

JMVH

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The Journal of the Australian Military Medicine Association



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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.

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Inside this Edition

To Come

President's message

Welcome to the latest edition of the Journal of Military and Veterans' Health, as we go to press the final touches are being made for the Defence Health Symposium and AMMA conference in Canberra. We are anticipating that over 500 delegates from around the world will attend for the three day conference. Dr Nader Abou-Sief and his team have put together a wonderful program with presentations from David Means, who lead the team which found the Centaur, Commodore Hans Jung, Surgeon General Canadian Forces, and Rear Admiral Michael Miitelman, Command Surgeon United States Pacific Command. There will also be a strong contingent from NATO and from our friends from across the ditch. I look forward to catching up with many of you during the three days.

I would like to congratulate Dr Andrew Robertson and the entire editorial board for, yet again, producing another edition. Their task has been particularly difficult as we struggle to get sufficient copy for the

Journal as we are caught in the "catch 22" situation of being without a rating with few citations and, without a rating; researchers are reluctant to submit articles. The Board and Council, while recognising that this is problem any new journal will face, is seeking ways to improve the amount and quality of journal articles as well as potential partners for a joint publication. Under the AMMA constitution, we have an obligation to publish and the Council strongly believes that the Journal must continue to be a forum for independent scientific expression in military medicine and veterans' health for its members and members of the wider military and health communities.

Regards

Greg Mahoney

President

Florence Nightingale

Dr Keith Horsley

This year, 2010, is the Centenary of the death of Florence Nightingale. She died in 1910, at the age of 90, which was a notable age to reach at that time, although her family lived to a similar age.

It is customary to think of Florence as the founder of modern nursing. The ubiquitous image of her is as The Lady with the Lamp, walking the wards of the military hospital at Scutari, with grateful soldiers kissing her shadow as she walked past.

But Nightingale was much more than that. She made major contributions to military medicine, statistical thought, public health and to hospital design, to name a few.

She was a complex woman. Deeply religious, she believed that God spoke to her on four occasions when she was a young woman, always saying the same words: "I have work for you to do." Frustratingly for Nightingale, this is all God said to her. She initially decided to await further instructions from God but as the years passed, she came to realise that God wanted her to decide how to serve Him.

Her mind was increasingly drawn to reform of nursing. To understand why this was an area of interest, you need to have an understanding of the state of nursing when Florence Nightingale was a young woman. At that time, nursing was seen as the very lowest of vocations. Most nurses were alcoholics; they were permitted and expected to drink alcohol while they worked.

Many of them were also prostitutes. It was customary for young women of low social class to look to a life of prostitution and nursing, with the consumption of large amounts of alcohol to make the other two occupations a little more bearable. The average nurse when Florence was young would think nothing of combining her three occupational interests in a single night; she would sit watching over her patient, sipping her gin, and if her patient was well enough and had the money, extra services could be provided.

Florence Nightingale was not born of low social class. She and her family were not titled, but they were of that new nobility – the bourgeoisie. Nightingale's family were the very pinnacle of English middle-class society, and moved in the highest circles in English society.

They were very conservative in many ways, but

surprisingly liberal in others. As an example of their liberalism, Florence's father took charge of the education of both of his daughters, and ensured that they were extremely well educated. She was, for example, fluent in many languages, but her particular gift and love was mathematics. In respect of their conservatism, it was always expected that Florence (both wealthy and attractive) would marry and become a wealthy Victorian housewife.

So when young Florence rejected several handsome and attractive suitors, and announced her intention to become a nurse, society in general and her family in particular, were scandalised. It was too appalling to contemplate.

And so Florence found herself leading a team of nurses at the British military hospital at Scutari. Although she was always remembered as a nurse, her real gift at Scutari was hospital administration. She organised things; she made things work.

The phrase "the lady with a lamp", which today reflects a somewhat tepid view of FN, was in her day a very powerful political statement. As most nurses were prostitutes, the military had a policy of no nurses after dark, when a wounded soldier's mind might turn to naughty things. The fact that she had a lamp was a symbol of her working at night, but that she was a lady – a woman of decent morality.

The story of Nightingale's reform of nursing is well-told. Less spoken of is her enormous contribution of other areas.

To examine but a few of these, her contribution to statistical thought, particularly applied to health-care, was astonishing. She, for example, was the first person to use pie charts in health sciences. She used pie charts for a reason. They fulfilled her belief that statistical data should be easily accessible to the average intelligent person. She liked to apply what she called privately "the Queen Victoria test". She would look at a diagrammatic representation of data, and ask herself would The Queen understand the point that was being made by the data.

In this theory of statistical information she was opposed by many statisticians of her day, led by William Farr. Farr held that data should be presented dry, without interpretation, in a series of tables. The two of them

maintained this debate in a series of papers and addresses to statistical meetings over many years.

Who won? Arguably, they both did. Open any newspaper and you will see data presented by diagrams (pure Nightingalism) and in large tables (as suggested by Farr).

But there was a broader debate (in which Farr and Nightingale were on the same side) that they clearly won. As statistical thought was emerging, there was a strong reaction from many intellectuals opposed to the use of statistics. Charles Dickens was one such person. His novel *Hard Times* was in part an attack on the use of statistics. He would be not pleased with our everyday reliance on statistical thought.

Nightingale came to dominate the field of hospital design. She designed hospitals all over the World, all along a similar pattern. The wards had high ceilings, with huge windows, and with patients arranged in two rows down the side of each wall, and a nursing station located in the centre. By the time of her death, practically all hospitals built anywhere were Nightingales. As a medical student and a young doctor, I trained in wards such as these. It never occurred to me that someone had come up with the idea of this type of ward, but they did, and that someone was Florence Nightingale. We would probably be still using Nightingales, but for the advent of air conditioning.

Nightingale also argued for a standard method of recording death. She developed a model death certificate. This is the death certificate that we use today, and is used throughout the Western World. Perhaps this gave her comfort as she lay dying one hundred years ago – her own death would be recorded on a death certificate that she had designed.

She also published a series of papers supporting the work of Farr in developing an international code of diseases. By 1860, when she began her campaign to support Farr's work, Nightingale was an important person of considerable influence, both within England and throughout the World. While it is true to say that Farr put in all the hard yards, it is certain that Nightingale's support was important. Together they

gave us the International Code of Diseases; we now use the tenth edition, known by everyone as ICD-10. Ten years before her death, she had the satisfaction of seeing the publication of the Codex that she had worked so hard to establish. And perhaps as she was dying she would have had the comfort of knowing that her own death would be recorded according to the Codex she had struggled to build for so long.

During the American Civil War, Nightingale supported the Union cause. She wrote long letters of advice and encouragement to the individuals that established the Union Sanitary Commission. They credited her with much of the success in reducing mortality in the Union Army.

Even in failure Nightingale had success. She was working on the problem of malnourishment in children, and she wanted to develop a single numerical measure of malnourishment. The number wouldn't appear. In frustration, she wrote to her friend Alphonse Quatelet, seeking his help with the problem. A fortnight later she received a letter, in which he outlined the Body Mass Index. It is used everywhere; mostly to measure excess weight!

She made many other contributions over her long and productive life.

So when you look today at the statistical data coming out of the Joint Theatre Trauma System registry, you are very much continuing the work of Florence Nightingale. And if you were to put that data in a Pie Chart, you would make her soul sing.

It is then altogether fit and proper that we should pause this year and reflect of the life of this great woman, who died a hundred years ago this year. In so pausing, we should remember her not only as a Lady with a Lamp, but as a Woman with a Pie Chart.

Suggested Further Reading:

Florence Nightingale by Mark Bostridge

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Letter in Response to Douglas McKenzie Article

Peter Warfe CSC

Sir, I would like to bring to you readers attention an inaccurate comment, in a recent JMVH article on DVA accepted disability claims for posttraumatic stress disorder, concerning the second Australian Contingent to Rwanda, ASC2.

McKenzie's unreferenced article suggested that 'the 2nd Australian Contingent to Rwanda, 20% of whom observed the Kibeho massacre, now has over 80% of the Contingent personnel on mental disability pensions, mainly for PTSD¹.

I am responding to his assertion in my capacity as the Commander of ASC2 Rwanda and as the Director of the Centre of Military and Veteran's Health. The facts in this matter simply do not support his statement and I am concerned they denigrate the Contingent's superlative service under very trying and dangerous conditions.

Firstly, during 1995 Rwanda was largely a lawless state which presented a number of very challenging

operational, occupational and environmental health hazards. Secondly, more than a third of the Contingent served at Kibeho, during the particularly savage month of April 1995, culminating in the Kibeho massacre. Finally, Department of Veterans' Affairs accepted disability claims partially or wholly attributed to Rwanda for both Contingents include 174 cases of PTSD².

Based on the statistics provided, in the worst case 50% of the 350-personnel who served in the second contingent could have accepted disability claims for PTSD. However, assuming a normal distribution of PTSD through both contingents, of around 700 personnel, I estimate around 25% of the ASC2 Rwanda could have accepted disability claims for PTSD.

I wish to reassure your readers both DVA and CMVH are providing ongoing thorough research, first rate treatment and compassionate support for these valued veterans.

References

1. McKenzie D. *An Holistic view of posttraumatic stress disorder*. JMVH April 2010; 2(2): 24-26.
2. Correspondence Principal Medical Advisor DVA/Director CMVH dated 12 July 2010.

In response to: McKenzie D. An holistic view of post-traumatic stress disorder.

Journal of Military and Veterans' Health. 2010 April; 18(2):24-26.

Dr Duncan Wallace FRANZCP

McKenzie's article is a poorly written, and edited, polemic containing a number of sweeping statements, some of which are provocative, and some that are offensive. Such an obvious exercise in 'pot-stirring' should at least be properly researched. Thirty seconds on-line confirmed the suspicion that his figures for Australian killed in World War Two were hopelessly inaccurate. 39,761 Australians were killed; not the 27,000 reported.¹

From this low point, McKenzie's argument goes something like this. Members of the Australian Defence Force (ADF) have it good, but increasingly are fraudulently claiming to suffer from Post-traumatic Stress Disorder (PTSD). The Returned Services League aids them in this deception. Treating psychologists and psychiatrists fail to perform a forensic assessment of each patient and are duped into rubber-stamping every Department of Veterans' Affairs pension claim placed before them. By contrast, McKenzie can diagnose such patients accurately as malingerers. He recommends introducing a medical tribunal to improve patient assessment and management. Finally, a wide ranging inquiry into all aspects of this scandal is demanded. Based largely on a few anecdotes, McKenzie offers no evidence to support his position.

Essentially, he backs a 'restrictive' or forensic approach to compensable injuries. To be given a diagnosis and access to compensation, a high burden of proof of disability and cause of injury are necessary, e.g., objective evidence of mental disorder and documentary evidence of exposure. The advantages of this approach include certainty of diagnosis, exclusion of unworthy claimants and fewer pensions awarded. The disadvantages would be that worthy claimants may be deterred by strict requirements of proof. Furthermore, protracted litigation may occur as aggrieved claimants challenge the refusal of compensation, with such claimants encountering more stigma along the way.

In a 'liberal' or 'no fault' approach, lower levels of cause and proof of illness are required for the award of compensation (i.e. by subjective account only). In this scenario, more persons are compensated.

Some may be unworthy. However this approach may result in less stigma and, hopefully, permit early intervention and better treatment.

The current Australian Department of Veterans' Affairs system is more liberal than forensic. From July 2010, the United States Department of Veterans' Affairs, (VA)² adopted a less restrictive approach to granting recognition of PTSD for compensation. US veterans will no longer require extensive record analysis and investigation to corroborate that a stressor was related to hostile military activity. Instead, a US VA psychiatrist or psychologist must confirm that the stressor recalled by a veteran adequately supports a diagnosis of PTSD and the veteran's symptoms are related to the claimed stressor.

So, does McKenzie say anything new, instructive or helpful? Not really. Ellard³ previously warned that an 'apparent epidemic of post-traumatic stress disorder,' may develop, while also acknowledging the very real complexities of providing compensation to worthy persons. Resnick et al⁴, admitted 'PTSD is an easy disorder to fake,' as the diagnosis is made nearly entirely from the patient's subjective report of symptoms. Also, there is ready access to information on the disorder in the media, especially the internet, as health authorities work to reduce the stigma of mental illness. But Resnick went on to concede that the detection of malingered PTSD is 'one of the most difficult tasks faced by clinicians.' So if experienced forensic psychiatrists and psychologists have difficulty detecting fraudulent claims, how are treating psychiatrists and psychologists supposed to do better?

McKenzie's description of some of the problems experienced in managing ADF patients with mental health disorders certainly illustrates the complexities and difficulties of garrison practice. Nevertheless, he appears to advocate that in routine practice, patients with PTSD symptoms should be considered as malingerers until proven otherwise and should be subject to a forensic, rather than a clinical investigation and treatment pathway.

While scientific debate is to be encouraged, the contentious, unbalanced and negative tone of this article is unhelpful and will damage attempts to breakdown the stigma of mental illness in the military, an important goal of the recent Dunt Review of Mental Health Care in the ADF.⁵

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References

1. Memorial AW. Information sheets: Australians at war: casualties as a result of service with Australian units: Deaths as a result of service with Australian units. Available from: http://www.awm.gov.au/research/infosheets/war_casualties.asp.
2. Department of Veterans' Affairs. Factsheet: New regulations on PTSD claims. July 12, 2010. [19 August 2010]; Available from: http://www.va.gov/PTSD_QA.pdf.
3. Ellard J. The epidemic of post-traumatic stress disorder. *Med J Aust.* 1997;166:84-7.
4. Resnick P, West S, Payne J. Malingering of post-traumatic disorders. In: Rogers R, editor. *Clinical assessment of malingering and deception*. New York: The Guilford Press; 2008. p. 109-27.
5. Dunt D. Review of Mental Health Care in the ADF and Transition through Discharge. 2009 [6 August 2010]; Available from: <http://www.defence.gov.au/health/DMH/docs/Review%20of%20Mental%20Health%201%20May%2009.pdf>.

Post-traumatic stress disorder – in response to McKenzie’s holistic view

Dr Stephen Rayner (DrPsych)(Clinical)

“When discussing an issue as complex as psychological injury, opinion and belief can distract from knowledge”¹

McKenzie’s² paper is thought-provoking and raises several perennial issues for the assessment of Post Traumatic Stress Disorder (PTSD). McKenzie appears to be making several points. Firstly, that there is an increasing prevalence of PTSD in ADF personnel, with this increase seemingly accounted for by poor diagnoses and overestimation of the condition. Secondly, that this increase is attributable to poor diagnosis by naïve civilian psychologists and psychiatrists, or to malingering, fraud, or character flaws on the part of patients, spurred on by secondary gain. Thirdly, he intimates that treatment reinforces symptoms. Fourthly, he presents a picture of a helpless ADF medical system that cannot manage these issues; with deteriorating morale for the ADF as a result. Finally, he states the need for comprehensive, holistic assessments with a medical tribunal to make a diagnosis. These issues will be addressed one at a time.

The prevalence of PTSD in ADF personnel

While McKenzie claims that there has been a “recent disproportionate increase”, and “an increasing number of presentations” for PTSD in the ADF, and that the prevalence of PTSD in the ADF is overestimated, there are no figures to support these claims, no speculation on what the actual rate should be, and no recognition of the complexity of the issues.

McKenzie’s claim that more than 20% of Navy personnel from the 1991 Gulf War are on pensions for mental health disabilities is without reference. The 2003 Gulf War Veterans’ Health Study³ reports that just over 20% of participants (mostly Navy) had scores on screening instruments indicating possible mental health disorders, this is not the same as being diagnosed with a disorder and then having a claim accepted and pension allocated. Firstly, screening measures such as the PCL-C only rate three of the six criterion clusters required for diagnosis. Secondly, in the 2003 Gulf War study the prevalence in a control group (those in the military but who did not serve in the Gulf War) was 14%, suggesting that general military service may have contributed to over half the prevalence of possible PTSD.

Hence there may be errors in assuming that screening equals diagnosis and accepted claims.

To highlight difficulties in obtaining a clear picture of PTSD, screening of a large sample of RAN personnel returning from the Middle East⁴ suggests possible PTSD in less than 2% of the sample (in-line with community rates and lower than for at-risk groups). However, more than 18% of survivors of the fire in HMAS *Westralia* (and possibly up to 25%) reported symptoms of PTSD⁵. These contrasting figures suggest that in general, RAN personnel cope well with operational deployment, but that for some specific sub-groups there may be spikes in rates of disorder. To focus only on specific groups (or a small number of specific cases) without looking more broadly, may distort the impression of rates of PTSD across the population.

Whether there is actually a disproportionate increase in mental disorders is not supported by any data and ignores the long history of mental health disorders in the military. At the later stages of World War I, one-seventh of all discharges from the British Army were for mental disorders and 20% of soldiers on Britain’s pension list suffered from a psychiatric casualty⁶. During World War II, the number of US servicemen sent home as psychiatric casualties exceeded the number physically wounded and was twice the number of those killed in battle⁷. Further, over one-quarter of US medical discharges from the Korean War were for psychiatric reasons⁸ and combat stress casualties accounted for nearly one-third of casualties of Israeli soldiers in the Yom Kippur war⁹. Of an elite unit of the British Army that served in the Falklands, over 20% who were still in service five years later were diagnosed with PTSD with nearly the same number experiencing many of the symptoms; and only one in four not reporting any symptoms of PTSD¹⁰. Peacekeeping can also result in elevated rates of PTSD, with 15% of Canadian peacekeepers in Yugoslavia developing PTSD¹¹, and around 10% of US personnel in Somalia developed PTSD^{12,13}. Clearly, PTSD and psychological disorders resulting from military service is not a sudden or new phenomenon. Nor are controversies concerning the quality of diagnoses of PTSD and fears of over-diagnosis. Similar concerns were raised in 1995; however, at the time, it was considered that if anything, PTSD was actually under-diagnosed, rather than overdiagnosed¹⁴.

Poor diagnosis

McKenzie's concern about naïve diagnostic practice in PTSD may be valid, but fails to recognise the complexity of the issue. The reliance on subjective measures and self-report is not unique to PTSD – but common to most mental health issues. It would be appealing to have definitive blood tests for everything; but they simply don't exist – we have to do the best we can with what we have. What complicates the assessment of PTSD is its assumption of sole attribution of the condition to a specific event and not the individual, raising its perception to that of an 'honourable' or compensable mental health condition when compared to other conditions such as depressive or personality disorders.

