the outcomes from the trial of various screening instruments. The presentation will consider implications for quality control, duty of care and ongoing program evaluation needs.

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Transition mental health and family collaborative (Townsville)

*John Pead, Darryl Wade, Beth Keating, Karen Green, Michelle Dorney*

This practice improvement collaborative comprises 5 Aviation Regiment, RAAF Townsville, Lavarack Barracks Medical Centre, ADF Transition Centre, Defence Community Organisation, DVA, VVCS, CRS Australia and Mater Hospital. We are seeking to provide more effective mental health and family support to Australian Defence Force (ADF) members who are being medically discharged. The collaborative is evaluating a methodology pioneered by the US Institute for Healthcare Improvement and is funded through the Australian Government's Mental Health Lifecycle Package.

The practice improvements being undertaken are summarised in the following five agreed change priorities:

- Collaboration - improved inter-agency collaboration.
- Engagement - effective engagement and communication.
- Recognition- better recognition of mental health problems.
- Families - improved family sensitive and inclusive practices.

- Interventions - more effective advice, support and treatment.

Each team has a mandate from their organisation's management and their active support to achieve measurable changes in mental health and family work practices. The collaborative approach is designed to have minimal disruption to everyday work routines, the maximum likelihood of improved practices becoming part of everyday routines and requires no additional resources for practices to be sustained.

Throughout 2009 each team has specified outcomes to be achieved, has worked on achieving these outcomes during the action periods between learning sessions, and reports on these at the Learning Sessions and the final Conference. Between the Learning Sessions, teams participate in coaching at their workplace and teleconference support. The findings concerning improved mental health and family practices are reported together with the feasibility of replicating this methodology for improving health practices.

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

*Andrew Cohn, Monique Crane, Cate Wren, Stephanie Hodson*

In this study, the researchers examined the effectiveness of a two hour resilience intervention designed to enhance the flexibility of coping strategies, resilience and decrease problematic psychological symptomology. The BattleSMART (Self-Management and Resilience Training) program is based on Cognitive-Behaviour Therapy (CBT) and emerged from coping skills training initially implemented at the Army Recruit Training Centre. Research by Cohn and Pakenham (2008) indicated that the coping skill training was effective in enhancing psychological adjustment, and reducing ineffective avoidant coping strategies. In May 2009, a thorough evaluation of the BattleSMART program was evaluated at the Defence for School of Signals (DFSS). The evaluation sought to examine the programs ability to teach key concepts associated with CBT and produce sustained psychological well-being during a period of increased academic stress. Two-hundred and seventeen DFSS trainees were given the BattleSMART program within the first two weeks of their training. Scales measuring knowledge of key concepts, coping strategies, psychological well-being, resilience and alcohol use were administered pre, post and three-months following the BattleSMART program. The analysis

indicated that students were able to learn key concepts and retain these understandings three months post the intervention. More effective coping strategies (i.e. problem solving) and less avoidant coping was also reported three months post training. Further, positive psychological outcomes and lower distress was related to the knowledge of key concepts taught as part of the intervention. The findings indicate that

the BattleSMART program may be a useful stress-management and resilience building intervention in trainees at DFSS.

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## Trauma

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Early management of dental trauma – teeth are not dispensable

*Lisa McLean*

Early Management of Dental Trauma – Teeth Are Not ‘Dispensable’! – An updated and ethical approach to the management of dental trauma for primary healthcare providers in the absence of dental practitioners.

Dental trauma includes injury of the teeth, gingivae, periodontal ligament and supporting bone – all of which are important body structures for the recovery and long term wellbeing of the patient. Dental injury is often part of a multi-injury presentation – however it is frequently not noticed or is ignored at the time of presentation. In the absence of life threatening injury the aim of any healthcare professional is to ensure preservation of tissue and body structures – yet teeth and dental structures seem to be the exception to this rule.

In the primary care environment dental trauma is traditionally treated as a minor injury – with clinical protocols for early management reliant on the immediate referral to a dentist. Tooth structure and teeth seem to be regarded as ‘expendable’ or perhaps even ‘dispensable’ organs. This may have been acceptable in previous centuries when the dentist’s role was still evolving from one of ‘tooth pulling’ and ‘provider of false teeth’. However modern, ethical and holistic medicine should regard tooth loss as it does amputation or the loss of any other body structure or organ.