There is no doubt that suitably motivated and/or coached individuals could fake PTSD and obtain a diagnosis, and the potential impact of coaching described by McKenzie is of concern. The difficulty in accurately diagnosing PTSD and discovering faking or malingering within a medical system (as opposed to forensic settings) is clearly recognised¹⁵⁻¹⁸. However, in response to concerns about malingering in PTSD¹⁹, it has been noted that "bad clinical practice does not negate the validity or relevance of a particular disorder"¹ that "if clinicians misapply the construct of PTSD, this is not a problem with a disorder, but rather, with clinical practice"¹; and that just because malingering or suggestibility exists, the suffering of genuine victims should not be trivialised²⁰. Further, to automatically hold suspect those with PTSD of malingering risks 'malingering phobia' – where apprehensions about malingering adversely bias clinical assessment²¹, or lead to the negative and marginalising attitudes toward survivors of the First World War:

"Men with war neuroses would have to struggle against the scepticism of the military, confusion in medical circles, and the perceived link between mental illness and moral weakness – even degeneracy, made by the wider society"²².

There is an inherent difference between an essentially therapeutic approach, with its focus on a trusting relationship between therapist and patient, and an essentially forensic or medico-legal approach, with its focus on scepticism of self-report, the need for corroboration and the need for proof. While the latter is required to fully address McKenzie's concerns, the reality is that it is mostly busy general practitioners and therapists, rather than lawyers or forensic psychologists or pathologists, who are asked to assess and manage patients in the ADF. The Australian Guidelines (for the Treatment of Acute Stress disorder and post traumatic stress disorder)¹⁸ note that: "regardless of the context, the practitioner must maintain a balance between providing empathic support to a distressed person while obtaining reliable and objective information".

This sound advice leads towards decisions made on the best possible information (which still may not be 100% accurate), rather than slipping into a biased attitude toward people seeking help being either genuine or malingering (or deserving of help versus not deserving of help).

McKenzie seemingly attributes the disproportionate increase in mental disorders to poor clinical practice, malingering or fraud in reporting by patients, or reduced levels of resilience. However, he does not report anything that rules out an actual increase in PTSD due to legitimate reasons, or to any other potential sources of attribution, such as changes in societal attitudes towards the military or their actions, issues related to ethical or moral considerations in modern war, conditions of service, management or leadership styles, etc. To not even consider these is to overly simplify a very complex and emotional issue; especially as in World War II group factors such as unit cohesion and morale were considered more valid predictors of psychiatric breakdown than individual factors^{23,24} and in the Israeli Defence Force, leadership is considered to play a crucial role in recovery and mental health of personnel²⁵.

McKenzie's concern regarding the use of civilian psychologists and psychiatrists to diagnose and treat is valid and worthy of attention, given that:

"psychiatrists who have not been sufficiently schooled in the goals and methods of military psychiatry have been noted in previous wars to fail to understand the competing sides of the soldier's struggle to overcome his fear, to overly emphasise with the soldier's self-protective side, and to over-diagnose psychiatric disturbance"²⁶.

Further, the Australian Guidelines¹⁸ note that the military context can result in differences between military members and the general community, with regard to pre-disposing vulnerabilities, the type and frequency of exposure to trauma, along with different symptom presentations and issues for assessment. Therefore, there is significant benefit to military mental health professionals having a good understanding of the military context and how it impacts on disorders such as PTSD.

McKenzie's assertion that the Navy has higher than expected prevalence of mental health disorders than the other services is consistent with the relatively low levels of uniform full-time clinical psychologists and psychiatrists in the Navy, compared to the Army. Further, the report of increased use of mental health early intervention halving the number of battlefield evacuees in North Africa in World War II²⁷ should lead McKenzie to offer the obvious solution of calling for more uniformed Navy psychiatrists and clinical psychologists to address this apparent bias in mental

health casualties in the Navy. However, he has not; and this is a glaring and surprising omission, given his strong opinion on the problems in the Navy.

Treatment reinforces symptoms

McKenzie infers that some treatment programs reinforce a victim mentality and therefore impair recovery from PTSD. He also expresses seeming surprise that one particular therapy technique (Albert Ellis' 'catastrophe scale') is not in common use. Treatment that reinforces a victim mentality may reflect poor treatment which should be considered an aberration rather than the norm. However, it could also simply reflect the complexity of psychotherapy for PTSD. The early stages of therapy involve building rapport and trust, and then gradually confronting traumatic memories. In establishing a therapeutic relationship, a therapist would generally allow a client to describe their experience without critique and with validation, which, if therapy was terminated at that stage, would appear as if the therapist was endorsing the client's initial presentation. A further challenge is that therapy for PTSD involves clients repeatedly confronting their traumatic memories with sufficient intensity to evoke the human fear response, and to then review the meaning they make of their memories. However, two of the hallmark symptoms of PTSD are distress associated with reminders of the event and avoidance of reminders of the event. This makes therapy potentially distressing to clients with PTSD, with a tendency for avoidance that needs to be overcome. Despite the best intention of both clients and therapists, PTSD therapy may be terminated prematurely if clients feel unable to tolerate the distress for therapy (for any of a range of possible reasons), resulting in little therapeutic gains.

With regard to the use of Ellis' catastrophe scale, this particular technique is just one of a wide range of similar techniques used for cognitive restructuring in Cognitive Behaviour Therapy (CBT) and that most can have positive effect. Further, CBT techniques are used widely in therapy, and CBT is one of only two psychological treatments for PTSD recommended in the Australian Guidelines¹⁸.

A helpless medical system

McKenzie seems to infer that members are just given diagnoses from civilian psychologists and psychiatrists in isolation from medical officers. However, this should not be the case. At all times, a member's medical employment classification and their management for PTSD should be the responsibility of medical officers. Further, the ADF medical employment classification review boards should serve the purpose of the tribunals recommended by McKenzie. Far from diagnoses being made in isolation from medical officers, MEC reviews

are instigated by and are the responsibility of medical officers who can accept or reject the opinions of civilian psychologists and psychiatrists, or who can seek second opinions, perhaps with a forensic psychiatrist for difficult cases or even noting doubts about diagnoses. If there are problems with how this process works in practice, it shouldn't necessarily be viewed as problems with disorders, diagnoses, patients, or other health professions.

McKenzie's argument does not appear to recognise the existence of guidelines and policies for PTSD; giving the impression that there are no standards for assessment. In 2007 the Australian Centre for Posttraumatic Mental Health published guidelines for the treatment of adults with PTSD and Acute Stress Disorder¹⁸. These guidelines, endorsed by the NHRMC, the RANZCP and the APS, recommend a comprehensive assessment process (and not just a quick checklist).

McKenzie states that screening scores indicate that successive generations of Australians are becoming less able to tolerate the demands of war-like deployments. While McKenzie provides no evidence to support this, it is a possibility. Further, he draws the conclusion that "ADF morale is likely to deteriorate in the long term and resilient personnel become disillusioned if PTSD becomes the primary focus of the ADF Mental Health Strategy". However, if the assessment of PTSD is as poorly undertaken with a significant adverse impact on the whole ADF as McKenzie suggests, and/or if there is a disproportionate increase in one particular disorder, then making a priority of increasing resources to address those problems is highly appropriate. PTSD is certainly not the only health or mental health area in the ADF requiring attention. Given the problems with PTSD that McKenzie cites, and the need to increase the number of uniformed mental health professionals available (particularly in the Navy) to improve diagnostic skills and clinical practice, to run forensic investigations and/or oversight medical tribunals whilst also improving resilience, simply will not happen without considerable resources and focus of attention.

Despite our best hopes, conditions such as PTSD are complicated and heavily emotionally laden – they are not new or faddish, and are a long-recognised and unfortunate feature of military service. If there were simple answers, we would have heard them by now. To try to reduce or simplify an issue as complex as PTSD is to either undervalue or overvalue the experiences of patients and to provide them with a less than optimal service. We owe those in the military an evidence-based and genuinely holistic understanding of PTSD.

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References

1. McFarlane AC, Creamer M. Current knowledge about psychological trauma: a response to Milton. *ADF Health*, 2006; 7:78-82
2. McKenzie D. An holistic view of post-traumatic stress disorder. *Journal of Veterans' and Military Health*. 2006; 18: 24-26.
3. Sim M. Australian Gulf War veterans' health study 2003. Monash University.
4. Rayner SPS. Prevalence of psychological trauma in operationally deployed Navy personnel: a baseline surveillance report. *ADF Health*. 2005; 6:81-84
5. Rayner SPS, Viney LL. Case study of six-year follow-up of navy survivors of a multiple fatality fire at Sea. *Military Medicine*. 2010; 175: 514-516.
6. Mareth TR, Brooker AE. Combat stress reaction: a concept in evolution. *Military Medicine*. 1985; 150:186-190
7. Ireland RR, Bostwick JM. Why we need military psychiatrists: 20th Century US military psychiatry and proposal for the future. *Military Medicine*. 1997; 162: 278-282
8. Carson RC, Butcher JN, Coleman JC. *Abnormal Psychology and Modern Life*. 1988. Los Angeles. Harper Collins
9. Salter CA. Dietary tyrosine as an aid to stress resistance among troops. *Military Medicine*. 1989; 54:144-146
10. O'Brien LS, Hughes SJ. Symptoms of post-traumatic stress disorder in Falklands veterans five years after the conflict. *British Journal of Psychiatry* 1991; 159:135-141
11. Rosebush PA. Psychological intervention with military personnel in Rwanda. *Military Medicine*. 1998;163:559-563
12. Weisaeth L, Mehlum L, Mortensen M.S. (1996). Peacekeeper stress: New and different? *National Centre for Post Traumatic Stress Disorder Clinical Quarterly* 1996;6:12-15
13. Litz BT, Orsillo SM, Friedman M, Ehlich P, Batres A. Posttraumatic stress disorder associated with peacekeeping duty in Somalia for US military personnel. *American Journal of Psychiatry* 1997;154:178-184
14. McFarlane AC. PTSD in the medico-legal setting: Current status and ongoing controversies. *Psychiatry, Psychology and Law*. 1995;2:25-35.
15. Gurriel J, Fremouw W. Assessing malingered posttraumatic stress disorder: A critical review. *Clinical psychology review*. 2003;23:881-904
16. Tennant C. Psychological trauma: psychiatry and the law in conflict. *Australian and New Zealand Journal of Psychiatry*. 2004;38:344-347
17. Resnick PJ, West S, Payne JW. Malingering of posttraumatic disorders. In R. Rogers (Ed.). *Clinical assessment of malingering and deception*. 2008. New York, Guilford.
18. Australian Centre for Posttraumatic Mental Health. Australian guidelines for the treatment of adults with acute stress disorder and posttraumatic stress disorder. 2007. ACPMH, Melbourne, Victoria.
19. Milton R. Psychological trauma and the ADF. *ADF Health*. 2005;6:85-87
20. McFarlane AC. Post-traumatic stress disorder: the importance of clinical objectivity and systematic research. *Medical Journal of Australia*. 1997;166:88-90
21. Pilowsky I. Malingeringophobia. *Medical Journal of Australia*. 1985;143:571-572.
22. Tyquinn M. *Madness and the military: Australia's experience of the Great War*. 2006. Loftus, Australian military history publications.
23. Manning FJ. Morale and cohesion in military psychiatry. In Office of Surgeon General (Eds.), *Military Psychiatry: Preparing in peace for war (Part 1, Vol 3)*. Textbook of military medicine. 1994. Virginia: T. M. M. Publications
24. Glass AJ. Principles of combat psychiatry. *Military Medicine*. 1955;117:27
25. Inbar D, Solomon Z, Spiro S, Aviram U. Commanders' attitudes toward the nature, causality, and the severity of combat stress reaction. *Military Psychology*. 1989;1:215-233
26. Jones F. From combat to community psychiatry. In Office of Surgeon General (Eds.), *Military Psychiatry: Preparing in peace for war (Part 1, Vol 3)*. Textbook of military medicine. 1994. Virginia: T. M. M. Publications
27. Ellard J. Principles of military psychiatry. *ADF Health*. 2000;1:81-84.

Tattoos - Life-Saving Art or Potential Health Hazard ?

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Tattoos as a form of bodily adornment are known to have their origins in antiquity.^{1,2} Almost every known ancient civilisation has used the art of tattooing in ceremonial or religious rites and the significance of tattoos in tribal traditions has persisted into modern cultures to varying degrees. Captain James Cook's observations of the Polynesians of Tahiti and the New Zealand Maoris during his first voyage led him to record in his journal 'Both sexes paint their bodies, "Tattaw" as it is called in their language (Tahiti), this is done by inlaying the colour of black under their skins in such a manner as to be indelible'.³ His revelations led to the revival of tattooing as an art form in Europe where working-class popular culture may have been influenced by returning soldiers and sailors. Australian historian David Kent has also shown that tattoos were common among our earliest convict settlers arriving at Port Jackson.⁴ Quite apart from tribal custom, however, tattoos have within the past century enjoyed a range of social acceptance and popularity from stigma to fashionable art.

In the armed services tattoos have always been commonplace and generally accepted as little more than distinguishing marks for those individuals who dared to be different.⁵ Unlike the general population where differing fashion trends and variable social mores have until recent years dictated the utmost discretion on the siting and design of tattoos, members of the Australian defence forces have met with few controls either from within the service or from outside.

Not surprisingly, however, the majority of tattoos acquired by young servicemen in particular have been obtained soon after enlistment and during an early period of service away from home. Peer pressure, opportunity and the effects of alcohol have been common factors influencing young troops to seek tattoos.⁶ The group of new recruits who have identical designs tattooed on their arms after a night on the town is a common scenario. Their desire to identify as mates and the often conservative, even patriotic nature of their tattoos is reassuring. Trends including motivation and social attitudes towards tattoos as body art, however, have changed with the gradual discard of the conservatism of past generations.

World War I

Designs frequently sought by soldiers about to leave Australia during the first World War incorporated kangaroos and lions with flags and other patriotic items such as the rising sun emblem for the Army. The Union Jack and the Australian flag were combined to indicate a close alliance in a fight primarily for the motherland. If words were used they generally spelt "mother", "mum and dad" or the name of a girlfriend to indicate some attachment. Because of the permanent nature of the tattoo the recorded "Mary" or "Ethel" was often a source of regret and embarrassment in later life.

Rarely did an individual choose to have his own name tattooed on his body but hearts and initials were considered safe and acceptable and were commonly used. Other words, such as patriotic slogans - "Fight the Good Fight", "For England" or "Death or Dishonour" might have been chosen to build courage and hope in a situation requiring moral support.

For teenagers, transformed rapidly into men prepared to enter battle, the military uniform and the warrior image were no doubt enhanced by a manly tattoo that also sent a message of courage and devotion.

It has long been a tradition that sailors obtained the most artistic tattoos often from exotic ports visited during their service. Long periods at sea and a reputation for having a girl in every port were part of a tradition which men of the Navy shared and promoted with some degree of pride. Their visits to foreign ports in Hong Kong, Singapore and the Middle East provided the opportunities for some unique experiences including a wide variety of tattoos. Dragons, snakes and erotic women featured strongly in the more artistic and coloured Asian and Oriental designs which persist to the present day. Their ships and anchors, often with a simple message like "Homeward Bound", combined that adventure and romanticism attached to the high seas with a certain stability and sense of purpose. The anchor tattoo among sailors has been interpreted as a symbol expressing safety and a determination to 'hold fast'.

World War II

Tattoos became even more popular with our armed services during the second World War, possibly influenced by the growing trend among American servicemen. Again, however, young men joined the army before being subjected to peer pressure and the fervour of patriotism was strong enough to influence many in their choice of tattoo.

Unfortunately, social attitudes and acceptance of tattoos outside the armed services have not been universally favourable and a certain stigma attached to the lower socio-economic groups, prison inmates and bikie gangs, related as much to their dress habits including tattoos as it did to their antisocial behaviour. The community response to ex-servicemen with tattoos who were unwittingly grouped with these social misfits caused many of them even decades later to regret having the tattoos in the first place.

As with the previous generation, World War II servicemen tended to confine their tattoos to the upper limb; some being conscious of a perceived need to hide their tattoos from public scrutiny made certain that they could be covered by short sleeves. In many ways the society of the 1940's was more conservative than that of their parents. Such concerns didn't trouble the men of the Navy, however, whose overt display of body art became more varied, more ornate and more obvious in keeping with their seafaring tradition. They too were more prone to local complications such as bleeding and infection from the parlours of Asian ports where unsterile bamboo needles were commonly used.

Although an increasing proportion of tattoos were made by professional tattoo artists during this period, many of them establishing their tattoo parlours close to military camps and port facilities in the larger cities, some were still self-inflicted or provided by another amateur, and the results of these latter were often crude, simplistic and obviously inferior. Professional artists at this time began to show more pride in their work. Flowers, females in various poses, Scotsmen, flags and even dragons incorporated coloured designs using red, yellow, blue and green dyes as well as blue and black ink, although not without some unknown risk and with no guarantee of permanence. Most of those we have observed sixty years later have little or no coloured pigment remaining apart from the black or blue outlines and basal cell carcinomas have developed in some tattoos with red dye.

Korea and Vietnam

Tattoos obtained by Australian servicemen during the Korean and Vietnam conflicts have demonstrated a growing trend towards sophistication in both

technique and artistic design. Corps mottos and slogans such as "Death before Dishonour" or "Invicta", "Paulatim" and "Who Dares Wins" were more often used as captions to an artistic metaphor of roses and daggers. Although the army personnel continued to display traditional and patriotic designs including crossed rifles, flags and the rising sun emblem, unit and corps insignia appear more frequently as well as oriental patterns and pictures that would indicate their overseas service. Sailors showed this trend and Asian influence by having bigger and better dragons, sometimes accompanied by Mandarin script, not only on arms but across the chest or back. The colours used in these tattoos are generally more distinct and don't appear to be fading. Although airforce personnel are known to have tattoos they are less commonly seen and no specific trends have been observed.

One innovative trend in the Vietnam era was the common use of blood groups and sometimes regimental numbers for identification. The blood group was usually tattooed near the cubital fossa and simply indicated the cross match necessary for transfusion or the soldier's availability as a donor. Religious motifs, particularly designs incorporating a crucifix or Star of David were personal declarations of allegiance rather than an indication of a fashion or trend. Very few Australian servicewomen are known to have obtained tattoos during this time, possibly because the era of social approval of body piercing and tattoos as adornment for both sexes was still twenty years hence.