Dental injury is very common and often has life long ramifications. It should no longer be regarded as a minor injury and justifies prompt and appropriate management after the patient is medically stabilised. In rural and remote communities it is frequently not possible for a dentist to provide immediate treatment. First aiders, paramedics, outpatient departments, and general medical practitioners are often called upon to manage dental trauma in emergency situations. Many are reluctant and have great difficulty managing dental injuries appropriately. This appears primarily due to

misunderstanding and a lack of training, as well as the inadequacy or absence of dental first aid kits. The current critical shortage of dentists in Australia will mean that other health care providers will be more frequently expected to manage dental trauma and cannot rely on simply giving the advice to – ‘see your dentist in the morning’.

This paper will review current attitudes to dental trauma and will look at available education, training, protocols and equipment for this type of trauma. Discussion will consider an alternative and more ethical approach to the early management of dental trauma by primary healthcare providers. Particular attention will be given to the development of the of the ‘ideal’ dental first aid kit for use by isolated primary healthcare providers who may be expected to manage dental trauma where no dental support is available in the short term.

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Tackling trauma: a civilian-military training collaboration in trauma medicine at the RAH

*Rupert Templeman*

This presentation will outline my experience as a Trauma Registrar at the Royal Adelaide Hospital over 3 months in early 2009. An audit of ‘war-like’ blast and burn casualties treated in the unit during this term will be discussed.

The Royal Adelaide Hospital hosts the only level 1 trauma facility in the state of South Australia – a state covering 983,482 square kilometres and with a population of approximately 1.6 million people. Over three and a half thousand trauma patients are treated by the service each year, including over one thousand level 1 (ISS>16) trauma casualties. Twelve week placements in Trauma Medicine are offered to junior doctors-mostly trainees in Emergency Medicine and junior Surgical Registrars. Through the support

of specialist reservists GPCPT Bill Griggs and WGCDR Andrew Pearce, this program has been offered to full time military medical officers. I am one of 4 military medical officers from RAAF Base Edinburgh to have benefited from this civilian-military training opportunity.

The trauma service is embedded in the emergency department of the RAH and is highly integrated with other critical care services of the hospital such as Radiology and Intensive Care. The trauma teams approach to initial assessment and treatment of casualties follows the EMST/ ATLS principles. Roles and responsibilities of each member of the trauma team are well defined. This approach to the care of the injured patient, as adopted by Trauma Centres world-wide, has well documented benefits in mortality, morbidity, length of hospital stay and cost.

A major responsibility of the Trauma Registrar is to co-ordinate the care of trauma casualties from point of presentation to the completion of the tertiary survey. In addition to the assessment and treatment of the ABCDE's, registrars follow patients admitted to the hospital to ensure the 'whole of patient' approach is taken and a complete head to toe examination is performed when the patients level of alertness and pain control permits. In the resuscitation room, emergency procedures such as IV cannulation, chest drain insertion and reduction of fractures are frequently performed.

It has been said that working in a civilian trauma service is the closest you can get to practicing medicine in a war zone. An audit of the "war-like" blast and burns casualties treated by the service during the rotation will be presented. For many full time ADF medical officers, most pre-deployment time is spent in training and in providing primary health care to a predominantly fit and well population. Whether deployed to a war zone or not, MO's may be called on at any time to treat (often multiple) trauma casualties. As such they should be proficient in the initial assessment and management of these patients. Only civilian teaching hospitals with a designated trauma service can provide the numbers of suitable patients and the support and teaching to gain the experience required. Following on from the EMST course, a rotation at a trauma unit provides an ideal preparation for this scenario.

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Otological injury and typanic membrane rupture due to improvised explosive devices

*Peter Peters*

Otological injury and tympanic membrane rupture have long been identified as a one of the most common injuries, both civilian and military related to improvised explosive devices, along with the lungs and bowel. The following is a review of the literature over the past 20 years with regard to otologic trauma and subsequent monitoring. Bomb blast injuries tend to affect air containing organs due to the shearing force on air-tissue interfaces. As a result, the percentage of those injured during a blast explosion who also suffer a tympanic membrane rupture is highly variable. Whilst the spontaneous membrane closure rate sits between 75-90% in the literature, there are numerous confounders that can drastically affect this number. This takes on a more important aspect when one considers the environment in which an improvised explosive devise is likely to be deployed

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Normothermic fluid administration to the trauma patient

*David Bedford-Lee*

Research has shown that there is an increase in mortality and morbidity in the hypothermic trauma patient, compared to normothermic patients with the same injuries. To improve patient outcomes it is vital that the treatment of trauma patients includes various heat loss reduction strategies. The administration of normothermic fluid is a key component of the trauma treatment plan. It is used to assist the prevention of hypothermia.