Into the modern era - Discussion

The 1990's witnessed a revolution in fashions which included hairstyles and clothes, and almost unlimited display of flesh, with body piercing and some artistic adornment with tattoos. Today the range of tattoo designs also appears to know no bounds, from small flowers or birds favoured by young attractive females to the large and complex Maori-style patterns which cover large areas of the limbs or torso. While the Australian Defence Force has no official policy on this matter, apart from avoiding any display that may be considered offensive, it may be a fair indication of the common sense and intelligence of our recruits that very few display tattoos that would attract attention.

Tattoos, scars and birth marks are still recorded, however, on medical documents as identifying features of an individual. Fortunately we rarely see the giant cobwebs, obscene messages or facial tattoos which identify with the criminal element, many of whom regret having such marks and seek their removal.

The published results of recent surveys from the United Kingdom and United States show some general

similarities between the two countries in the prevalence of tattoos among military personnel. Findings included a high incidence of tattooing, a strong determination among new recruits to obtain tattoos, the possession of tattoos for self-esteem and self-identity reasons, and the supportive role of friends.^{7,8} More than a third of those surveyed (36% in US; 44% in UK) already had tattoos, and possibly the strongest influence they identified was a combination of social popularity and peer pressure. Drugs and alcohol were cited in a relatively minor proportion (15%).

Most were ignorant of any potential health hazards. The percentage of tattooed soldiers who regretted having tattoos exceeded 44% after the age of twenty six years. Rather surprisingly there is still a significant incidence of home-made tattoos among younger recruits in the UK. This fact, together with the large number of reported procedural bleeding (76%) from the US, must alert us to the potential danger of transmitted infection, including resistant strains of *Staphylococcus aureus*.⁹

One of the few surveys of military personnel for relevant transmissible infection was reported from Sydney in 1989.¹⁰ Over seven hundred Royal Australian Navy volunteers completed a questionnaire providing details of ethnic origin, service abroad, length of service, history of tattooing, liver disease and blood transfusions. Their serum was assayed by radioimmunoassay for the presence of Hepatitis B surface antigen and Hepatitis B antibodies. This study was performed to determine a policy for vaccination of personnel at risk or for service overseas. It is interesting to note that factors which were found to have a significant correlation with an increased prevalence of markers of Hepatitis B virus infection included tattooing (particularly if performed in Asia), age,

duration of service and service abroad. An appropriate vaccination policy and educational programmes aimed at minimizing the risk of exposure to Hepatitis B and other viral infections, as recommended by these and other authors^{10,11} have been instituted.¹²

An intense, sometimes delayed, allergic reaction to the pigments used in some Asian tattoos, has been reported in recent years.¹³ Chronic inflammatory reaction with hypersensitivity to red pigments is most common, especially those containing mercuric sulphide.

Removal of tattoos by surgical means is both time-consuming and expensive. The resulting skin grafts or scars can also be conspicuous and disfiguring. Modern Laser techniques produce better cosmetic results but may not be ideal for larger or deeply pigmented tattoos. It is obvious that the best policy regarding tattoos as a potential health hazard must be prevention. Apart from hepatitis (both B and C) a wide range of infections, both viral and bacterial, including HIV-AIDS, are possible contaminants in the tattooing process and may unwittingly be transmitted as life-threatening blood-borne diseases.^{14,15} Such dangers are indeed minimised in Australian professional tattoo studios where States and Territories impose strict infection control regulations. However, while increasing numbers of young recruits of both sexes already have tattoos when they enlist it should be a matter of educational policy within the military that all personnel be made aware of the personal risks involved.

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References

1. Hambly WD., History of Tattooing and its Significance, London, 1925 ;315
2. Sperry K., Tattoos and tattooing, Part I: History and methodology. *Am J Forensic Medicine and Pathology*. 12(4):313-9, 1991.
3. Beaglehole JC.(ed), *The Voyage of the Endeavour 1768-1771*, Cambridge, 1955.
4. Kent D., *Decorative Bodies: The Significance of Convicts' Tattoos*. *Jrnl RAHS*, 1989; pp. 78-88.
5. Waltz G., *Tattoos speak for soldiers*. *Am J Orthopsychiatry*. 54(3):505, 1984.
6. Houghton S, Durkin K, Turbett Y. Public health aspects of tattooing among Australian adults. *Aust J Public Health*. 1995 Aug;19(4): 425-7.
7. Armstrong ML, Murphy KP, Sallee A. and Watson MG., *Tattooed Army Soldiers: examining the incidence, behaviour and risk*. *Military Medicine*. 165(2):135-41, 2000.
8. Gadd MC., *A survey of soldiers' attitudes to tattooing*. *Journal of the Royal Army Medical Corps*. 138(2):73-6, 1992.
9. Long T., Coleman D. et al *Methicillin-resistant Staphylococcus aureus skin infections among tattoo recipients – Ohio, Kentucky and Vermont, 2004-2005*. *MMWR* 55(24): 677-678, 2006.
10. Pavli P., Bayliss GJ., Dent OF., Lunzer MR., *The prevalence of serological markers for hepatitis B virus infection in Australian Naval personnel*. *Med J Aust*.151(2):71, 74-5, 1989.
11. Long GE., Rickman LS., *Infectious complications of tattoos*. *Clin. Infect. Dis.*,1994; vol.18(4): 610-19.
12. *Defence Instructions (Navy); Royal Australian Navy policy on tattoos, branding, body piercing and mutilation*. PERS 31-18, AMDT NO 3; Revision 8/2009.
13. Cook J., Metcalf J., *Tattoo allergy*. *The New England Journal of Medicine* 2009; July 2, 2009:361.
14. Barnett J. *Health implications of body piercing and tattooing: a literature review*. *Nursing Times*. 99(37): 62-3, 2003.
15. Nishioka Sde A., Gyorkos TW. *Tattoos as risk factors for transfusion-transmitted diseases*. *International Journal of Infectious Diseases*. 5(1): 27-34, 2001.

The Healing Tonic: A Pilot Study of the Perceived Ability and Potential of Bartenders

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Abstract

Background: Identifying and assisting veterans in need of mental health services has been and continues to be a challenge for veteran-specific health care providers. Despite increased outreach efforts, many veterans remain on the periphery of such programs and fail to receive necessary services.

Purpose: The purpose of this pilot study was to explore an innovative avenue to help locate and connect veterans with mental health services. Specifically, the researchers explored the perceived ability and potential of Veterans of Foreign Wars (VFW) bartenders to identify veteran patrons with mental health issues and to link them with services.

Materials and Methods: Quantitative surveys were mailed to 300 randomly selected VFW posts. Seventy-one (N = 71) bartenders from 32 posts completed self-administered surveys probing their relationships with veteran patrons, their helping experiences, and their potential to serve as gatekeepers to services provided through the Veterans Health Administration.

Results: Bartenders reported close, family-like relationships with the veterans and indicated that veterans shared their problems quite often. In response, bartenders utilized a variety of supportive helping techniques. While lacking confidence in being able to recognize symptoms of depression and posttraumatic stress disorder, bartenders reported that they wanted to learn more and were willing to try to link veterans with services.

Conclusion: Results from this study suggest that VFW bartenders may have the potential to provide valuable information on mental health care resources to veterans in need. Brief training programs may provide this group with the skills and information to become an important and inexpensive link in the health care net for veterans.

The mental health and well-being of veterans has been and continues to be a primary concern and focal point for providers and policy-makers. Veterans, in particular those who have seen combat, have been found to have an elevated prevalence of mental health problems, most notably depression and posttraumatic stress disorder (PTSD)¹⁻⁴. Veterans with mental health issues such as depression have also been found to have an exponentially higher suicide rate than that of the general population⁵. Despite efforts to assist veterans with mental health concerns, many veterans continue to go untreated and available healthcare resources are underutilized, resulting in untold costs to individuals, families and society⁶. New approaches are needed to help connect these veterans with mental health services and to prevent individuals from 'slipping through the cracks'. In the current study, the researchers explored a novel approach to identify veterans at risk and refer them to formal systems of care. Specifically, bartenders at Veterans

of Foreign Wars (VFW) posts were examined in terms of their perceived ability and potential to help veterans exhibiting symptoms of mental illness. The findings from this study are important, as VFW bartenders may be able to play a key health promotion role for veterans in need.

Veterans' Mental Health

In 2009, it was reported that there were over 23 million veterans of the United States (US) military⁷. In terms of health, the concerns and needs of veterans are largely reflective of demographically similar groups in the general population; however, there are differences specific to the veteran population, most notably in terms of mental health. As previously mentioned, depression and PTSD have been found to be especially problematic for veterans¹⁻⁴. Studies have found depression rates to be as high as double the rates for the general population^{2,8}. PTSD rates have

also been found to be significantly higher for veterans, particularly for those who were injured or who saw heavy combat^{9,10}. This pattern of elevated mental health problems in US veterans has also been found in certain groups of veterans internationally (e.g., Korean war veterans in Australia¹¹), yet not in others (e.g., Dutch peacekeeping veterans¹²). This may be due to qualitative and contextual differences in the service experiences of these groups. Despite the disparities in these outcome studies, the trauma experienced by many veterans may place them at greater risk of mental health problems. The costs of these problems are widespread, including higher rates of suicide, poorer physical health, substance abuse, increased homelessness, and negative impacts on relationships and family life¹³.

To serve the health needs of veterans, the Veterans Health Administration (VHA) has developed into the largest single provider of care in the US, serving an estimated 5.5 million veterans annually. In terms of mental health services, the VHA has identified PTSD, depression, and suicide as key foci and are in the process of developing comprehensive programs and services to address these problems, including inpatient and outpatient care, disease-specific services, psychotherapy, and individual and family counselling¹⁴. While the VHA attempts to make programs accessible and to reach out to veterans in need, there is some evidence that veterans are not fully utilizing their benefits. In a self-reported, national survey, almost 22% of veterans indicated that they were not aware of their VHA benefits, 20% did not believe that they were eligible, and over 2% did not know how to apply for benefits⁶. While the VHA has transformed itself into a highly competent provider of health care, it is evident that additional steps are needed to ensure that veterans are aware of and are able to access their benefits.

The Gatekeeper Model and VFW Bartenders

Drawing from the literature on the gatekeeper model, there is some evidence that informal support systems and networks may have the capacity to link veterans with formal mental health services. The gatekeeper model was originally developed in the US in the 1970's to organize and train non-professionals (e.g., mail carriers, hairstylists) to identify problematic situations for older adults and to refer them to formal service providers. The gatekeeper model is built around the notion that informal social exchange tends to happen more frequently than formal social exchange (e.g., doctors appointments), thereby placing informal social contacts in a better position to notice problems¹⁵. Borrowing from attachment theory and the concept of interpersonal trust, individuals may find greater intimacy and sharing in their exchanges

with individuals that they see on a regular basis and have built relationships over time^{16,17}. Research has largely supported the theoretical underpinnings of the gatekeeper model, as well as the effectiveness of community gatekeepers for older adults¹⁸. Preliminary studies have also found that the gatekeeper model may be effective in suicide prevention in the workplace as well as veterans and their families^{19,20}.

In the current pilot study, the researchers explore a novel approach to identifying potential gatekeepers for the veteran population – VFW bartenders. The VFW is a non-profit organization that focuses on advocacy and service to veterans and their families. Most VFW posts also typically have designated clubs or halls that serve as areas for socialization and meetings and employ bartenders to serve their patrons²¹. In many respects, the VFW is similar to the Royal British Legion in the UK and the Returned and Services League of Australia. VFW bartenders, in particular, were the focus of the current study for several reasons. First, veterans are the primary patrons of these establishments. Second, bartenders have long been thought of as “a protean composite of counselor, psychiatrist, father confessor, advisor, and mediator (p. 93)”²². While anecdotal evidence exists supporting the notion of ‘bar-room therapy’, very little scholarly research has been conducted in this area. Only a few studies have moved beyond the problem of alcohol abuse and have examined bartenders’ roles as de facto psychosocial helpers and gatekeepers. These researchers found that bar patrons raised serious personal problems with bartenders who, in turn, typically reacted by listening and trying to be lighthearted. The bartenders also reported that they could be more effective if they were better equipped to deal with the problems presented by patrons²³. This evidence begins to suggest that bartenders may play a role in helping patrons with their problems. However, questions remain in terms of bartenders’ perceived ability and potential to identify significant mental health issues and to link their patrons with mental health care professionals. In response to these questions, this pilot study had the following specific aims:

1. To explore the helping relationships of VFW bartenders and their veteran patrons.
2. To examine the degree to which VFW bartenders are able to recognize symptoms of two specific mental health issues in their veteran patrons – depression and PTSD.
3. To gauge VFW bartenders’ knowledge of veterans’ services, their willingness to help veterans in need, and their interest in receiving additional training in mental health.

Methods

Sample

Prior to sampling, the study received 'exempt status' (informed consent waived) from the university institutional review board. Sampling was a multi-step process in this study. First, 300 VFW posts were randomly selected from an internet directory of VFW posts located in the state of Ohio. Letters containing explanations of the study and survey forms were then mailed to each post. Since posts typically employ more than one bartender, multiple surveys were mailed to each post. As an incentive for participation, VFW posts were notified that four randomly selected participating posts would receive a donation of \$50. Approximately 3 weeks after mailing the surveys, follow-up phone calls were made to those VFW posts that did not return surveys to determine the following: (a) whether posts received the surveys; (b) whether posts requested that the surveys be re-sent; and (c) whether or not the posts actually had a bar. For those posts that did not receive the first mailing, a second mailing was sent. Of the 300 posts contacted, bartenders from 32 posts returned the surveys, 3 posts indicated that they did not have a bar, and 36 posts could not be reached by mail or phone (e.g., mail returned to sender, phone numbers not listed). Excluding those posts that did not have a bar and those posts that could not be reached, the overall post participation rate was approximately 12.3% (32 participating posts out of 261 eligible posts). Since some posts returned multiple surveys, the final sample consisted of seventy-one VFW bartenders (N = 71) working in 32 VFW posts.

Measures

As this was an exploratory pilot study, the measures developed and utilized were simple and probing in nature. The survey instrument consisted of 16 items and one open-ended question designed to gauge the following (for the complete questionnaire, see Appendix A):

Demographic characteristics – Bartenders were asked to provide their age, gender, race/ethnicity, education level, length of employment at the VFW, and whether or not they had ever received formal training in **counseling or mental health**.

Relationships and roles – Bartenders were asked to describe the closeness of their relationships with the veterans and the types of roles that they play in the lives of the veterans (e.g., friend, like family, stranger).

Veterans' problems – Bartenders were asked about the frequency with which they perceived veterans would share their problems, as well as the types of problems that they shared (e.g., family, work, physical). This

typology of problems was derived from previous studies of bartenders²³.

Ability to recognize problems – Bartenders were asked about their self-reported ability to recognize symptoms of two mental health issues that have been found to be problematic in the veteran population: depression and PTSD. Responses were grouped as low (1-3), moderate (4-7), and high (8-10).

Helping responses – Bartenders were asked to identify the types of helping responses and techniques that they employed when veterans shared their problems. Responses included, for example, offering support and sympathy, listening to their problems, giving advice. This typology was derived from previous studies of bartender²³.

Veterans' services – Three final items asked bartenders if they were familiar with veterans' programs and services, whether they would be willing to refer veterans to VA services, and whether they would be interested in participating in training programs to augment their helping abilities.

Additional information – A final open ended question provided bartenders with an opportunity to share more about their experiences of working with veterans.

Data Analysis

The exploratory nature of this study and the simplicity of the measures dictated that the researchers would only run basic level analyses on the quantitative data. SPSS 17.0 software was used to generate descriptive statistics and frequencies to help illustrate the helping behaviors and potential of VFW bartenders and their veteran patrons. The qualitative data obtained from the final open-ended question was examined for thematic content and used in an auxiliary, illustrative fashion in discussing the quantitative findings from this study²⁴.

Results

The final sample consisted of 71 (N = 71) bartenders working in 32 VFW posts from across the state of Ohio. Bartenders were typically middle age (75.7% age 31-60), White (100%), women (88.7%) who were educated at the high school (or equivalent) level (57.7%) and had been working as bartenders at the VFW for an average of almost 7 years (M = 6.8; SD = 6.7 years). In terms of mental health training, 89.7% reported that they had not received any formal training in this area. Bartenders reported that they were either close (54.3%) or very close (18.6%) to their veteran patrons and typically felt that their relationships were that of friend (88.7%) or family (73.2%). Veterans reportedly shared their problems with bartenders often (54.95%)

and these problems were primarily related to family (88.7%), physical (81.7%), or work (74.6%) issues. In reaction to these problems, bartenders predominantly used three basic responses: offering sympathy and support (88.7%); trying to cheer up the veterans (80.3%); or simply listening as the veterans expressed their concerns and issues (73.2%). Bartenders indicated that they were only moderately able to identify symptoms of depression (65.7% moderate ability) and far less able to identify symptoms of PTSD (42.9% low ability; 42.8% moderate ability). While an overwhelming majority of bartenders (80.6%) were willing to refer their veteran patrons to the VA, 20.3% were not familiar and only 36.2% were somewhat familiar with the services offered to veterans in their community. When asked whether they would be interested in additional training to help them recognize problems in their veteran patrons, 59.7% of the bartenders responded in the affirmative.

Table 1 – Sample Characteristics (N = 71)

Variables	%
Age of Bartenders	
18-30	10.0%
31-45	34.3%
45-60	41.4%
61 and over	14.3%
Gender of Bartenders	
Female	88.7%
Male	11.3%
Race/Ethnicity of Bartenders	
White	100.0%
Education Level of Bartenders	
High School or Equivalent	57.7%
Some College	26.8%
Associates	11.3%
BA or Higher	4.2%
Training in Mental Health	
Yes	10.3%
No	89.7%
Age of Veteran Patrons^{a, b}	
21-40	14.1%
41-60	48.1%
61 and over	39.2%

^a Percentages are means of reported percentages.

^b Total does not equal 100% due to participants' difficulties in computing percentages.