Not to re-warm hypothermic patients! There are a number of other non-invasive techniques that can assist in the prevention of heat loss that will also be discussed.

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## Clinical Miscellany

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Inversion therapy for back pain. What causes spinal compression?

*Robert Garrett*

Gravity continuously creates pressure and stresses on muscles, bones, joints, ligaments and spinal discs. Add muscle imbalances and stretched ligaments that result from our way of life, and you have a recipe for back pain. The inner core of the discs (nucleospulpous) is a jelly-like substance that acts like a shock absorber, providing flexibility and cushioning when standing, sitting and exercising. During normal daily activities, gravity compresses the discs and causes fluid to squeeze out into the tissues. With less space between the discs you can lose as much as 2cms in height. Some of the fluid soaks back into the discs when sleeping. When in their senior years a person loses 1-4cms in height.

Insufficient space between the vertebrae can result in pressure on the spinal nerves as they emerge from the inter-vertebral forearm, which in turn causes pain. Often the pressure on the discs is unevenly distributed due to the poor sitting of repetitious postures in certain occupations. This constant increase in pressure on part of the nucleus pulposus can cause it to bulge against the fibrous outer later (annulus fibrosus) which can lead to increased pressure on the adjacent nerve root and eventual disc herniation adhering the nerve root and causing chronic back and referred pain.

Nachemsno measured on the L3 vertebral internal disc pressure in various every-day postures and activities, and found the intra-disc pressure in the lumbar spine is increased by 380% in incorrect lifting; 290% on holding a 20kg weight and flexing forwards and 210% doing sit-ups with the knees flexed. The least pressure, 40% was in lying. The study concluded that a traction load of 60% body weight was sufficient to decrease the residual intra-disc pressure of 25% standing body weight, to zero %. Sheffield treated 175 patients whom were unable to work due to back pain. After eight inversion treatments, 255 patients were able to return to work full-time.

Benefits of decompression by inversion

1. It diminishes the influence of gravity, reducing the compression on the vertebrae and discs and allows the muscles and ligaments supporting the spine to relax, relieves stress and improves circulation. The slightest increase in spacing between the vertebrae can create a mild suction within the disc, which, along with increased tension of the posterior longitudinal ligament, may help encourage the

bulged disc to migrate centrally to its original position this relieving pressure on the annulus and nerve root.

- 2 One sided repetitive activities like golf or tennis can often pull the spine out of alignment. During inversion therapy, minor misalignments often correct themselves naturally.
- 3 Suggest inverting in the prone position, with a firm pillow under the abdomen to decrease the lumbar lordosis, as most painful discs protrude in a posterior direction to compromise the spinal ligaments and nerve roots. Lying prone whilst inverting would be more effective in reducing the posterior protrusion, and the patient has more confidence and control over the inversion table.

Methodology

- 1 Invert at 45 to 60 degrees from the horizontal for 5 to 10 mins for the first week – if uncomfortable return to the upright position.
- 2 Work – up to 15-20 mins once or twice daily and increase the angle of the inversion as you feel comfortable with to obtain pain relief.
- 3 20-40 degrees of inversion gives a mild stretching effect.
- 4 60-75 degrees of inversion should give all the benefits of decompression once relaxed. Most patients don't need to go beyond this angle.
- 5 90 degrees inversion would be patients with strong muscles and ligaments whom need heavier loads to decompress.
- 6 Appropriate mobilisation and stretching exercises should be conducted before and after inversion to promote relaxation and mobility. A secured hotpack in the prone position will further enhance relaxation.

Contraindications

- 1 Heart or circulatory disorders, HPB/ Hypertension (no strokes have been recorded in 17 years of inversion therapy).
- 2 Recent fractures, osteoporosis, total hip/knee replacements, spinal surgery.
- 3 Middle ear infections.
- 4 Hiatus hernia.
- 5 Eye conditions.
- 6 Pregnancy.

**Conclusion:** Inversion therapy is not for all back pain sufferers but it can help many whom suffer from intervertebral disc pathology, referred and back pain caused by spinal compression. I have found it an effective mode of treatment.

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Use of over-the-counter (OTC) medication and health supplement by Australian Defence Force Aircrew

*Adrian Smith*

**Introduction:** Anecdotal evidence suggests that a proportion of ADF aircrew use over-the-counter (OTC) medications without the knowledge of their aviation medical officer.