Table 2 – Descriptive Statistics (N = 71)

Variables	%
Closeness of Relationships with Veterans	
Not Close	1.4%
Fairly Close	25.7%
Close	54.3%
Very close	18.6%
Roles of Bartenders	
Friend	88.7%
Like Family	73.2%
Employee	42.3%
Helper	32.4%
Counselor	15.5%
Stranger	2.8%
Tendency of Veterans to Share Problems	
Rarely	7.0%
Sometimes	22.5%
Often	54.9%
Always	15.5%
Types of Problems Shared by Veterans	
Family	88.7%
Physical	81.7%
Work	74.6%
Relationship	59.2%
Financial	54.7%
Marital	42.3%
Depression	22.5%
Emotional	22.5%
Sexual	22.5%
Alcohol/Drugs	18.3%
Bartenders' Perceived Ability to Recognize MH Problems (range 1-10)	
Depression	
Low (1-3)	0.0%
Moderate (4-7)	65.7%
High (8-10)	34.3%
Posttraumatic Stress Disorder	
Low (1-3)	42.9%
Moderate (4-7)	42.8%
High (8-10)	14.3%

Variables	%
Bartenders' Responses to Veterans' Problems	
Offer support and sympathy	88.7%
Try to cheer them up	80.3%
Just listen to their problems	73.2%
Share personal experiences	47.9%
Present alternative courses of action	46.5%
Ask questions to find additional information	43.7%
Give advice	29.6%
Try to get the client to speak with someone	23.9%
Bartenders' Willingness to Refer Veterans to VA Services (Yes)	80.6%
Bartenders' Interest in Additional Training (Yes)	59.7%
Familiarity with Veterans Services	
Not familiar	20.3%
Somewhat familiar	36.2%
Familiar	26.1%
Very Familiar	17.4%

Discussion

In popular culture, bartenders have often been depicted and thought of as confidants and counsellors to patrons seeking company, comfort, and advice over a drink. In this study, we examined the degree to which this depiction is accurate in terms of relationships between VFW bartenders and their veteran patrons and the ability of bartenders to assist veterans with mental health issues. Bartenders were found to have close, family-like relationships with the veteran patrons and responded in empathic, supportive ways when veterans shared their problems. While bartenders' perceived ability to recognize problems varied and their knowledge of services was limited, they appeared to be personally interested in helping their veteran patrons and may be in an ideal position to serve as gatekeepers to the VHA healthcare system. These findings are reflective of anecdotal evidence and the limited empirical findings that exist regarding the helping roles and capacities of bartenders in general public settings²³. The findings from this study are primarily descriptive in nature and, as such, tend to be self-explanatory. In this discussion, we will focus on certain characteristics of the VFW that differentiate this setting from general public settings and discuss

the potential gatekeeping or liaison role that these bartenders may play in connecting veterans with community mental health services.

Three unique characteristics support the idea that VFW bartenders have the capacity to connect veterans to necessary mental healthcare services. First, many of the VFW bartenders in this study had worked in their clubs for many years ($M = 6.8$ years) which allowed them to establish long-term, close relationships with their veteran patrons. As one bartender stated, "It's not just a job here; it is a second home with an extended family." This notion of "family" carries through in bartenders' willingness and desire to help the veterans. Another bartender remarked, "It's a very personal, small community, and people take care of each other." This private club atmosphere may be quite different from bars in the community where both staff and patrons come and go with greater frequency. The environment of VFW posts and the closeness of the relationships between VFW bartenders and their veteran patrons form a natural helping environment where veterans can share problems and bartenders can direct them to professional help²⁵.

Second, the veterans who frequent VFW clubs have common experiences and access to a common system of care and support. This is much different from bar patrons in the general public area. VFW members have all served in foreign military conflicts and, as such, they may share some of the ramifications of their service, such as mental health issues. Veterans also have access to the VHA health care system, which again differentiates this group from the general public arena. These factors are critical in understanding how VFW bartenders can help this group. It would be impractical to expect bartenders in the general public arena to understand the myriad of mental health problems faced by patrons off the street and to understand the many health care systems available in the community. VFW bartenders, on the other hand, could realistically be expected to learn about the specific mental health issues facing veterans (e.g., depression, PTSD), as well as the services and programs offered by the VHA.

Finally, VFW bartenders work under the umbrella of one central organization. This again differentiates them from bartenders in the general public area. While researchers can suggest that all bartenders receive training in mental health, there is little in terms of organizational support to mandate such training. The VFW organization, on the contrary, is a national entity that can dictate policy to the state VFW organizations and their posts. This factor supports the idea of a national training program for all VFW bartenders. The findings from the present study also lend preliminary support for such training,

as the majority of VFW bartenders indicated that they were not very familiar with the programs and services offered through the VHA, yet they were interested in receiving additional training on the problems faced by veterans and the resources available to them.

As in the training of any layperson concerning health and mental health, caution should be taken to ensure that bartenders do not overstep their role. Diagnosing a person with depression or PTSD is a difficult task and should only be undertaken by trained health professionals. The findings from the present study do not suggest that bartenders could or should serve as professional counsellors; rather, they should be viewed as potential gatekeepers to formal helping systems such as the VA and the VHA. This point should be vehemently stressed in any training program for laypersons and reinforced periodically through refresher trainings.

Limitations

There are several limitations to consider in understanding and applying the findings from this pilot study. First, the response rate to the survey was relatively low, with only 12.3% of contacted VFW posts responding. This may have resulted in a degree of response bias. VFW bartenders who were most interested in helping their clients may have been more likely to respond to the survey. The resulting sample was also quite small and homogeneous in terms of geographic location and race. This limits our ability to generalize these findings to more diverse populations. In addition, the measures used in this study were solely descriptive and rather simple in nature. In the future, researchers should consider more complex measures to build on the findings of the present study. Finally,

this study focused on bartenders who, quite obviously, serve alcohol. Substance abuse has been reported as another significant health issue for veterans²⁶. It may be contradictory to expect bartenders to respond to depression and PTSD as they may be concurrently facilitating substance misuse and abuse. On the other hand, veterans may be more likely to share their problems, issues, and concerns in this setting. Mental health care providers may need to adopt a strategy of meeting clients “where they are”, similar to outreach programs that have been found to be effective in locating and serving homeless veteran populations.

Conclusion

VFW posts provide veterans with opportunities to find camaraderie, receive social support, and continue their service to others. Within this environment, VFW bartenders appear to play an important role in listening to and potentially helping with the problems presented by their veteran patrons. The findings from this pilot study suggest that VFW bartenders may have the capacity to be more effective in assisting veterans with mental health concerns by linking them to mental health care services, such as those offered through the VHA. The development and implementation of simple, cost-effective training programs may hold the key to maximizing the helping abilities of VFW bartenders. With such training and support, VFW bartenders have the potential to help find ‘healing tonics’ for veterans – more powerful than any drink in the bar.

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Appendix A – Survey Questionnaire

1. What is your age? 18-30 31-45 45-60 61+
2. What is your gender? Female Male
3. What is your race or ethnicity? White African-American Asian Latino Other
4. What is the highest level of education that you have completed?
High School/Equivalent Some College Associates Degree Bachelors Degree/Higher
5. How long have you been working at the VFW as a bartender? _____
6. Have you ever received any formal training in counseling or mental health? Yes No
7. In general, how close are your relationships with your patrons at the VFW?
(1) Not Close (2) Fairly Close (3) Close (4) Very Close
8. How would you describe your role or roles with your patrons (circle as many as you would like)?
A. Employee B. Friend C. Helper D. Counselor E. Like Family F. Stranger

9. How often do your patrons share information about their personal problems?

(1) Never (2) Rarely (3) Sometimes (4) Often (5) Always

10. What types of problems do your patrons share with you (circle as many as you would like)?

A. Family D. Physical G. Marital J. Depression
B. Emotional E. Alcohol/Drugs H. Financial
C. Sexual F. Relationships I. Work

11. On a scale of 1 to 10, rate your ability to recognize the warning signs of depression in your patrons?

1 (not able) 2 3 4 5 6 7 8 9 10 (very able)

12. On a scale of 1 to 10, rate your ability to recognize the warning signs of Post-Traumatic Stress Disorder (PTSD) in your patrons? 1 (not able) 2 3 4 5 6 7 8 9 10 (very able)

13. What types of responses or techniques do you use when your patrons express problems (circle as many as you would like)?

A. Offer support and sympathy. G. Try not to get involved.
B. Try to be lighthearted and cheer them up. H. Give advice to them.
C. Just listen to their problems. I. Ask questions to find out more.
D. Present alternative courses of action. J. Try to get them to speak to someone.
E. Explain to them to count their blessings. K. Try to change the topic.
F. Share personal experiences related to their problems.

14. How familiar are you with the services that are available to help veterans in your area?

(a) Not familiar (b) Somewhat familiar (c) Familiar (d) Very familiar

15. Would you be willing to refer your patrons to healthcare services that are available through the Veterans Administration (the VA)? Yes No

16. Would you be interested in additional training on spotting physical and mental health problems if it was offered in your workplace (the VFW)? Yes No

On the reverse side, please let us know more about your experiences in working with VFW Post Members.

References

1. Centers for Disease Control (CDC). Health status of Vietnam veterans: psychosocial characteristics. *JAMA*, 1998; 259: 2701-2707.
2. Hankin CS, Spiro III A, Miller DR. Mental disorders and mental health treatment among U.S. Department of Veterans Affairs outpatients: The Veterans Health Study. *Am J Psychiatry*, 1999; 156: 1924-1930.
3. Milliken CS, Auchterlonie JL, Hoge CW. Longitudinal assessment of mental health problems among active and reserve component soldiers returning from the Iraq war. *JAMA*, 2007; 298: 2141-2148.
4. Spiro III A, Schnurr PP, Aldwin CM. Combat-related posttraumatic stress disorder symptoms in older men. *Psychol Aging*, 1994; 9(1): 17-26.
5. Ziven K, Kim HM, McCarthy JF. Suicide mortality among individuals receiving treatment for depression in the Veterans Affairs health system: associations with patient and treatment setting characteristics. *Am J Public Health*, 2007; 97(12): 2193-2198.
6. Veterans Administration. 2001 National Survey of Veterans: Final report [document on the Internet]. Washington, DC: The Administration; 2001 [cited 2009 Jul 20]. Available from: http://www1.va.gov/vetdata/docs/survey_final.htm.

7. U.S. Department of Veterans Affairs. VA benefits and health care utilization [document on the Internet]. Washington, DC: The Department; 2009 [cited 2009 Aug 4]. Available from: http://www1.va.gov/vetdata/docs/4X6_spring09_sharepoint.pdf.
8. Substance Abuse and Mental Health Services Administration (SAMSHA). The NSDUH report: major depressive episode and treatment for depression among veterans aged 21 to 39 [document on the Internet]. Washington, DC: The Administration; 2008 [cited 2009 Nov 9]. Available from: <http://oas.samhsa.gov/2k8/veteransDepressed/veteransDepressed.pdf>.
9. U.S. Department of Veterans Affairs. Strategies for suicide prevention in veterans [document on the Internet]. Washington, DC: The Department; 2009 [cited 2009 Nov 2]. Available from: <http://www.hsrp.research.va.gov/publications/esp/Suicide-Prevention-2009.pdf>.
10. Grieger TA, Cozza SJ, Ursano RJ. Posttraumatic stress disorder and depression in battle-injured soldiers. *Am J Psychiatry*, 2006; 163(10): 1777-1783.
11. Ikin JF, Sim MR, McKenzie DP. Anxiety, post-traumatic stress disorder and depression in Korean veterans 50 years after the war. *Br J Psychiatry*, 2007; 190: 475-483.
12. Klaasens ER, van Veen T, Weerts JMP. Mental health of Dutch peacekeeping veterans 10-25 years after deployment. *Eur Psychiat*, 2008; 23: 486-490.
13. Tanielian T, Jaycox LH, editors. *Invisible wounds of war: psychological and cognitive injuries, their consequences and services to assist recovery*. Santa Monica, CA: RAND Corporation; 2008.
14. U.S. Department of Veterans Affairs [homepage on the Internet]. Washington, DC: The Department; 2009 [cited 2009 Nov 9]. About the VA mental health group. Available from: <http://www.mentalhealth.va.gov/VAMentalHealthGroup.asp>.
15. Florio ER, Raschko R. The gatekeeper model: implications for social policy. *J Aging Soc Pol*, 1998; 10: 1-19.
16. Sarason BR, Pierce GR, Shearin EN. Perceived social support and working models of self and actual others. *J Pers Soc Psychol*, 1991; 60: 273-287.
17. Rotter JB. Generalized expectancies for interpersonal trust. *Am Psychol*, 1971; 26: 443-452.
18. Florio ER, Jensen JE, Hendryx MS. One-year outcomes of older adults referred for aging and mental health services by community gatekeepers. *J Case Mgmt*, 1998; 7(2): 74-83.
19. Isaac M, Elias B, Katz LY. Gatekeeper training as a preventative intervention for suicide: A systematic review. *Can J Psychiat*, 2009; 54(4): 260-268.
20. Matthieu MM, Cross W, Batres AR. Evaluation of gatekeeper training for suicide prevention in veterans. *Arch Suicide Res*, 2008; 12: 148-154.
21. Veterans of Foreign Wars [homepage on the Internet]. Washington, DC: The Organization; 2009 [cited 2009 Aug 4]. About the VFW. Available from: <http://www.vfw.org/index.cfm?fa=news.levelc&cid=223&tok=1>
22. Bissonette R. The bartender as a mental health service gatekeeper: a role analysis. *Community Ment Health J*. 1977; 13(1): 92-99.
23. Cowen EL, McKim BJ, Weissberg RP. Bartenders as informal, interpersonal help-agents. *Am J Community Psychol*, 1981; 9(6): 715-729.
24. Miles MB, Huberman AM. *Qualitative data analysis: an expanded sourcebook*. 2nd ed. Thousand Oaks, CA: Sage; 1994.
25. Caplan MD, Caplan R. Principles of community psychiatry. *Community Ment Health J*. 2000; 36(1): 7-23.
26. Substance Abuse and Mental Health Services Administration (SAMSHA). The NSDUH report: serious psychological distress and substance use disorder among veterans [document on the Internet]. Washington, DC: The Administration; 2007 [cited 2009 Nov 9]. Available from: <http://www.oas.samsha.gov/2k7/veteransDual/veteransDual.htm>

Tropical Diseases of Military Importance: A Centennial Perspective

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Abstract

Vector-borne diseases stand out as major concerns for military deployments. Of particular concern are malaria, arboviral diseases and, more recently, leishmaniasis. Vaccine preventable diseases also remain important globally. Other common problems, for example diarrhoeal disease and non-infectious hazards, such as trauma, also need to be addressed.

Figure 1. Dr Anton Breinl

Photo courtesy of the Anton Breinl Centre, James Cook University



Introduction:

Despite a century of formal research in tropical medicine, tropical diseases remain a significant threat for many military deployments. Since the arrival of Dr Anton Breinl to head Australia's first medical research institute on 1 January 1910, the Australian Institute of Tropical Medicine (see Figures 1 and 2), there have been many institutional milestones and advances in tropical medicine, some of which are recorded in Table 1. During this time, military forces from the region have frequently deployed to areas that have been characterised by extremes of environment, endemic disease, poverty, and inadequate public health resources.

Tropical diseases have remained one of the greatest challenges to defence health services in the region. Historically, tropical diseases have been regarded as a significant factor influencing the outcome of major military campaigns, including the Second World War.¹ It was one of Australia's most highly regarded tropical medicine specialists and military physicians, Neil Hamilton Fairly, for example during the Second World War that raised the importance of addressing tropical diseases such as malaria with the force commanders.²

 **Disclaimer:** The author does not necessarily represent the views of the Australian Defence Force, The Australasian College of Tropical Medicine or of any other organisation mentioned in this paper.

Vector-borne tropical diseases

Vector-borne tropical diseases remain amongst the great problems for operational deployment of military personnel. Table 2 summarises potential tropical disease risks during deployment and some of the preventive measures. Some vector-borne diseases also represent a potential public health problem when returning home. Malaria remains the single most important vector-borne disease problem of the military worldwide.

Malaria

Malaria is a serious disease caused by a protozoan parasite largely confined to the tropics. Most life-threatening cases and deaths occur due to infection with *Plasmodium falciparum* malaria.⁴ However, infection due to *P. vivax* also remains important, especially as dormant liver stages can cause relapses, sometimes several, for months after returning home.⁴ Standard malaria countermeasures will be considered as part of planning for operational deployment based on current policy and disease patterns in the area of operations. Current countermeasures against malaria include the use of malarial chemoprophylaxis, personal

Figure 2. Australian Institute of Tropical Medicine, Townsville, Australia, 1916

Photo courtesy of the Anton Breinl Centre, James Cook University



protective measures, environmental health measures against disease vectors, early detection and treatment, and malaria eradication treatment.⁴ These measures are detailed in Australian Defence Force (ADF) Health Directives, e.g. HD215 on Malaria.

Arboviral diseases

There are many arboviral diseases, which have the potential to impact on military deployments. In Asia, dengue fever and Japanese encephalitis are major concern for deployments; however in Africa Yellow fever is also a concern.

Yellow fever

Military personnel are one of the high-risk groups for yellow fever.⁵ The WHO requires yellow fever vaccination for those travelling to endemic regions, including west and central Africa as well as a number of areas in south and central America. Vaccination with the attenuated live viral vaccine (17D) confers protective immunity for about 10 years.⁴ Yellow fever vaccination should be appropriately documented and a booster should be considered after about 10 years. Military personnel should also be fully briefed on personal protective measures to avoid bites from infected mosquitoes.