**Method:** A survey exploring the use of OTC medications by aircrew, and the reasons for self-medicating, was distributed to 177 aircrew attending AVMED. Results. 143 surveys were completed and returned. 77% of respondents reported using OTC medication within the previous twelve months, but only 14% disclosed the use to an AVMO. Similarly, 50% of respondents had used health supplements within the previous 12 months, but only 11% of these disclosed the use to an AVMO. The most common OTC medications used were paracetamol, cold and flu preparations, and non-steroidal anti-inflammatory agents; vitamins were the most common health supplements used by aircrew. 61% of respondents prefer to self-medicate rather than see an AVMO. Many of these (59%) self-medicate because they perceive the requirement to see an AVMO to be too time-consuming and cumbersome, especially for a condition they believe to be trivial and self-limiting (69%). Only 62% of respondents claim to be aware of the potential for OTC medications and health supplements to cause aeromedically-significant side effects, and only 19% of aircrew who use health supplements claim to know the side-effect

profile of the supplements they were taking.

**Conclusions:** Aircrew should be reminded of the potential dangers in using OTC medications. Aviation medical officers should be sensitive to the fact that many aircrew use OTC medications because they are afraid of being grounded, or because they believe access to an AVMO to be too time consuming.

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Popliteal nerve entrapment – an emerging cause of lower limb pain

*Sam Hay*

**Diagnosis of exercise induced lower limb pain by the inexperienced practitioner is usually limited to tibial stress fractures, medial tibial stress syndrome (shin splints), or exertional compartment pressure syndrome. Resulting in similar symptoms, popliteal vessel entrapment is emerging as a hidden diagnosis for lower limb pain in exercising soldiers.**

Improved knowledge and understanding by 1 HSB Sports Medicine staff, under the guidance of COL Delaney, has enabled more accurate diagnosis and management, providing improved treatment outcomes for soldiers who previously would have been discharged.

MAJ Hay will present an overview of exercise induced lower limb pain, centering on the clinical differences, investigation pathways, and management options for popliteal vessel entrapment. He will also provide comment on MEC implications for soldiers and trainees.

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## Veterans Health III

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Improved mental health and treatment options for hard to engage veterans

*John Pead and Andrea Phelps*

A significant number of people who have served in the Australian Defence Force (ADF) and currently have mental health problems still do not receive, or seek, mental health treatment. As a consequence, they risk enduring and sometimes life long social and mental

health disabilities. The Hard to Engage Veterans Initiative trialed strategies that address barriers to care, as a means of engaging more veterans and past defence force members with mental health treatment services. The trial was funded by the Department of Veterans Affairs and was undertaken in Barwon South-Western Region, Victoria. Three interventions were used to recruit veterans into mental health care.

**Awareness and Media Campaign:** Through targeted letters and the high profile mass media campaign potential participants received information about the availability of local mental health services for veterans and notice was given of four public meetings scheduled over the coming months.

**Community 'town hall' meetings:** Four monthly public meetings were conducted out-of-hours in local community venues. The meetings included presentations from mental health treatment providers, as well as from former ADF members and family members who have been, or are, engaged in mental health treatment. The meeting venue and presentations were designed to reduce the stigma of mental health problems and increase the accessibility and acceptability of local mental health services for veterans. Following each meeting, opportunities were provided for brief (10-15 min) individual counseling sessions with local mental health practitioners for the assessment of needs, advice on referral options and, where appropriate, arrangement of appointment times.

All those attending the community meetings were encouraged to leave their contact details to be followed up by mental health service providers. When enquiries were made by family members or other health practitioners concerning a target group member who did not attend the meeting, the permission of the family member or practitioner to use their name were sought as a means to contact the target group person directly.

**Assertive provider outreach:** Initial contact from a target group person, by a family member or a professional as a consequence of the awareness campaign could be made through a direct phone call to a service provider or by attendance at one of the four public meetings. In either case, a mental health practitioner provided assertive outreach in an attempt to engage that person in treatment. This means that the mental health practitioner:

- pro-actively contacted the person rather than waited for them to make contact;
- made at least three attempts to contact the individual by phone, email or written correspondence;
- was flexible in making arrangements to meet the individual at a convenient time and place;
- promoted engagement by offering information, advice, support and care that met the expressed needs and priorities of the individual. The number of veterans with mental health problems making contact for mental health care for the first time was measured together with the factors leading to their being engaged.

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The application of consumer driven research methods to the development of research priorities for the Middle East area of operations health study

*Christopher Barton, Alexander McFarlane, Susan Treloar, Christine McClintock, Peter Nasveld, Michel Devine, Annette Dobson*

**Background:** The Middle East Area of Operations (MEAO) Health Study is the next component of the Deployment Health Surveillance Program (DHSP) being undertaken by the Centre for Military and Veterans' Health. Consumer driven research methods have been incorporated into the development of the MEAO health study to establish research priorities, set specific research questions, and consolidate the design of the project.

Consumer participation in research is promoted in Australia by the National Health and Medical Research Council (NHMRC) who released a vision statement in 2005 stating: 'Consumers and researchers working in partnerships based on understanding, respect and shared commitment to research that will improve the health of human kind.' A number of objectives have been developed by the NHMRC around consumer participation in research including that 'the partnership of consumers and researchers will shape decisions about research priorities, specific research questions and design of research projects in a way that recognises and responds to the rights of all voices to be heard'.

This objective has guided the final stages of development of methods, procedures and tools for the MEAO health study.

**Aims / Methods:** Consumer engagement has included meetings with stakeholders, focus groups and piloting instruments and procedures with serving and ex-serving Defence Force personnel.

Stakeholder meetings targeting key Defence and Veteran stakeholders were conducted to gain feedback on the proposed study design and assessments, in addition to the ongoing input and support from Defence and DVA directly.

Focus groups were conducted with serving and ex-serving ADF personnel to complement the process already undertaken to select instruments for the study and assign priority to the assessments following a review of the literature and review of hazard assessment team (HAT) reports, experience of the

investigators, and the input of a Scientific Advisory Committee and the Defence Program Management Board who oversee the program.

Focus groups were the primary method used to engage current and ex-serving ADF members in the project and to understand the experiences and health concerns of MEAO veterans so that these could be mapped to the health and exposure questionnaire and to check the validity, relevance and priority of items to be assessed. Each focus group included discussion of health concerns, positive and negative aspects of deployment, experiences after returning from deployment, and strategies for recruitment to the study and the use of incentives.

The information generated from these processes was then used to enhance the draft questionnaire that will be piloted with consumers in early 2010 and provide an opportunity for comment on the relevance of items (are we asking the right questions) as well as the structure and format of the survey.

Conclusion: Increasingly policy makers and researchers are recognising the importance of consumer participation in research and this is a priority for the MEAO health study investigators. The approach has been used to establish research priorities, specific research questions and the design of the project. The approach used recognises and responds to the rights of all voices to be heard and values and encourages partnership with serving and ex-serving.

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## Lessons

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Poison and drug absorption of the tympanic membrane: Mossad's lesson from Shakespeare and a potential bioterrorism mechanism

*Peter Peters and Chris Perry*

1599-1601 William Shakespeare writes his longest play, *"The Tragedy of Hamlet, Prince of Denmark"* or more commonly known as Hamlet. The story of *Hamlet* follows the murders and subsequent revenge set in the royal court. As one of the turning points of the storyline, Hamlet witnesses a ghost claiming to be Hamlet's father, King Hamlet, who claims to have been murdered by the King's brother, Claudius by pouring poison into the King's ear. The ghost demands that Hamlet revenge him.

1997 – two Israeli agents from Mossad, the Israeli

Smoking prevalence, its determinants and short term health implications in the Australian Defence Force

*Christopher Barton, Annabel McGuire, Michael Waller, Susan Treloar, Christine McClintock, Alexander McFarlane, Catherine D'Este*

The objectives of this study were to determine the prevalence of smoking, identify effects of deployment and risk factors for smoking, and determine short term health outcomes associated with smoking in Australian Defence Force (ADF) personnel. Participants were randomly sampled from ADF members who deployed to the Solomon Islands between 2003 and 2005 and from a non-deployed comparison group. In total, 435 of 995 (44%) eligible individuals completed the study questionnaires. The prevalence of current smoking was highest in those who had completed less formal education, and those who served in the Navy. Nearly two thirds (63%) of current or former smokers smoked more while on overseas deployment. Current smokers were more likely to report current wheeze, shortness of breath, and persistent cough compared with non-smokers. The ADF should continue to address cigarette smoking through its health promotion and health review programs and implement activities to reduce cigarette smoking on deployment.

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Institute for Intelligence and Special Operations, posing as Canadian tourists attempt to assassinate Khaled Mashal by injecting a poison into Mashal's ear. At the time Mashal was considered to be the chief of Hamas in Jordan by the Israeli authorities. The Israelis had chosen an aural administration route so that Mashal would die over a period of days rather than during the confrontation with the would be assassins, and with an unknown drug, no trace and therefore antidote would be available. Whilst the drug was administered, the two Mossad agents were captured, and Mashal became critically ill. The attempt on Mashal's life triggered a diplomatic furor between Israel, the Palestinian authority, Hamas, Jordan, Canada and the United States with demands for the release of the antidote for what was initially

felt to be an unknown poison. The Israeli government later released the antidote following pressure from the United States President, Bill Clinton. The Mossad agents were eventually released to Israeli custody in exchange for the spiritual head of Hamas, Sheik Ahmed Yassin. The mechanism selected by Mossad, both the route of drug administration and the actual drug choice itself have raised concerns of the possibility of a bioterror weapon being unleashed with minimal evidence of administration being left behind.