Dengue

Dengue is a viral illness transmitted by various species of *Aedes* mosquitoes and is a major global public health problem. Infection may range from subclinical disease to fever, arthralgia and rash, or be complicated by haemorrhagic diatheses or shock syndromes. Treatment is supportive, while management of the problem is directed towards preventing transmission upon return home, which is a small potential risk in southern Africa. Numerous outbreaks of dengue can

Table 1. Some key institutional events in the past 100 years of tropical medicine in Australia

Year	Event
1909	The Australian Institute of Tropical Medicine (AITM) founded in 1909 as Australia's first medical research institute
1910	Anton Breinl arrived in Townsville to take up role as the Inaugural Director, AITM; AITM commences operations
1913	New AITM building officially opened in Townsville
1915	Walter and Eliza Hall Institute of Medical Research became Australia's second medical research institute after AITM
1926	First students graduate from Diploma of Tropical Medicine and Hygiene from the AITM in Townsville University of Sydney records first award of the Graduate Diploma in Tropical Medicine (DTM)
1928	University of Sydney records first award of DTM&H
1930	The School of Public Health, University of Sydney, assumes the role of research and teaching in tropical medicine; AITM closes.
1950	Sir Neil Fairley receives a Knighthood for services to tropical medicine
1967	Establishment of the 1 Malaria Research Laboratory at the School of Public Health, University of Sydney
1973	1 Malaria Research Laboratory moved to the Ingleburn Military Camp; changed name to Army Malaria Research Institute
1987	Kerr White Review of Public Health recommends Commonwealth fund public health research and training (now Public Health Education and Research Program) Establishment of what is now the Anton Breinl Centre for Public Health and Tropical Medicine, James Cook University Establishment of what is now the Australian Centre for International and Tropical Health and Nutrition, University of Queensland
1991	Foundation of The Australasian College of Tropical Medicine (ACTM) in Townsville; Associate Professor Rick Speare is the Inaugural President
1993	Re-establishment of a DTM&H in Townsville at James Cook University Master of Public Health and Tropical Medicine offered for the first time at James Cook University
1996	Army Malaria Research Institute relocated to the Gallipoli Barracks, Brisbane, and renamed Australian Army Malaria Institute
2004	Commencement of the Centre for Military and Veterans' Health – University of Queensland and University of Adelaide nodes
2006	Commencement of the Centre for Military and Veterans' Health – Charles Darwin University node
2007	Foundation of the Marshall Centre for Infectious Diseases Research and Training, University of Western Australia, and establishment of a Tropical Infectious Diseases stream within a Master of Infectious Diseases

be attributed to travellers returning with the disease from Southeast Asia. Until a vaccination becomes available, the mainstays of dengue prevention are personal protective measures and environmental health measures against disease vectors.⁴ Further information can be found in Health Bulletins, e.g. HB No. 6/2000 Dengue. A useful update on Dengue can be found elsewhere.⁶

Japanese encephalitis

JE, transmitted by infective mosquitoes, is the leading cause of viral encephalitis in Asia. Up to a third of clinical cases die and about one half of clinical cases of JE have permanent residual neurological sequelae.⁷ The recent development and release of safer and more immunogenic second-generation JE vaccines have been a useful advance for military deployments in JE endemic areas.⁷ Some of the background for the ADF's involvement in JE vaccine research is given elsewhere.⁸

Filariasis

In Africa, soldiers may encounter several forms of filariasis, including lymphatic filariasis (LF), onchocerciasis and loiasis. In Asia, lymphatic filariasis is the predominant concern. LF is caused by three species of nematode parasites, which can be spread by a wide range of mosquito species.⁹ It has a widespread geographic distribution mainly in the tropical regions of the world. *Wuchereria bancrofti* is the most common and accounts for around 90% of cases.⁹ *Brugia malayi* is confined to east and southeast Asia and *Brugia timori* is found only in Timor and nearby islands.⁹ From World War II, there have been numerous outbreaks and reports of LF documented amongst troops deployed in southeast Asia and the western Pacific region.¹⁰ Countermeasures for filariasis include personal protective measures and eradication treatment.⁴ Further information for ADF personnel can be found in Health Bulletins, e.g. HB No. 4/2002 Lymphatic Filariasis.

Rickettsial diseases

A number of rickettsial diseases have a significant potential to impact on military deployments.¹¹ Scrub typhus is widely endemic, particularly in a wide area of southeast Asia, Australia and the western Pacific region.¹¹ In Africa, ticks are important vectors of a number of diseases, including rickettsial diseases, such as African tick bite fever. There are no vaccinations for rickettsial diseases and prevention hinges on the use of personal protective measures by military personnel.¹² Weekly doses of 200 mg doxycycline can prevent scrub typhus, but the efficacy of daily doxycycline for malaria chemoprophylaxis as used against *Orientia tsutsugamushi* is unknown.¹²

Leishmaniasis

Leishmaniasis should be considered in those travelling to and returning from endemic areas. Leishmaniasis is caused by a protozoan parasite transmitted by the bite of infected female phlebotomine sandflies. There are several different forms, but the most common is cutaneous leishmaniasis (CL). CL is increasing being reported in travellers as they venture into endemic areas,¹³ in about 90 countries.¹⁴ Adventure travellers, humanitarian aid workers, military personnel and long term travellers may be at particular risk.¹⁴

Cutaneous Leishmaniasis

CL presents with skin sores, usually one or more chronic skin lesions where sandflies have fed. It has been coined the "Baghdad boil" reflecting the areas of operation where it is currently being encountered, including southwest and central Asia,¹⁵ although leishmaniasis is widely distributed in other locations around India, the Mediterranean basin, central Africa and South America. Skin lesions usually develop within a few weeks of being bitten and are unresponsive to antibiotics or steroids. Lesions commence as a papule then often enlarge and then ulcerate. They can be painless or painful, especially if secondarily infected. The peak sandfly period is April to November, peaking in September/October in the northern hemisphere.

Diagnosis of CL is normally through a biopsy or skin scraping. Treatment is available, including sodium stibogluconate,^{14,16} but prevention is the best option. The following preventive measures may be useful and are mostly directed at reducing contact with sandflies: stay in air conditioned buildings, where possible; spray out the accommodation area; permethrin impregnated clothing to cover as much of the body as possible; diethyl methyl- toluamide (or DEET) repellents; control of vermin and stray animals; and fine mesh bed net soaked in permethrin. Sandflies are most active from dusk to dawn.¹⁴

Other Forms

Other forms of leishmaniasis include the potentially disfiguring mucocutaneous or mucosal leishmaniasis and diffuse cutaneous leishmaniasis, primarily found in tropical South America, as well as visceral leishmaniasis (VL). Leishmaniasis are regarded as a fairly heterogeneous collection of clinical diseases caused by many different species of *Leishmania*, each with its own unique properties, including a fairly specific geographical location.¹⁵ VL is the most serious form of leishmaniasis and affects some of the body's internal organs, most commonly the spleen, liver and bone marrow. It usually takes several months to years develop and may present with fever, weight loss, hepatomegaly and significant splenomegaly.¹⁴ VL is

Table 2. Some tropical disease risks during military deployment

Risk category	Risk identity	Risk reduction or prevention strategy
Vector-borne disease	Malaria	Personal protective measures; chemoprophylaxis; sometimes field diagnosis and standby treatment may be appropriate – see main article
	Trypanosomiasis ³	Tsetse flies are aggressive daytime biters and little can be done to prevent bites
	Leishmaniasis	DEET-containing repellents; permethrin impregnation of clothes and bednets; residual insecticide spraying of limited use
	Filariasis	Measures to prevent biting flies and mosquitoes (barriers, insecticides, repellents, bednets etc)
	Scrub typhus	Body surface should be checked for eschars; personal protective measures, including permethrin impregnated uniforms; periodic prophylaxis or treatment may help
	Dengue	Control peridomestic breeding of main mosquito vector, <i>Aedes aegypti</i> ; personal protective measures
	Japanese encephalitis	Vaccination; personal protective measure
Water-related disease	Schistosomiasis	Avoid unnecessary exposure of skin to water
	Leptospirosis	Avoid unnecessary contact with likely animal urine-contaminated water; periodic prophylaxis/treatment may help
Water-borne infection	Hepatitis A and E	Hepatitis A is vaccine-preventable; effective water treatment
Enteric infection	Typhoid and paratyphoid fevers	Typhoid vaccine; food/water risk education
	Cholera	Oral vaccines preferable to older, killed vaccines; provide good short-term protection
	Poliomyelitis	Polio immunization booster
Blood-borne infection	Hepatitis B, HIV, malaria	Minimise transfusion of locally-donated blood; hepatitis B immunisation; behaviour risk modification; post-exposure prophylaxis for HIV
Animal-related disease	Envenomation	Ensure appropriate antivenom is available in major centres, where applicable
	Rabies	Consider pre-exposure vaccination; postexposure prophylaxis
	Anthrax	Avoid contact with or ingestion of meat from animals that have died of unknown causes
	Q fever	Avoid unnecessary contact with domestic stock and their aerosols
	Brucellosis	Avoid raw milk from any domestic animal
	Meningococcal meningitis	Various vaccines available; currently the quadrivalent polysaccharide A,C,Y,W-135 vaccine is appropriate for military personnel deployed in Africa
Other infections/infestations	Myiasis (fly larva)	Wash laundry well; do not dry it on the ground; ironing will kill eggs and larvae laid in washing

not common in travellers,¹⁴ but it has been reported amongst soldiers deployed to Iraq and Afghanistan.¹⁷ Severe cases of VL are typically fatal, if untreated.¹⁴ Health Bulletins provide further information for ADF personnel, e.g. HB No. 6/2003 Leishmaniasis.

Vaccine preventable diseases

Many infectious diseases of military personnel can be prevented by immunisation (see Table 2). There are few mandatory vaccines, for which certification is necessary. These include yellow fever and meningococcal meningitis.⁴ Meningococcal meningitis is of concern across the meningitis belt of sub-Saharan Africa, particularly in west Africa, and vaccination is

warranted for deployment to these areas and other areas where the vaccine preventable strains of the disease are endemic.^{4,5} In addition to routine and national schedule vaccinations, there are a variety of vaccinations, which may be required for particular destinations. Influenza A and B are now considered major threats to military personnel in barracks as well as on deployment and influenza vaccination is starting to become more widely recommended.¹⁸

Zoonotic diseases

Zoonotic diseases may present a hazard for military deployments in rural Africa as well as many other parts of the world. Zoonotic diseases of concern

include rabies, leptospirosis, bovine tuberculosis, anthrax, plague, and even certain viral haemorrhagic fevers.⁵ Rabies is amongst the most important of the zoonotic diseases. It is widely endemic in Africa and many other parts of the world and is an almost invariably fatal illness, spread by the bite of an infected animal. Military personnel are considered amongst the high-risk groups for rabies,⁵ and pre-exposure vaccination is indicated for troops deploying to rural Africa or other parts of the world where the disease is endemic and access to rabies immune globulin and post-exposure prophylaxis may be variable. Military personnel should be cautioned against approaching potentially infected animals and taught about first aid treatment of wounds caused by animal bites, including post-exposure prophylaxis. Leptospirosis is a widespread concern and is transmitted by infected domestic and wild animals, especially rodents. Military personnel coming into contact with urine-contaminated water may be infected. Rodent control measures need to be instituted in the field, as well as consideration of antibiotic chemoprophylaxis or eradication treatment. In Australia, doxycycline has been widely used to assist in prevention of leptospirosis and has been demonstrated to be both an effective chemoprophylactic and therapeutic agent.¹⁹ Further information for ADF personnel can be found in Health Directives, i.e. HD272. Leptospirosis.

Sexually transmitted diseases

Military personnel are often considered a risk group for sexually transmitted infections. In much of Africa and Asia, human immunodeficiency virus and hepatitis B and C virus are widespread.⁴ Pre-deployment, hepatitis B vaccination is important, as is hepatitis B and C and HIV serology, as baseline measures.⁵ Troops should be counselled on safe sex practices and preventing and managing percutaneous exposures to blood and bodily fluid.⁴

Schistosomiasis

Schistosomiasis remains one of the most important tropical diseases with a widespread distribution in more than 70 countries throughout parts of Africa, Asia and South America.⁴ Schistosomiasis is an important health risk for military deployments to rural Africa, where it causes chronic gastrointestinal schistosomiasis (*Schistosoma mansoni*) and genitourinary schistosomiasis (*Schistosoma haematobium*). Apart from avoidance of potentially infected water bodies or using protective clothing when fording streams, screening serology could be offered pre-deployment and post-deployment.⁵ Soldiers who seroconvert should be investigated and treated appropriately, usually with praziquantel. Alternatively,

stool and urine examination for parasite eggs may be indicated for soldiers where infection is suspected, where serology is not available or not useful due to previous exposure.⁵

Other infectious diseases

Other tropical diseases may affect military personnel on deployment. Prevention of diseases may require the use of personal protective measures by military personnel. Tuberculosis (TB) screening should also be considered for troops deploying from non-endemic regions to endemic regions. Active TB should be excluded in those exposed to TB or who are symptomatic.⁵ The importance of travellers' diarrhoea should also not be underestimated in military deployments,²⁰ and is an important part of pre-deployment health briefing. Skin infections can also be common problems of deployments.⁵

Infectious disease risks posed by bioterrorism and emerging infections

The identification of the most likely and threatening of the potential biological weapons remains a joint effort of civilian and military public health and medical experts, informed also by law enforcement and intelligence.²¹ The development of public health and medical preparedness measures must then be instituted or developed against those threats that merit special concern. Some of the important criteria for this determination should include feasibility of aerosol dissemination, high case-fatality rates, potential for secondary spread, and the availability of protective vaccines or antimicrobial agents.^{21,22} Among some of the major causes of concern in recent years have been smallpox and anthrax, for which vaccines and/or prophylaxis are available; however a range of viral and bacterial agents have been identified and classified according to the threat that they pose.^{20,22} There is also widespread stockpiling of antiviral treatment countermeasures to the Avian influenza and other potential pandemic influenza viruses, such as the recent pandemic (H1N1) 2009, particularly for use by health and military personnel, who may be called out to assist in disease control of any outbreak of the disease in human populations. There is however no substantial evidence for the effectiveness of these drugs in Avian influenza.²³ Further information on Pandemic (H1N1) 2009 for ADF personnel can be found in Health Bulletins, e.g. HB No. 8/2009.

Non-infectious hazards of deployment

Sun exposure and heat illness remain a problem for soldiers, particularly on training exercises and military deployments. A US study by Carter et al showed that the diagnosis of the most serious form

of heat illness, heat stroke, is actually increasing in terms of hospitalisation, although overall heat illness admissions reduced over the period 1980-2002.²⁴ The complications of heat stroke, which can be life threatening -37 US soldiers died during 1980-2002 - may include dehydration (17%), rhabdomyolysis (25%) and acute renal failure (13%).²⁴ Injuries and accidents, especially fatal motor vehicle accidents and training injuries,^{25, 26} represent a significant problem for military personnel on deployments. Other common problems include skin diseases, and field conditions during deployment, such as cold, sun exposure, heat, humidity and poor hygiene, can exacerbate skin disorders.²⁷

Conclusion

Military deployments represent a significant risk of tropical diseases. In the past 100 years, there have

been significant advances in countermeasures for many of these tropical diseases. In terms of infectious disease, vector-borne diseases, in particular malaria and the arboviruses, stand out as major concerns for military deployments. However, other common problems, for example diarrhoeal disease and non-infectious hazards, such as trauma, also need to be addressed.

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References

1. Simmons JS. The Army's new frontiers in tropical medicine. *Annals Internal Med* 1942; 17: 979-988.
2. Ford E. Neil Hamilton Fairly (1891-1966). *Med J Aust* 1969; 2(20): 991-996.
3. Anon. Human African trypanosomiasis (sleeping sickness): epidemiological update. *Wkly Epidemiol Rec*. 2006; 81: 69-80.
4. World Health Organization. *International Travel and Health*. Geneva: WHO; 2010. Available at: <http://www.who.int/ith> (accessed 23 August 2010)
5. Waner S, Durrheim DN, Leggat PA, Ross MH. Preventing infectious diseases in long-term travelers to rural Africa. *J Travel Med*. 2001; 8:304-308.
6. Kitchener S. Dengue fever update. *J Mil Veterans Health* 2010; 18(3): 42-43.
7. Jelinek T. Ixiaro®: a new vaccine against Japanese encephalitis. *Expert Rev Vaccines* 2009; 8: 1501-1511.
8. Kitchener S. The rise and fall of Japanese encephalitis vaccination in the ADF – Where to now? *J Mil Vet Health* 2010; 16(3): 14-20.
9. Melrose WD. Lymphatic filariasis – new insights into an old disease. *Int J Parasitol*. 2002; 32:947-960.
10. Melrose W, Leggat PA. Lymphatic filariasis: Disease outbreaks in military deployments from World War II. *Mil Med*. 2005; 170:585-589
11. Kelly DJ, Richards AL, Temenak J, Strickman D, Dasch GA. The past and present threat of rickettsial diseases to military medicine and international public health. *Clin Infect Dis*. 2002; 15(Supp 4):S145-S169.
12. Watt G, Parola P. Scrub typhus and tropical rickettsioses. *Curr Opin Infect Dis*. 2003; 16: 429-436.
13. Magill AJ. Cutaneous Leishmaniasis in the returning traveler. *Infect Dis Clin N Am* 2005; 19: 241-266.
14. Centers for Disease Control and Prevention. Prevention of Specific Diseases (Ch 4): Leishmaniasis. In. CDC Health Information for International Travel. URL: <http://wwwn.cdc.gov/travel/yellowBookCh4-Leishmaniasis.aspx> (accessed 23 August 2010)
15. Anonymous. Update: Cutaneous leishmaniasis in U.S. military personnel-Southwest/Central Asia, 2002-2004. *MMWR* 2004; 53(12): 264-265.
16. Minodier P, Parola P. Cutaneous leishmaniasis treatment. *Travel Med Inf Dis* 2007; 5: 150-158.
17. Myles O, Wortmann GW, Cummings JF, Barthel RV, Patel S, Crum-Cianflone NF, Negin NS, Weina PJ, Ockenhouse CF, Joyce DJ, Magill AJ, Aronson NE, Gasser RA. Visceral leishmaniasis: clinical observations in 4 US army soldiers deployed to Afghanistan or Iraq, 2002-2004. *Arch Intern Med* 2007; 167: 1899-1901.

18. Ikonen N, Pyhala R, Axelin T, Kleemola M, Korpela H. Reappearance of influenza B/Victoria/2/87-lineage viruses: epidemic activity, genetic diversity and vaccination efficacy in the Finnish Defence Forces. *Epidemiol Infect* 2005; 133: 263-271.
19. Murray CK, Ellis MW, Hospenthal DR. Susceptibility of leptospira serovars to antimalarial agents. *Am J Trop Med Hyg*. 2004; 71:685-686.
20. Sanders JW, Putnam SD, Riddle MS, Tribble DR. Military importance of diarrhea: lessons from the Middle East. *Curr Opin Gastroenterol*. 2005; 21:9-14.
21. Venkatesh S, Memish ZA. Bioterrorism-a new challenge for public health. *Int J Antimicrob Agents*. 2003; 21:200-206.
22. Robertson A. Bioterrorism - An Australian perspective. *ADF Health*. 2000; 1:99-106.
23. Jefferson T, Demicheli V, Rivetti D, Di Pietrantonj C, Rivetti A. Antivirals for influenza in healthy adults: systemic review. *Lancet*. 2006; 367:303-313.
24. Carter R, Chevront SN, Williams JO, Kolka MA, Stephenson LA, Sawka MN, Amoroso PJ. Epidemiology of hospitalizations and deaths from heat illness in soldiers. *Med Sci Sports Exercise*. 2005; 37:1338-1334.
25. Hooper TI, Debakey SF, Bellis KS, Kang HK, Cowan DN, Lincoln AE, Gackstetter GD. Understanding the effect of deployment on the risk of fatal motor vehicle crashes: A nested case-control study of fatalities in Gulf War era veterans, 1991-1995. *Accid Anal Prev*. 2006; 38: 518-525.
26. Gruhn J, Leggat PA, Müller R. Injuries presenting to Army physiotherapy in North Queensland, Australia. *Mil Med*. 1999; 164:145-152.
27. Upjohn E, Kelly J. Skin diseases in war and peacekeeping. *ADF Health*. 2004; 5:64-68.

Management of severe trauma in an austere environment with limited kit on Pacific Partnership 2010 Deployment.

Flight Lieutenant Danny O'Neill, RAAF SR.

Abstract

Background: Management of trauma is a challenging process which can be made worse in the austere environment. Austere medicine is essentially the provision of medical care without access to modern investigations or technology. This case review will discuss the management of a 38 yr old female involved in a motor vehicle accident (MVA), car vs tree during monsoonal rain conditions in a remote location in Cambodia during the Pacific Partnership 2010 mission.

Introduction:

Whilst conducting humanitarian health operations with the United States military at a medical site in Cambodia, a request for assistance was made to the site commander to send staff to assess a patient from a MVA who had allegedly suffered a minor injury. The communication was relayed that the patient had suffered only a minor injury and could be assessed and retrieved back to the Medical site. The author was asked to respond to this request as the victim was a member of the US embassy staff. The accident was supposed to have happened approx 30 mins north of the current Medical site position. The time of the accident was unknown. The author and two members of the US Navy medical service were driven north to assess the patient in extreme weather conditions with severe electrical storms causing reduced visibility down to 3-4 feet ahead. The team made its way north in search of the hospital where the victim was to be located.

After driving around 40mins to the location, no hospital was seen, but a small market area was noted, with a local waving the team over. On the left was a small clinic into which the team was summoned. The clinic was small containing patients with different conditions scattered on the floor.  The team was taken through to a back room which had half a roof and with the rain pouring in. The team found a woman on a stretcher lying on the floor which was covered in water. She had noticeable head trauma, she was having decerebrate posturing and she was vomiting blood.

History & Examination: Primary Survey:

The history was that this female was driving along the road to the port when the car lost control in the wet and hit a tree. The female was pulled out of the car by local Cambodians.

Using the advanced trauma life support process¹ the ABCDE (Airway with C-spine protection, Breathing, Circulation, Disability, and Exposure) approach was used by the author and team who ensured the C-spine was aligned and protected.

Airway: was assessed, suctioned and an oropharyngeal (OPA) airway was inserted. Oxygen was applied via a nasal cannula attached to the OPA, as there was no NRB (Non Re-breathe Masks), available. The author cut the end of the nasal cannula and placed this inside the OPA and set the oxygen to high flow. After managing the airway with this limited kit (no ETT available), breathing was assessed.

Breathing: bilateral air entry was heard with scattered faint ronchi. There was rapid rise and fall of the chest and her respiratory rate was 35. No tension pneumothorax, haemothorax or life threatening chest injury was identified during the primary survey.

Circulation was assessed, a radial pulse was present and IV access in both ACF was obtained with small yellow 24 Gauge cannulas as this was the only equipment available. The author successfully sited two 24 Gauge side by side in one ACF (anti cubital fossa) to increase the flow rate. IV N/saline was commenced. Minor external bleeding due to lacerations was noted on both arms and was controlled with dressings. The pelvis was unstable and a sheet was used to tie the pelvis in.

Case Study

Disability: An assessment of disability found the patient unconscious and not responding to stimuli, AVPU score (alert, pain, voice unresponsive) = U, pupils size 2 and sluggish. She was having decerebrate posturing.

Exposure: The left leg was rotated with a suspected fracture of the femur, the pelvis was unstable and no external haemorrhage was seen. Minor ooze was noted from a lower leg laceration. Facial swelling and bruising was present with minor scalp lacerations. The left humerus appeared broken and bruising was evident midshaft.

On evaluation the author and the team had provided stabilisation within the golden hour period. The golden hour defines that period in which critically injured patients who are able to obtain haemorrhage control and resuscitation within the hour, have a chance of survival which is greatly improved².

Evaluation of the primary survey had concluded the following 1. Airway - patent with oxygen applied, 2. Breathing - adequate rise and fall of the chest and no tension or haemothorax identified 3. Circulation - any haemorrhage was controlled and IV access obtained and IV fluids infusing, 4, Disability - the patient was U on the AVPU score, 5. Exposure - the patient was exposed and assessed for other injuries and external haemorrhage then blankets applied to maintain warmth.

Clinical Findings

This was where the team focused on splinting fractures and dressing the minor lacerations. The patient was log rolled and no injury was found on the back and no external haemorrhage seen.

As the weather conditions were deteriorating the immediate issues were continuing stabilisation and evacuation. A call was placed via mobile phone to the medical supervisor on the USN Mercy to request immediate rotary wing evacuation because the patient would not survive a road retrieval. Her injuries were too severe and she needed intubation.

The team tied her pelvis, splinted her left leg, maintained her airway and kept her warm with the available blankets and continuously assessed and reassessed her ABCDE. The seizures became progressively worse and the team continued to suction her airway and provide C-spine immobilisation and prepare her for intubation when the helicopter arrived with the anaesthetist.

A number of issues presented the team at the clinic. No one spoke English, the clinic had limited equipment with just basic dressings, small IV cannulas and no IV drugs and due to this the team could not provide

definitive care beyond the available basic equipment. There were no ETT's, No NRB's (Non Re-breathe Masks), no IV drugs and oxygen was supplied via two C size cylinders at 8L per minute. Her condition was deteriorating and the team did what they could without definitive airway support.

The patient was maintained for 1hr 20mins until the anaesthetist arrived on the helicopter. The patient was subsequently intubated on the ground in the back of the clinic and flown back the USN Mercy in horrendous weather conditions.

The US pilots displayed heroic actions flying at 300 feet with poor visibility but following the road from the port where the USN Mercy was anchored in our location.



FLTLT O'Neill loading the patient in to the H-60 Nighthawk which landed on a road in austere conditions (2010)

Discussion

The fact that the team was able to provide care within the golden hour, that being the time period lasting from a few minutes to several hours following traumatic injury being sustained, during which there is the highest likelihood that prompt medical treatment will prevent death¹. It is well established that the victim's chances of survival are greatest if they receive care within a short period of time after a severe injury³. This was achieved by maintenance of a good airway, obtaining IV access, splinting fractures and controlling any external bleeding which probably contributed to her survival. On board the USN Mercy she was definitively treated for her injuries which included a fractured pelvis, femur and a head CT confirmed DAI (diffuse axonal injury). She was transferred from the operating room (O.R) to the ICU intubated, ventilated on the USN Mercy for 12 hrs prior to being transferred to a neuro ICU unit in Singapore.

The current progress of the patient is that she is doing well, is up and walking but has some memory loss. She continues to improve.

The key primary objectives of this trauma management case were rapid and accurate assessment of the patient's condition, resuscitation and stabilisation, and organising rotary wing aero medical evacuation.

This short paper describes the management of a severely injured trauma patient in an austere environment with limited equipment. Having an experienced team leader qualified in ATLS/TNCC (Advanced Trauma Life Support/Trauma Nurse Core Course) enabled the stabilisation of the patient and ensured the maximum level of care in a cold

wet environment. It also shows adaptability of ADF health staff having interoperability with US forces and that well trained staff are able to adapt to clinical challenges in the austere environment. The lessons learnt were that limited kit, even though not ideal, can be adapted to maximise patient care. Regular training and clinical currency is imperative for ADF staff deploying on operations and that no matter what communication/intelligence is given always expect the worst and prepare for it.

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References

1. Advanced Trauma Life Support. 2008 ATLS ® for Doctors Student Manual, 8th Edition. American College of Surgeons.
2. PHTLS, 2007. Pre Hospital Trauma Life Support Manual. 6th Ed. Mosby JEMS.
3. Lerner, EB; Moscatti (2001). "The Golden Hour: Scientific Fact or Medical "Urban Legend?"". Academic Emergency Medicine 8 (7): 758–760.

Therapeutic Guidelines: Antibiotic*

Antibiotic Expert Group.

*Version 14. xxxiv+445pp, paperback, ISBN 978-0-9804764-7-7. Melbourne, Therapeutic Guidelines Limited, AUD39.00, 2010.

Apart from major textbooks of infectious disease, there have been few books published specifically on guidelines related to antibiotics. *Therapeutic Guidelines: Antibiotic*, part of a collection of 14 in the series of the popular and respected Therapeutic Guidelines series in Australia, is now a well established set of clinical practice guidelines. The recently released Version 14 of *Therapeutic Guidelines: Antibiotic* has a table of Contents, list of Tables, boxes and figures, a list of the members of the Antibiotic Expert Group as well as other contributing groups, Acknowledgments, a list of Endorsements, About Therapeutic Guidelines Limited and their Board of Directors, a Preface, 20 Chapters, six Appendices, a comprehensive Index and a Request for comment on guidelines proforma. Each chapter has a useful highlighting strip on the edges of the pages, which importantly helps to identify the various chapters. It is also important to note that the handbook is also available electronically. It also includes 31 Tables, seven Boxes and five Figures.

Therapeutic Guidelines: Antibiotic is well researched, concise and consistent in its presentation. Chapters include "Principles of antimicrobial use", "Getting to know your drugs", "Antimicrobial hypersensitivity (allergy)", "Bone and joint infections", "Cardiovascular system infections", "Central nervous system infections", "Eye infections", "Genital and sexually transmitted infections", "Human immunodeficiency virus (HIV) infections", "Intra-abdominal infections", "Malaria", "Mycobacterial infections", "Prophylaxis: medical", "Prophylaxis: surgical", "Respiratory tract infections: pneumonia", "Respiratory tract infections: other", "Severe sepsis (sepsis syndrome)", "Skin and soft tissue infections", "Systemic infections" and "Urinary tract infections". There are also six Appendices, namely: "1. Biological warfare agents", "2. Desensitisation protocols", "3. Monitoring antimicrobial blood concentrations and aminoglycoside and vancomycin dosing", "4. Pneumonia severity scoring systems for community acquired pneumonia in adults", "5. Pregnancy and breastfeeding", and "6. Renal impairment and antimicrobial dosing". The largest chapters are the chapters on "Respiratory tract infections: pneumonia" (p 221-258) and "Human immunodeficiency virus infection" (p 123-151). The drugs (p 11-36) are discussed by major target infective or parasitic group, namely "Antibacterial drugs",

"Antifungal drugs", "Antiviral drugs", "Antiprotozoal drugs" and "Anthelmintic drugs". There is a short but useful chapter on "Antimicrobial hypersensitivity (allergy)", which is well worth reading (p 37-40).

There have been a number of significant changes and updates from the previous version.¹ These include a new short, but useful chapter on antimicrobial hypersensitivity with a summary table on management of patients with penicillin hypersensitivity that is well worth reading (p 37-40). There is also a new appendix (Appendix 4) with new severity scoring tools for community-acquired pneumonia in adults (p 367-369). There is an expanded section on influenza in the chapter on "Respiratory Tract Infections: other" (p259-263), which mentions recent novel influenza strains, H5N1 ('avian influenza') and Pandemic (H1N1) 2009. A new approach to the monitoring and use of aminoglycosides is discussed in Appendix 3 with specific mention of empirical therapy with gentamicin being recommended for a maximum of 48 hours (p 357, 360) "with subsequent therapy guided by susceptibility results" (p xxxiii). Other updates include more information on community-associated methicillin-resistant *Staphylococcus aureus*, an expanded section on home-based intravenous antimicrobial therapy, updated vancomycin dosage and monitoring recommendations, revised renal impairment dosing guidelines and a new section on antimicrobial stewardship (p 7-9) in the first chapter.²

From the Australasian perspective, it is hard to fault the guidelines. The Preface does however raise one concern (p xxxiv) and that is that structural changes are occurring in *Therapeutic Guidelines: Antibiotic* to place sections or chapters in other specialist Therapeutic Guidelines, such as *Gastrointestinal*, *Respiratory*, and *Dermatology*. Relevant infectious diseases are well covered, for example, in *Therapeutic Guidelines: Dermatology*, reviewed elsewhere,³ which has a fairly comprehensive section on skin infections and skin infestations and bites, but it does mean gaining access to an additional book. While infectious disease components of other *Therapeutic Guidelines* can be linked through *eTG* complete and *miniTG*, the present intention would seem to be commercially driven to promote purchase of the complete electronic product, which perhaps could be justified in supporting evidence-based practice.

As an Australian based publication, it is inevitable that the writing group would be predominantly Australian. It is interesting however that all 14 members of the Antibiotic Expert Group and all members of the other contributing Expert Groups, Respiratory Infections Expert Group and the Infective Endocarditis Prophylaxis Expert Group, which appear to be new, are Australian based. None-the-less, many of these experts would be well known in the field of Antibiotic. Almost all the experts on the Antibiotic Expert Group are from the fields of infectious disease and microbiology, but there is one from general practice and one senior pharmacist.

Therapeutic Guidelines: Antibiotic is not a substitute for training and experience in microbiology and infectious disease. It is also not meant to be a comprehensive textbook of either of these areas, especially as there are well-established textbooks of infectious disease

and microbiology, as well as some compact general handbooks.⁴ The guideline does however provide an exceptionally useful and fairly comprehensive clinical reference on most aspects of antibiotic selection and use for the informed health professional in virtually all clinical fields. The guideline is an essential reference for doctors, nurse practitioners and other prescribing health professionals, as well as students and academics in these health professional areas. *Therapeutic Guidelines: Antibiotic* has little competition in the guidelines field and is an indispensable guidelines reference handbook in Australasia.

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References

1. Antibiotic Expert Group. *Therapeutic Guidelines: Antibiotic*. Version 13. Melbourne: Therapeutic Guidelines Limited, 2006.
2. Dermatology Expert Group. *Therapeutic Guidelines: Dermatology*. Version 3. Melbourne: Therapeutic Guidelines Limited, 2009. [reviewed by Leggat PA. In *Journal of Military and Veteran's Health*. 2009; 17(4): 30-31].
3. Therapeutic Guidelines Ltd. News for 2010 August. URL. <http://www.tg.org.au/index.php?sectionid=7> (accessed 17 September 2010)
4. Torok E, Moran E, Cooke F. *Oxford Handbook of Infectious Diseases and Microbiology*. 1st edn. Oxford: Oxford University Press, 2009.

Australian Venomous Creatures First Aid Guide

Rachel Jensen, Bill Nimorakiotakis, Tim Carroll and Kenneth Winkel*

*1st edn, (ii) + 18 pp, paperback compendium with extensive illustrations, Parkville, CSL Limited, RRP: \$9.95, 2007.

Australia is home to some of the world's most venomous snakes, jellyfish, spiders and other creatures, whose venomous properties are described elsewhere.¹ Many readers will recall the first publication in 1995 of the CSL Antivenom Handbook,² which was last published as the second edition in 2001 and is available online.³ This publication, *Australian Venomous Creatures First Aid Guide*, also by CSL, is a worthy companion publication, which is directed primarily at the general public and is an excellent resource for the medical clinic. All first aiders, whether amongst clinicians or the general public, are regularly confronted with a formidable task of evaluating and potentially treating envenomed patients, sometimes under life-threatening circumstances. The availability today of a number of toxinology and envenomation reference publications in recent years has assisted greatly; however there is no substitute for a ready reference guide. The 1st edition of the *Australian Venomous Creatures First Aid Guide* is such a reference and one which has established itself as a leading practical guide in Australia dealing with the first aid of envenomation.

The *Australian Venomous Creatures First Aid Guide* is presented as a 20-page A5 publication that would fit easily into the briefcase, carry bag or first aid kit. The Guide is in full colour with a durable semi-gloss, laminated cover and its pages are clearly tagged and colour-coded for ready reference. It has eight sections, namely "General First Aid", "Pressure Immobilisation Method", "Snakes", "Spiders", "Jellyfish", "Aquatic Creatures", "Creepy Crawlies" and "Insects". Important first aid measures are clearly highlighted in boxes within the text. It has numerous diagrams and figures to help explain first aid techniques, as

well as more than 30 well chosen colour plates of common Australian venomous creatures, which have tremendous educational value, as much as assisting with identification of venomous creatures. Because of the nature of this diverse publication, it also includes a list of reviewers and key references. Most importantly, it has been co-produced by the Australian Venom Research Unit (AVRU) of the University of Melbourne and two of the authors come from the AVRU (BN & KW) with the other two authors coming from CSL Limited (RJ, TC).

The consistent and concise style ensures that the *Australian Venomous Creatures First Aid Guide* is easy to use. Given that this is only the first edition of the *Australian Venomous Creatures First Aid Guide*, it is a remarkably mature reference Guide, which is a credit to both the authors and publishers. The *Australian Venomous Creatures First Aid Guide* has little competition nationally, except in the form of concise first aid books and posters and larger more comprehensive toxinology monographs. The cost is not prohibitive for health staff, medical clinics and workplaces, although it may deter some members of the general public. In that event, it may be useful to upload this publication to the website, in much the same way as the 2nd edition of the *CSL Antivenom Handbook*.³

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References

1. Currie BJ. Snakes, jellyfish and spiders. *Adv Exp Med Biol* 2008; 609: 43-52.
2. White J. *CSL Antivenom Handbook*. Parkville: CSL Limited, 1995.
3. White J. *CSL Antivenom Handbook*. 2nd edn. Parkville: CSL Limited, 2001. URL: http://www.toxinology.com/generic_static_files/cslb_index.html (accessed 27 July 2010)

South Australian Defence and Veteran Research Paper Day

The Military Health Outcomes Program:
Monitoring the Health and Well-Being of the
Australian Defence Force

P Warfe, C Barton, C Davy, M Van Hooff, S Treloar

Protecting the health and welfare of serving and ex-serving members of the Australian Defence Force (ADF) is one of the most challenging tasks faced by the Department of Defence and the Department of Veterans' Affairs. The Military Health Outcomes Program (MilHOP) of studies, launched in May 2010, is helping to address this issue by investigating the health challenges faced by serving and ex-serving personnel across the three Services, with a specific focus on those deployed to the Middle East Area of Operations (MEAO).