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### ILI outbreak on ex Talisman Saber

*Rosemary Vandenberg*

Ex Talisman Saber is a joint exercise held with US Forces at several locations throughout Australia including RAAF Darwin during the Australian winter/dry season. In 2009, an outbreak of Pandemic H1N109 (swine flu) occurred in addition to normal seasonal influenza A. The disease risk for the exercise was assessed as low. The risk of an influenza like illness (ILI) was included in the medical support plan and members were required to have seasonal influenza vaccine prior to deployment. All personnel were also required to do a rapid self assessment and report to a MO prior to deployment if they exhibited fever, sore throat or cough.

On RAAF Darwin, 567pers all ranks US Defense personnel (mostly Air Force but also some Marines) and a 370 pers all ranks RAAF augmentation/exercise participants, tripled the normal base dependency. In addition, RAAF Darwin was used as a staging point for several other sites manned for this exercise. 1485 pers used RAAF Darwin as a transit facility. All fixed accommodation including transit accommodation in "tin city" was used and in addition 3x50 man air conditioned tents were erected and portable ablution facilities provided for these. Non air conditioned tents were provided but these were not suitable for shift workers who were not used to Darwin temperatures. Transit accommodation was mostly used with two personnel to a room. The 50 man tents only just met the required 1 metre separation and definitely did not meet the recommended 1.5 metre social distancing recommended in influenza control documents.

Green canvas tents were rejected as unsuitable for shift personnel because of their lack of air conditioning.

White "50 man" tents were air conditioned.

While these tents were more comfortable, the atmosphere was quite humid and air flow was poor

due to towels and clothing being hung to dry inside the tent.

The arrangement of cots was altered after this initial photograph and central cots were aligned longitudinally in an attempt to increase the separation.

During the force preparation phase, it became apparent that USAF members accommodated in the tents were experiencing mild upper respiratory symptoms. Cases with significant fever were identified. Management of ill personnel with significant illness posed no problems. Members requiring nursing care were transferred to Robertson Barracks Medical Centre (RBMC). The problem lay with the large numbers of personnel in tentage. Members were not so unwell that they needed to be removed from duty and admitted to a low acuity facility, but leaving them in this high density accommodation was undesirable.

Most of the deployed USAF personnel were based at Kadena Air Base on Okinawa Japan. Okinawa did not have human to human transmission of pandemic H1N1 at the time that the members departed for ex Talisman Saber 09.

Initial remedial action: The initial assessment of accommodation was that increased social distancing was desirable. Access to hand washing needed to be improved and disposal bins for paper hand towels was required. Alcohol hand rub was provided to all food outlets and accommodation areas. Reinforcement of the need for frequent servicing by contractors was required.

Investigation of alternate accommodation for members with low grade symptoms was commenced. Options included additional tents to improve the spacing, using recreation areas as accommodation, using unoccupied married quarters as accommodation. Two unused married quarters were provided giving accommodation for 16 persons. Meals were made available and members were visited three times per day by medical staff. This did not address the issue of adequate separation in the tents but did remove the obviously infected. Members in the tents were instructed to sleep head to toe and to address the clutter in the tents to improve air flow (this did not happen).

USAF personnel in tent one referred to their accommodation as the Petri dish.

To make a more accurate assessment of the nature of the infection, a short viral swabbing study was commenced. We elected to swab those with symptoms and a fever > 38 degrees. The laboratory facilities were stretched by the number of swabs being taken in the general population, so a decision was made to do one nasal swab only (in retrospect, this may have

been inadequate to define the problem). In all six swabs were taken. Four were positive for pandemic H1N109, one result was equivocal for influenza A and sub-typing was not performed by the laboratory and one was negative. Given that 80% of ILI in Darwin at this time was pandemic H1N109 and the cluster of presentations, it is probable that all presentations were pandemic H1N1.

The use of rapid assessment kits was discussed. Some deployed US units had these kits, but these were not available on RAAF Darwin and could not be obtained before the end of the exercise. The role of using Tami flu for acute illness was discussed as a means to get the unwell back to work earlier, but this was rejected as unnecessary.

Outcomes: 14 USAF personnel presented with a symptom complex that complied with the definitions for pandemic H1N1. An additional 14 USAF personnel presented with upper respiratory illness without fever or fever insufficient to include

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Lessons learnt: integrated AME in Southern Afghanistan

Sam Hay

MAJ Hay will explore the challenges and lessons learnt: issues of integrated training, communications, personal security, and medical procedures and protocols. To illustrate the success of the mission, MAJ Hay will explore a summary of completed missions.

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Preparing for trauma or disaster support as civilian organisation in a military environment

James Ross

Across the world Military forces are outsourcing varying degrees of their medical services to commercial organisations. Usually these services are for standard, run-of-the-mill healthcare services, but they contain the requirement for the ability to respond to disasters and trauma, be it within scope or due to an extraordinary event. This can involve ongoing health support or a surge capacity to respond to operational contingencies or natural disasters.

Many factors have to be addressed to ensure a high quality service by a civilian provider in a military environment:

- Recruitment
- Credentialing
- Skills maintenance
- Quality assurance
- Security
- Risk management
- Mission integration
- Cultural alignment
- Support for local population
- Command and Control

This presentation will provide an insight into how a commercial contractor provides trauma or disaster support services in an operational or benign environment utilising civilians in a safe manner and as part of the broad delivery of support to outsourced healthcare.

These situations could include:

Non-operational environment

- Emergencies on a military training range
- Local disaster (Manmade or natural)
- Pandemic
- Loss of civilian healthcare services

Operational Environment

- Significant aircraft, vehicle or maritime accident
- enemy attack

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Videolaryngoscopy – the end of the classic laryngoscope

André van Zundert

Securing a patent airway in patients undergoing general anaesthesia is routinely performed using direct laryngoscopy with a Macintosh laryngoscope blade. However, successive intubation attempt to pass the vocal cords can have a tremendous impact on patient outcome. A good laryngeal view is often a prerequisite, if not a guarantee, for successful intubation.

There are numerous difficulties associated with intubation which can have an important effect on patient morbidity or mortality such as:

- 1 Difficult laryngoscopy (obtaining a non-optimal view of the glottis entrance or no view of the vocal cords at all);

2 Difficult intubation (for which extra tools, such as a gum elastic bougie, stylet, Bonfils, Trachlight, fibre-optic intubation, intubating laryngeal mask, are required); and

3 Failed intubation.

Previously the paradigm for safe intubation has been built on the foundations of adequate preoperative measurement of a patient's airway. The plethora of metrics for intubation difficulty (ie., Mallampati, Cormack Lehane grade, BMI, mouth opening, dentition, thyromental or sternomental distances, protruding teeth, overbite, limited neck movement, are, however, usually very disappointing in predicting difficult cases of intubation. Preoperative metrics that indicate a difficult airway are not necessarily correct, while patients deemed to have 'normal' airways are not precluded from possibly difficult intubations. Therefore, the ubiquitous assessment of preoperative metrics of a potentially difficult airway by anaesthesiologists, is incomplete at best, but, furthermore, less relevant regarding videolaryngoscopy.

The recent introduction of videolaryngoscopes incorporating optics in the tip of the intubation blade has proven advantageous qua improved viewing of the glottis (Fig.1-2). Further, it is assumed in literature that there are fewer traumas to the patient, with faster intubation times, even in problematic cases (Table 1). Since videolaryngoscopy facilitates indirect vision of the vocal cords, and it is no longer required to visualize the glottic entrance directly, less force is needed to lift the jaw. This has the advantage that fewer forces are exerted on the maxillary incisors, relative to classical direct laryngoscopy, irrespective of anaesthesiologist experience, patient characteristics, or common metrics of intubation difficulty. This potentially results in less trauma to teeth during intubation.

Videolaryngoscopes are potentially superior even for easier patients, but are most beneficial for use with difficult-to-intubate patients (1-3). Especially in patients where preoperative metrics do not indicate a difficult airway and the anaesthesiologist is confronted with an unexpectedly difficult intubation the videolaryngoscope can be superior to direct classic

laryngoscopy. Several examples of difficult airways will be given, where the videolaryngoscope proves its superiority over classic direct laryngoscopy.

Despite the clear advantages over classic direct laryngoscopy, there are differences in patient outcome between the commercially available videolaryngoscopes, differences exist (e.g. successful intubation, first pass success, intubation time, use of extra tools) between the different devices. To overcome certain deficits certain manufacturers advocate using a styletted endotracheal tube, which may in itself have disadvantages. Further studies should investigate strategies for optimising the ergonomic design of the blades for videolaryngoscopes. The integration of the videolaryngoscope blade and endotracheal tube geometry is the most pressing point for further development.