Led by the Centre for Military and Veterans' Health (CMVH) and working with the Department of Defence and the Department of Veterans' Affairs, MilHOP consists of four integrated studies. Data from the MEAO Health Study and a Health and Well-being Survey will be combined to determine the health status of ADF personnel who have or have not deployed to the MEAO. In addition, the MEAO Prospective Study will investigate links between illness and deployment. These three initial studies will be discussed in more detail in the following presentations.

The MEAO Cancer and Mortality Study, the fourth MilHOP study, is due to commence in the latter half of 2011. It involves a secondary data analysis which will review the rates of mortality using the Australian Institute of Health and Welfare National Death Index and the incidence of cancers registered with State/Territory cancer registries for all personnel who have deployed to the MEAO since 2001.

Data from all of the MilHOP studies will add to the already extensive CMVH Deployment Health Surveillance Program health data for ADF members who have deployed to the Solomon Islands, East Timor and Bougainville. Among other important outcomes this comprehensive longitudinal database will assist in the monitoring of the health of veterans and ADF members into the future by identifying health indicators and exposures that are predictive of morbidity and mortality. In turn, this information could lead to early intervention and program change

to minimise disability amongst both veterans and ADF members.

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The Military Health Outcomes Program: The
Middle East Area of Operations Prospective
Study

C Davy, C Barton, M Van Hooff, S Treloar

The Middle East Area of Operations (MEAO) Prospective Study is part of the integrated Military Health Outcome Program (MilHOP). It is specifically designed to investigate the links between illness and deployment.

Changes in health outcomes between pre- and post-deployment and the exposures associated with those changes will be measured in a sample of ADF personnel (~2000) deploying to the MEAO after the first of June 2010, and returning to Australia before the end of November 2011.

Deploying personnel will be invited to participate in the study at two time points. The first, approximately three months prior to deployment to the MEAO (Time 1) and the second, approximately four months after returning from deployment (Time 2). At each time point, all participants will be asked to complete a self-administered questionnaire. Participants will be asked about their health, exposure to potential hazardous substances, and general insights into their deployment experiences.

A subset of deploying personnel (~n=750) will also be asked to take part in a brief physical assessment and provide a saliva and blood sample. A smaller group of these participants (~n=400) will also be asked to undertake a neurocognitive assessment. Both physical testing and neurocognitive assessment data will also be collected at Time 1 and Time 2 in order to gain insight into deployment related change.

This presentation will provide an overview of the methodologies used to collect data for the MEAO Prospective Study. Once completed, data from this MilHOP study will add to the already extensive CMVH Deployment Health Surveillance Program health

database for ADF members who deployed to the Solomon Islands, East Timor and Bougainville and ADF comparison groups.

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The Military Health Outcomes Program: The Middle East Area of Operations Health Study

S Treloar, C Barton, C Davy, M Van Hooff

The Middle East Area of Operations (MEAO) Health Study is part of the Military Health Outcome Program (MilHOP). It aims to determine the health status of ADF personnel who have already deployed to the MEAO, and to identify possible factors that have protected the health of any individuals while on deployment.

All serving and ex-serving ADF members who deployed to the MEAO between 1 October 2001 and 31 December 2009 (~27,000) will be invited to complete an extensive self-administered questionnaire which asks about their deployment history, their physical and psychological health as well as deployment exposures. Currently serving regular ADF members (18,802) have already received their invitation to participate and approximately 2,000 ex-serving personnel and 6,000 reservists will be contacted in the latter half of 2010.

This presentation will provide an overview of the methodologies used to collect data for the MEAO Health Study and an overview of initial response rates. Once completed, data from this MilHOP study will add to the already extensive CMVH Deployment Health Surveillance Program health data for ADF members who deployed to the Solomon Islands, East Timor and Bougainville and ADF comparison groups.

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The Military Health Outcomes Program: Health And Well-Being Survey

M Van Hooff, C Barton, C Davy, S Treloar

The Health and Well-being Survey is part of the Military Health Outcome Program (MilHOP). It was specifically designed to respond to the recommendations of the Dunt review of mental health care in the Australian Defence Force (ADF), which highlighted the need to have a more accurate estimate of the rates of psychiatric disorder in the ADF. The primary aim of this MilHOP study is to measure mental health problems and psychological distress in currently serving ADF members.

Data obtained from personnel who have not deployed to the MEAO (~30,000) will be combined with data from the MEAO Health Study to provide prevalence estimates of mental health in the ADF. In addition, this MilHOP study will provide validation (via in-depth interviews) of psychological screening measures and methodology including those currently administered to all ADF members post deployment as part of the Return to Australia Psychological Screens (RtAPS) and Post Operational Psychological Screens (POPS) processes. This will include an analysis of the impact of the different methods of survey administration conducted in the study in order to inform the development of an effective model of Mental Health screening in the ADF.

This presentation will provide an overview of the methodologies used to collect data for both the prevalence estimates and validation components of the Health and Well-being Survey. In addition, initial response rates from both components will also be presented. Once completed, data from this MilHOP study will add to the already extensive CMVH Deployment Health Surveillance Program health data for ADF members who deployed to the Solomon Islands, East Timor and Bougainville and ADF comparison groups.

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Management of Neck Injury in RAAF Fast Jet Aircrew

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Objective: To examine the types and effectiveness of various strategies used by Royal Australian Air Force (RAAF) fast jet (FJ) aircrew to self-manage flight-related neck injury and pain.

Methods: A six section, 18- question survey tool was distributed to all eligible FJ RAAF aircrew. Selective results from the sections evaluating aircrew demographics, flight-related neck injury and the self-management of these injuries are presented in this report.

Results: Ninety-five percent of respondents experienced flight-related neck pain. The most commonly sought treatment modality was on-base medical and physiotherapy services. Many respondents reported that currently provided on-base treatment, as well as ancillary services such as chiropractic, to be the most effective in alleviating symptoms.

Conclusions: Flight-related neck injury is a perennial

occupational hazard among FJ aircrew in Australia. A variety of treatments are used by injured fast jet aircrew with on-base physiotherapy and medical treatment being the most common forms. Ancillary treatments, such as chiropractic, are accessible only on a case-by-case basis under the RAAF health service delivery model, even though they are reported as being the most effective form of management. Prevention of FJ aircrew neck pain would improve air combat capability and enhance health.

Recommendations: Further investigation into the effectiveness and safety of these alternative therapies needs to be performed to allow appropriate consideration of their place in the management of FJ aircrew neck injury. Exercise programs and aircrew techniques for the prevention of neck injury in fast jet aircrew require further validation and evolution.

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Real-World Attenuation of Foam Earplugs Smith A

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

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

Results: The earplugs used in this study had an attenuation rating of NRR 32 dB / SLC80 25 dB. Before training, the group-mean attenuation was only 15 dB - 57% of earplugs attenuated ≤ 15 dB of noise, and only 10% and 2% of earplugs reached the SLC80 and NRR (respectively). After training, the group mean attenuation increased to 25.5 dB – with

only 8% of earplugs attenuating ≤ 15 dB, and 47% and 31% of earplugs now meeting or exceeding the SLC80 and NRR (respectively). 43% of subjects exhibited an improvement ≥ 15 dB (equivalent to 32-fold or greater reduction in noise-energy exposure). Before training, only 10% of earplugs were inserted deep enough to provide the wearer with optimum attenuation. After watching a short training video, 97% of earplugs were inserted deep enough to provide adequate noise attenuation. There was no significant advantage – in terms of attenuation achieved or technique followed – for those who had previously undergone training through Defence in how to insert earplugs.

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

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Does Obstructive Sleep Apnoea Affect Everyday Metropolitan Driving?

A Vakulin, S Baulk, P Catchside, N Antic, C Van Den Heuvel, D McEvoy

Purpose: Obstructive sleep apnoea (OSA), affecting 10% of middle-aged Australians, is associated with excessive day-time sleepiness, cognitive abnormalities and increased motor vehicle accident (MVA) risk. It has been assumed that fall-asleep accidents occurring during prolonged (rural) drives are mainly responsible for the increased MVA risk. However, epidemiological studies have not defined the location (rural vs metropolitan) of MVAs in OSA. We postulated that sleepiness and slow reaction times in OSA patients could adversely affect city driving, and considered an investigation of metropolitan driving performance in untreated OSA patients was warranted.

Methods: Using a dual control vehicle, a 45min TransportSA accredited on-road driving test was administered by a certified assessor (blinded to subject status) to 15 untreated severe OSA patients (age 52.1 ± 2.1 yrs, BMI 31.0 ± 1.1 kg/m², AHI 50.3 ± 5.1 events/hr) and 16 age matched controls (age 52.8 ± 2.6 yrs, BMI 25.1 ± 0.7 kg/m², AHI 6.6 ± 1.0 events/hr). Subjective

sleepiness was assessed using the Epworth Sleepiness Scale (ESS). The assessor utilized a standardized scoring log to record different driving skills (e.g. lane changes, indicating, mirror check) observed under three categories (left turns, right turns, general driving). Any faults and law points (e.g. speeding) that would attract a fine were recorded. All driving tasks were scored giving an overall percentage with a 70% cut-off for pass or fail. Any faults occurring during the drive were expressed as a percentage of the total tasks observed for each subject and group comparisons were statistically analysed using linear mixed models.

Results: OSA patients were significantly sleepier compared to controls (ESS 10.3 ± 1.3 vs 4.9 ± 0.7 , $p < 0.01$). Approximately 25% of subjects in both groups failed the test. An average number of tasks assessed were 60.0 ± 1.6 for controls and 56.8 ± 1.4 for OSA patients with half of these tasks assessed during general driving. There were no significant group differences in the percentage of driving faults observed during the assessment including approach, blind spot, car control, gear change, judgment, mirror checks, observation, position, safety, signals and turn execution. However, during general driving more OSA patients had tasks resulting in a law point compared to controls ($11.0 \pm 1.8\%$ vs $6.8 \pm 1.0\%$ $p = 0.049$), including speeding, lane position and disobeying traffic signs.

Conclusions: Overall, data suggest driving skills during metropolitan driving are not different between OSA patients and healthy drivers. However, a greater tendency to break the law in the patient group is suggestive of greater inattention or impulsiveness. Driving faults sufficient to be considered an indictable offence (speeding, failure to obey traffic signals) potentially carry a greater accident risk than lesser faults (incorrect gear changes, or failure to check the blind spot before lane change). There is a need for large epidemiological studies in OSA patients focusing on MVAs in metropolitan areas to better define the nature of MVA risk in these patients.

Acknowledgements: Foundation Daw Park for funding this research; Peter Cook, Mitcham Driving School.

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A Flexible Deployment Framework Takes Aim at a PTSD Risk Factor

B Pincombe, A Pincombe

Purpose: Characteristics of Army recruits predict better than average life outcomes, but on average, those sent on combat deployments experience worse than average outcomes. Stress associated with combat deployments may be one factor, but is not

homogeneous within deployed forces, with individual differences between soldiers, and role based variations (cooks or mechanics in a forward operating base may experience considerably less combat stress than members of a security detachment escorting convoys along frequently mined and ambushed routes). Standard Australian deployments are eight months, regardless of role. Using Adversarial Scenario Analysis, a flexible, minimum-role-appropriate-length deployment framework was developed and the limitations of this approach were explored. Where applicable, the framework is intended to produce a force that is more effective and yields life outcomes closer to soldiers' pre-deployment potential.

Method: Adversarial Scenario Analysis begins with a simple scenario and a core strategy. This scenario proposes that people accumulate stress while on deployment; the strategy is minimising the length of deployment to reduce stress accumulation time, with time between deployments for stress dissipation. After the initial strategy is defined, an adversarial method is employed to select an additional scenario element challenging that strategy. Risk management processes are then devised to minimize or eliminate the impact of core strategy changes. This process is then iterated to deal with the complexity conundrum that besets scenario planning: managers want a single scenario but many scenarios are needed to deal with complexity; scenarios themselves are simple, covering a single element of the situation, and the complexity lies in developing a strategy that is robust against all scenarios; with no scenario likely to actually occur. The complexity of the situation is compressed into a single scenario in which all elements and their interactions can be considered.

Results: A concept is developed making deployments permanent but rotates units within them based on the principle of minimizing continuous time in theatre, subject to the needs of the role filled. This framework is expressed in the equation

$(n-1)D = \max(R,T)+2H+2J$ where:

- n = number of times the deployed force that is available to deploy;
- D = deployment duration, $(n-1)D$ is the inter-deployment period;
- R = recovery time;
- T = training time;
- H = handover period; and
- J = time dedicated to re-entraining circadian rhythms to the time-zone.

It is assumed that training and recovery can be conducted concurrently.

Conclusions: The final concept is focused on stable long term commitments to small wars, insurgencies and peacekeeping operations within four time-zones of the deployment source and with forward bases near useable airfields. This has the positive effects of increased flexibility and reduction of a risk factor for PTSD at the cost of increased complexity in handover.

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Assessing Ballistic Insults and Protection Options: A Fit-For-Purpose Modelling Approach

M Ling, T Radtke, RM Gillies, MC Hogg

Purpose: The aim of this study was to develop a fit-for-purpose modelling tool for assessing the vulnerability of vital organs to ballistic and blast fragmentation.

Method: The Human Injury Assessment Tool (HIAT) was derived from the Visible Human Project and the current version provides a representation of the torso region and the vital organs. The model depicts soft and hard body armour, and the ballistic protection is modelled by overlaying a geometric representation of the armour on the torso. The ballistic impacts are calculated based on ballistic equations and numerical analysis. The injuries to the organs are at present represented in a geometric manner whereby a penetrating bullet or fragment will follow the geometric vector of entry and traverse the torso and organs.

Results: Initial modelling of ballistic insults to the torso for different armour system configurations from the same threat has produced useful insights into the size and positioning of hard armour plates, and informed current body armour system design activities. The inclusion of soft armour in the modelling has led to a more realistic assessment of protection required against fragments from explosive devices such as mortar shell or improvised explosive device (IED).

Conclusion: The authors have found that a relatively simple, fit-for-purpose model can be successfully developed and usefully applied to highly practical problems like the size and positioning of hard armour plates or the ballistic protection level required of soft armour against IED.

The next phase of the HIAT development will include the whole body and link clinical and other data for representation of ballistic damage to the head, the bones and musculoskeletal systems. The expertise of medical professionals will be required to build into

the model a capacity for the prediction of the medical consequences of threat events.

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The Appropriate Use Of Inhaler Devices In Veterans: Perceptions and Practice

N Blacker, T LeBlanc, E Roughead, A Gilbert

Background: One-quarter of respiratory medicines dispensed to veterans include 3 or more medicines, and of these, 50% use three or more different inhaler devices. This patient population often has co-morbidities which may make device use difficult, resulting in sub-optimal delivery of medicines. Veterans are particularly vulnerable to these problems with many having poor eyesight, mobility difficulties, coordination difficulties or cognitive impairment. Regular patient training using the relevant package insert plus physical demonstration has been shown to significantly improve patient technique.

Purpose of study: To investigate veteran, GP and pharmacist perceptions and practice using respiratory devices.

Methods: A one page reply-paid response form was distributed to GPs, pharmacists and veterans in the Veterans' Medicines Advice and Therapeutics Education Services (MATES) programs on two separate occasions in March/April 2006 and March/April 2008. Descriptive analyses were undertaken for all questions.

Summary of results: 2006 survey responses were received from 1078 (10%) GPs, 320 (6%) pharmacists and 10,904 (38%) veterans. 2008 survey responses were received from 530 (6%) GPs, 717 (9%) pharmacists and 3,663 (20%) veterans. Over 85% of veterans indicated they used their inhalers well; however, 10% reported they missed a dose due to difficulty using their device and 11% were not confident in using their inhaler. By comparison, approximately half of GPs and pharmacists indicated that veterans do not use the devices well and over 85% believe patients require several lessons to learn. More than 90% of pharmacists and GPs indicated that they were confident in instructing patients how to use their devices. Veterans' inhaler technique, however, was not checked regularly. This is despite therapeutic guidelines recommending repeated assessment and demonstration of devices, as technique may begin to decline two months after patient education. Less than a third of GPs considered it practical to review their patients' technique every 3 months, while half of the pharmacists did not review inhaler technique

of veterans already using a device. Complicating the review is the finding that only 29% of veterans would ask their pharmacist about their inhaler medicines. 56% reported they would ask their doctor.

Conclusions: Health professionals are aware of the problems associated with the use of inhaler devices; however, this study indicates the need to be more proactive in checking inhaler technique. Regular physical demonstration of technique needs to be initiated by GPs or pharmacists as patients appear to be unaware that inhaler technique is difficult to maintain.

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An Elevated Neutrophil-Lymphocyte Ratio Independently Predicts Mortality in Chronic Critical Limb Ischaemia

H Saleem, J I Spark, N Blest, P Charalabidis, S Asthana

Purpose: Atherogenesis represents an active inflammatory process with leucocytes playing a major role. Critical Limb Ischaemia affects the older subset of the population. An elevated white blood cell (WBC) count has been shown to be predictive of death in coronary artery disease (CAD) patients. The aim of this study was to look at the predictive ability of neutrophil count and neutrophil/lymphocyte ratio for predicting survival in patients with chronic critical lower limb ischaemia (CCLI).

Methods: All patients admitted to a single vascular unit with CCLI were identified prospectively over a two-year period starting from January 2005. Patient demographics, clinical history, co-morbidity and risk factors for peripheral vascular disease were documented. The white blood count and differential cell count at admission was recorded. Overall patient mortality was studied as the primary outcome.

Results: One hundred and forty-nine patients were identified with a median age of 72 years (IQR 65.7-81). A neutrophil/lymphocyte ratio (NLR) of greater than, or equal to 5.25 was taken as the cutoff, based upon

the Receiver- operating-characteristic (ROC). The median follow up was 8.7 months (IQR 3.1-16). During the follow up period there have been 62 deaths (43.4%). An elevated neutrophil/lymphocyte ratio and a high troponin level (>0.1) were found to be the only two factors independently associated with shorter survival on multivariate analysis using the Cox proportional hazards model.

Conclusions: This study suggests that an elevated neutrophil/lymphocyte ratio (NLR) can identify a poor-risk subset of patients among those being treated for chronic critical limb ischemia. This simple, cheap test may therefore add to risk stratification of these high-risk patients.