Conclusion: Successful laryngoscopy and subsequent intubation depends on the patient's characteristics and position during intubation, the intubator's skills, the technique used and the intubation tools. Besides placing the patient in an optimal position, we cannot change the patient's anatomy. The plethora of methods to predict difficult intubation conditions yield inclusive results. We, therefore, should focus our attention to technical or procedural improvements, especially the design of better laryngoscopes. Indirect videolaryngoscopy is one such improvement, as it offers a better viewpoint of the glottic entrance, often unachievable with direct classical techniques. Videolaryngoscopy is shown to have promising features. We believe that videolaryngoscopy will become standard for all intubations, not only those predicted to be 'difficult'. Consequently, the 'Difficult Airway Algorithm' guidelines have to be adjusted according to the development of the introduction of new tools in our practice, such as videolaryngoscopy.

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## Afghanistan the latest experience – where to from here?

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Did you get what I said?, Experiences of Role 2E,  
Tarin Kowt, Afghanistan

*Connie Jongeneel*

The role 2E is an amazing place to work. The Dutch are the main lead, the Australians and Singaporeans

provide intermittent specialist support and our clients are predominantly Afghan nationals. How does the recipe for best care to the patient be developed, implemented and understood by all when English is the second language for the majority of staff and our cultures and ideas vary. This presentation looks

at the life at Role 2E and how does it manage within a multi-language, multi-cultural and multi-tasking environment.

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### Clinical experience and lessons learnt AUSMTF 4 *Toby Thomas*

AUSMTF 4, a surgical team from 3 HSB, was embedded in the Dutch NATO Role 2E hospital and deployed to Afghanistan for 10 weeks in the third quarter of 2009. During this time they treated a large number of severely injured battle casualties with the figures for resuscitation, surgery and ICU exceeding all previous Dutch and Australian surgical teams.

Most of the combat related injuries were orthopaedic – especially of the lower limb. Common methods of injury including improvised explosive devices (IED), suicide devices, rocket propelled grenade (RPG) attacks and gunshot wounds. Multiple casualties were the norm and mass casualty events were common.

The talk will outline the lessons learnt which have been divided into resuscitation, surgical, anaesthesia and orthopaedic lessons. The lessons were a confirmation of the US and UK experience in both Iraq and Afghanistan which has been published extensively in the trauma, surgical and critical care literature.

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### Are we ready yet?, Force Prep of AUSMTF 4 for the Role 2E, *Tarin Kowt*

*Connie Jongeneel*

The world of health care delivery has and continues to rapidly change. The ADF's response to this rapidly changing environment is to ensure the health care professional is prepared for operational deployment to meet the needs of their skill craft. This presentation explores the journey taken by AUSMTF 4 to ensure all members of the team were appropriately skilled to undertake the task of Specialist Team in Role 2E, TK.

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3 HSB road from excellent centre for training to training centre of excellence

*Stanley Papastamatis*

3 HSB has had an interesting journey in its road of discovery and what it will deliver as capability from this day forward.

Briefly, the 3rd Health Support Battalion was formed in 1960 as 3rd General Hospital at Keswick Barracks from the disbanded 104th Military Hospital. It was relocated to Warradale Barracks, SA and reclassified as a training hospital in 1965, predominantly as a holding hospital for Medical Officers. In April 1983 it was reformed as a separate unit with its own administrative and training responsibilities. It was the only Forward General Hospital on the order of battle and on 16th September 1989 the unit relocated to its current location in Building One, Keswick Barracks.

Since its conversion from 3 FGH in 2000, 3 HSB has undergone a continuing roles and tasks change effectively duplicating 1 and 2 HSB in a reserve environment but under a full-time construct. Since its return from East Timor in 2001, the self realisation within Army and wider ADF that its health specialist capability exists within the reserve has resulted in 3 HSB evolving from the third HSB, to a unit which fosters its specialists training in a positive and reinforcing environment. The template applied via the Mission Essential Health Training (MEHT), was used to good effect in the preparation of the almost exclusively specialist reservist AUSMTF-4 deployment to Afghanistan. This evolving change in training of health delivery to a centre of excellence for training has now been ratified with the strategic health review occurring within Army and finally being signed off just before AMMA by the Chief of Army on the 2nd OCT 2009.

The re-rolling of all the HSB's will result in a more effective health delivery model under the Adaptive Army Construct and in line with CJHLTH strategic vision for Defence Health. 3 HSB will be ideally positioned to support this into the future.

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