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Continuous Glucose Monitoring to Assess the Hyperglycaemic Effect of Glucocorticoids During an Exacerbation of Chronic Obstructive Pulmonary Disease

G Roberts, N Aguilar-Loza, S Stranks, M Burt

Purpose of the study: Glucocorticoids (GCs) reduce inflammation and are used to treat a wide range of inflammatory and autoimmune conditions, including exacerbations of chronic obstructive pulmonary disease (COPD). While GCs are an effective treatment for COPD, their use is frequently associated with the development of hyperglycaemia, and this may impede patient recovery. Clinical observation suggests GCs predominantly increase postprandial blood glucose concentration, but the pattern of hyperglycaemia has not been well defined. We aimed to assess in detail the effect of GCs on glucose concentration in order to optimize management of GC-induced hyperglycaemia.

Methods: Patients with COPD admitted to the hospital were assigned to the following groups and underwent continuous glucose monitoring (Medtronic Gold, Medtronic Minimed, Northridge, CA) for up to 72 hours.

	Male (%)	Age (y)	Weight(kg)	Prednisolone dose (mg/day)
Group 1: acute COPD, no diabetes (n=40)	63	77±14	72±17	30±6
Group 2: not diabetic, have COPD, but admitted for other reasons (n=13)	62	75±13	69±15	0
Group 3: acute COPD, known diabetes (n=7)	71	84±9	69±15	26±9

Results: There were no significant differences in gender distribution, age, or weight between groups. While the glucose AUC between 0.00-12.00 hours for Group 3 (diabetic patients) was significantly greater than in the other two groups, Groups 1 and 2 did not differ for this period (Figure). However, the glucose area under the curve (AUC) between 12.00-24.00 hours for the groups receiving GC's (1 and 3) were both significantly greater than Group 2 (Figure). Significantly more subjects in Group 1 (53%, $p=0.02$) and Group 3 (100%, $p=0.003$) recorded a glucose of ≥ 11.1 mmol/L during CGMS than in Group 2 (8%), who were not receiving GCs.

Conclusions: GCs frequently cause hyperglycaemia in hospitalized patients, predominantly in the afternoon and evening. Treatment of GC-induced hyperglycaemia should be targeted at this time of the day.

Acknowledgement: This study was supported by grants from Foundation Daw Park, Faculty of Health Sciences Flinders University and the Novo Nordisk Regional Diabetes Scheme. CGMS were supplied by Medtronic.

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Is Endovenous Laser Ablation Possible While Taking Warfarin?

C Delaney, D Russell, J Iannos, P Puckridge, I Spark

Purpose: Elderly patients with varicose veins are most susceptible to developing venous ulceration, a debilitating complication placing significant limitations on quality of life. These patients, many of whom are on warfarin are often poor surgical candidates, making management challenging. Endovenous laser ablation (EVLA) is becoming increasingly popular, with minor trauma to the leg during the procedure. The aim of this study was to determine if endovenous ablation could be achieved with minimal complications while the patient remained anticoagulated.

Methods: A prospective cohort study was performed with patients presenting for EVLA while on long term warfarin.

Follow-up duplex scans were performed at 6 weeks, 3, 6 and 12 months.

Results: Twelve patients were studied, 7 men and 5 women (median age 58, range 42-83). Patients were taking warfarin for either AF (8 patients), prosthetic heart valves (2 patients), recurrent PE's (1 patient, no source found) or pacemaker with mural thrombus (1 patient). All patients underwent ablation of the long saphenous vein (LSV). Eleven patients had successful

ablation of the LSV at 6 week follow-up duplex scan. One patient underwent a repeat EVLA 3 months after the original procedure with successful ablation at the 6 week follow-up duplex. All patients reported bruising at the venous puncture site, 1 haematoma was reported, but settled spontaneously, 1 patient reported erythema along the LSV track and 1 patient reported a saphenous nerve neuralgia, both resolved spontaneously. All patients have maintained an occluded LSV at 12 months follow-up, with a significant reduction in symptoms.

Conclusion: These early results have shown it is possible to perform EVLA successfully in elderly patients while on warfarin, without significant complications.

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The (Cost) Effectiveness of Self-treatment of Exacerbations on the Severity of Exacerbations in COPD patients: The COPE-II Study

T Effing, H Kerstjens, P Van Der Valk, G Zielhuis, J Van Der Palen

Purpose: COPD is a chronic disease with high prevalence and quickly increasing incidence rates. The effect of self-treatment of COPD exacerbations on the severity of exacerbations during one year was evaluated. In addition, a cost-effectiveness analysis was performed.

Methods: Patients were recruited from the outpatient department of pulmonary medicine of Medisch Spectrum Twente hospital at Enschede, the Netherlands and randomly allocated to four two-hour self-management sessions, with or without training in self-treatment of exacerbations. Patients in the self-treatment group received an action plan with the possibility to initiate a prednisolone course (with or without antibiotics). During follow up all participants kept a daily symptom diary. These provided the data to calculate the frequency of exacerbations, the number of exacerbation days and mean daily severity scores.

Results: Data were analysed of 142 randomised patients (self-treatment: $n=70$; control: $n=72$). The frequency of exacerbations was identical in both study groups (mean 3.5 (SD 2.7)). Patients in the self-treatment group reported fewer exacerbation days (median self-treatment: 31(interquartile range (IQR): 8.9-67.5); control: 40 (IQR: 13.3-88.2); $p=0.064$), the difference was significant in the group of patients with a high number of exacerbation days per year (>137 (= 90th percentile of the whole study population); $p=0.028$). The mean severity score of an exacerbation

day was equal in both groups. No between-group differences were found in health related quality of life. Cost-effectiveness analyses showed that applying self-treatment saved €154 (approximately 220 AUD) per patient, with a trend towards a lower probability for hospitalisations (number/patient/year: self-treatment: 0.20 versus control: 0.33 (p=0.388)) and a significant reduction of health care contacts (number/patient/year: self-treatment: 5.37 versus control: 6.51 (p=0.043)).

Conclusion: It was concluded that self-treatment of exacerbations incorporated in a self-management programme leads to fewer exacerbation days and lower costs.

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CMVH Supports PhD



The Centre for Military and Veterans' Health (CMVH) in Brisbane recently celebrated the awarding of its first PhD that received substantial support from the Centre.

Group Captain (Air Force) Greg Mahoney PhD works in the area of public health dentistry, and has been studying part time for his PhD since October 2005 at CMVH. The degree is from University of Queensland's School of Population Health. However, CMVH assisted by providing desk space, peer support, access to the Defence intranet and access to existing printing and software support.

It is hoped his PhD research will help identify Australian Defence Force (ADF) members at risk of having a dental problem in the interval between dental examinations. The risk factors such as oral hygiene, diet and previous dental work were used to establish a predictive model for future dental problems. His identification of at risk members will lead to improved treatment focus, better long term outcomes and altered dental examination intervals. His data was gathered through clinical examination, dental chart audits and a patient questionnaire.

It's been a long haul, but very interesting and rewarding. I've learnt a lot," said GPCAPT Mahoney. "If anyone had said to me that I would be doing a PhD which featured statistics in the beginning of 2005, I would have said they were crazy. But, I've really enjoyed it."

"I would really encourage people considering further study to give it go, you won't regret it. The support I received from CMVH was very important, so I would encourage Service Personnel to contact them to see what assistance CMVH can provide to further their education and training".

Director of CMVH, Professor Peter Warfe said, "It is pleasing to support such paths of study for such a positive outcome. CMVH also provides a suite of Military Health Courses including a Master of Public Health (Defence), a Master of Psychology as well as short courses in areas such as Communicable Diseases, Health Aspects of Disaster and Occupational and Environmental Health."

For more information on education and training opportunities at CMVH, please contact the Professional Development Officer at (07) 3346 4940.



The International Committee of Military Medicine (ICMM) is an international and inter-governmental organization consisting of more than one hundred states. The ICMM was established in 1921, after World War I had revealed the lack of care provided to victims and the need to strengthen cooperation between the health services of the armed forces worldwide. The Major General (MD) Jules Voncken (Belgium), Founder and Secretary General of the International Committee of Military Medicine from 1921 until 1975.



In 1920, after World War I had revealed the lack of cares given to the victims and the importance of the need for closer cooperation between Armed Forces Medical Services worldwide, Captain William S. Bainbridge, MD (US Navy) and Commander Medical Officer Jules Voncken (Belgium) suggested the creation of an international organisation of the Armed Forces Medical Services at the 28th session of the US Military Medical Officers Association (AMSUS). The Belgian Government actively supported the practical development of this concept and the first International Congress of Military Medicine and Pharmacy was held in July 1921 in Brussels, Belgium, in presence of HM King Albert I. It resulted in a permanent Committee of International Congresses of Military Medicine and Pharmacy (ICMPM) being officially founded on 21 July 1921 during the Congress. The founding countries were Belgium, Brazil, France, Great Britain, Italy, Spain, Switzerland and the United States.



Since, ICMPM has always gathered, in uniform, Health Services stemmed from all political blocs, even during the worst period of the Cold War. On 21 May 1952, an agreement of cooperation was signed with the World Health Organization (WHO) who recognised the Committee as an “international body specialised in medico-military matters”. On 28 April 1990, the Committee changed its name and became the International Committee of Military Medicine (ICMM). New ICMM Statutes, revised in line with modern-day policies, were voted in at the General Assembly held in Beijing, China, in 1996. ICMM signed a memorandum of understanding with World Health Organization in 2004 and the World Organisation for Animal Health (OIE) in 2006.

Objectives of ICMM

The main objective of the ICMM is to ensure that our medical services personnel have the means to work together, using similar practices, in operations involving international cooperation. This is a long-term goal, and the ICMM can work towards achieving this in a number of ways: by encouraging activities at which scientific and technical experience is shared, by developing contacts with the scientific community, by promoting regional events. This will enable us to pool our resources and work experience of military medicine, both in the theatre of operations and in a support role in the case of crisis situations.

Other ICMM objectives include:

- To maintain and strengthen relations between Medical Services of Member States
- To promote scientific military medical activities
- To provide where necessary best practices and standards which Member States can aim for
- To help to develop medical and military medical recommendations for humanitarian operations
- These could range from Armed Forces humanitarian interventions to peacekeeping operations
- To facilitate relations between Armed Forces Medical Services of ICMM Member States and international organizations



such as World Health Organization (WHO), World Organisation for Animal Health (OIE), Joint United Nations Programme on HIV/AIDS (UNAIDS), or International Military Sports Council (IMSC),...

The above objectives are of interest to all sectors of military medicine in the wider sense, i.e. :

- * Screening personnel,
- * Medicine within military units,
- * Surgery in the theatre of operations,
- * Emergency medicine,
- * Disaster response,
- * Public health,
- * Dentistry,
- * Pharmacy,
- * Veterinary science,
- * Administration and medical logistics training.



More information on the website: www.cimm-icmm.org

THE NEXT IMPORTANT EVENTS OF THE ICMM

Schedule of future Congresses under the aegis of the ICMM

	8-12 November 2010	6 th ICMM Pan American Regional Congress of Military Medicine. Managua, Nicaragua
	4-9 December 2010	2 nd ICMM Pan Arab Regional Congress of Military Medicine. Jeddah, Kingdom of Saudi Arabia
	17-18-19 February 2011	2 nd Congress of the Maghreb Regional Working Group of Military Medicine. Rabat, Kingdom of Morocco
	20-25 November 2011	39 th World Congress on Military Medicine. Abuja, Nigeria

Schedule of future Courses under the aegis of the ICMM

	10-16 October 2010	2 nd African Regional Session of the ICMM Course on the Law Of Armed Conflicts (LOAC).
	10-14 November 2010	2 nd International Session of the Course on Health Support in Saharan Environment.
	11-16 December 2010	2 nd Middle East Regional Session of the ICMM Course on the Law Of Armed Conflicts (LOAC).

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 practising 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.

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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 practise as the main theme and may compare changes from earlier practise 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

The articles and opinions expressed in this journal are those of the authors, and should not be taken as reflecting official government policy. 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.

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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.

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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

The abstract for original articles should be structured under the following headings: Background, Purpose, Material and Methods, Results, Conclusion. The Background must be a maximum of two sentences. Maximum length of the summary should be 250 words with three to five key words or phrases included below the abstract or summary.

Conflict of Interest

All conflicts of interest must be disclosed in full in this section of the manuscript. These may include, but not be limited to, specific or "in kind" interests, incentives and relationships in respect of the manuscript (e.g. grants, funding, honoraria, stock ownerships, royalties, payment of expenses). This section applies to all authors.

Introduction

It should be assumed that the reader does not have a comprehensive knowledge in the field and you should therefore provide a concise account of the background (including relevant literature references) and reasons for this study.

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Descriptions of any techniques and methods must provide sufficient detail such that a reader can replicate the procedures. Methods that have been published elsewhere should not be described in detail and should be referenced to the original work

Statistics. A full description of the statistical methods used should be provided.

Results

Description of results, while concise, should permit repetition of the procedures and direct comparison with similar data by others. Data should not be repeated unnecessarily in the text, figures and tables and appropriate selection of significant figures for numerical data presentation should be applied. Significance should be expressed as values of probability. Where appropriate, results should be presented as figures rather than tables of data.

Discussion

The discussion should not simply reiterate the results presented; the authors should present their analysis and conclusions with reference to the current knowledge base related to this work. Any assumptions on which conclusions may be based should be stated and there should be some discussion of strengths and weaknesses of the research.

Acknowledgements

These should be brief and should include references to sources of support including financial, logistical and access to material not commercially available. Any individuals named must be given the opportunity to read the paper and approve their inclusion in the acknowledgements before the paper is submitted.

References

A list of references should be provided starting on a new page. Only published references or those genuinely in press should be included.

Tables (including legends to tables)

Tables are to be placed at the end of the manuscript in order of appearance in the text with one table per page. Captions to tables should be short and concise, not exceed one sentence and be on the same page as the table.

Illustrations

These are to be submitted as a separate electronic file for each image.

5. Preparation of manuscripts

Style

References. A standard English dictionary should be used (e.g. Oxford English Dictionary 2007) for spelling or hyphenation of non-medical terms and Dorland's Illustrated Medical Dictionary (WB Saunders, Philadelphia) is recommended for medical

terms. A source for general style including grammar, punctuation and capitalisation is the *Style manual for authors, editors and printers*, Sixth edition 2002 (John Wiley and Sons, Australia).

Numbers. Use numerals for all units of measure and time and for all sets of numbers (e.g. 1 m, 2 hours, 5 years, 4%, 2 of 6 observations). Spell out the numbers one through nine only for general usage (e.g. "we had two opportunities"). Spell out numbers beginning a sentence.

Abbreviations. Abbreviations should be kept to a minimum to avoid confusion with readers who may not be familiar with the subject material. Only standard abbreviations, as listed in a style manual or accepted internationally for use within a subject area, may be used without definition. Terms used frequently within a manuscript may be abbreviated however these should be spelled out at first citation with the abbreviation in parenthesis. Abbreviations in speciality areas must conform to accepted use in that area.

Layout. Headings and sub-headings should be consistent throughout the article and conform to the style used in articles previously published in the journal. No text should be underlined. Prepare the manuscript with double-spacing and allow margins of 2.5 cm.

Tables

Tables should be on separate pages at the end of the paper (following the References section) and be capable of interpretation without reference to the text. They should be numbered consecutively with Arabic numerals (e.g. Table 1). A concise, descriptive caption must be provided for each table. Units in which results are expressed should be given in brackets at the top of each column and not repeated on each line of the table. Ditto signs are not acceptable. An indication should be provided in the manuscript as a guide to indicate where the table should be inserted.

Image files

All images must be submitted as separate files. Images embedded in word processing files are not acceptable. Each image must be referred to in the text and an indication should be provided in the text as to the preferred position of the image. Lettering and lines should be of uniform density and the lines unbroken. Image size and layout should be constructed so that each can be placed within a single column or page width.

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- Images containing text
600 dpi
- Black and white line art
1200 dpi
- File types
TIF, EPS (JPG and GIF are not suitable)
- Figure width (single column)
-- mm
- Figure width (double column)
-- mm
- Font size
8 point (must be readable after reduction)
- Font type
Times, Times New Roman, Helvetica, Arial
- Line width
Between 0.5 and 1.0 point

Illustrations. These should be referred to in the text as figures (e.g. Figure 1) and numbered consecutively with Arabic numerals. Photographs and illustrations will only be accepted as digital images and should be either composed or cropped before submission to ensure there is no unwanted material in the frame. Digital files judged to be unacceptable in the review process must be resubmitted by the authors.

Graphs, charts and figures. All graphs, charts and figures must be submitted in electronic format (.EPS or .TIF files) and should be prepared by a suitable software package. These should be referred to in the text as figures (e.g. Figure 1). Images of hand drawn material will generally not be accepted. Symbols which are to appear in the figure (and not in the caption) should be chosen from the following available types:

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The following symbols should be used in the order given to reference footnotes:

* , † , ‡ , § , || , ¶ , **, †† , ‡‡

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The list of references should appear at the end of the manuscript. References should be numbered consecutively in the order in which they are first mentioned in the text. References in text, tables and legends should be identified by Arabic numbers and appear in the text in superscript, for example text¹ or text²⁻⁴ or text^{5,6-7}. Where punctuation (e.g. comma, period) follows a reference number then the punctuation should appear after the reference.

The format of references should follow the "Vancouver" style as described in the *Uniform requirements for manuscripts submitted to biomedical journals* (www.icmje.org/). The Journal of Military and Veterans' Health varies in two respects from these guidelines: Surnames and initials of no more than the first three authors [et al.] are cited and the first and last page numbers of a reference are cited in full. Journal names should be abbreviated as accepted in Index Medicus (<http://www.nlm.nih.gov/tsd/serials/lji.html>) and a period is not used after journal name abbreviations (e.g. J Mil Vet Health). A list providing detailed examples of references for many types of publication is available at http://www.nlm.nih.gov/bsd/uniform_requirements.html. Where appropriate, cite the type of reference (e.g. letter, editorial, abstract or supplement).

Authors should verify references against the original documents and are responsible for checking that none of the references cite retracted articles except in the context of referring to the retraction. For articles published in journals indexed in MEDLINE, the International Committee of Medical Journal Editors considers PubMed (<http://www.ncbi.nlm.nih.gov/sites/entrez/>) the authoritative source for information about retractions. Authors can identify retracted articles in MEDLINE by using the following search term, where pt in square brackets stands for publication type: Retracted publication [pt] in pubmed.

An example of the reference system is as follows:

1. Quail G. Asthma in the military. *Aust Mil Med* 2000; 9(3):129-137.

Units of measurement

The International System of Units (SI) must be used. For values less than zero enter a zero before the decimal point e.g. 0.123. The style should include a solidus e.g. mg/L.

Abbreviations

Use of abbreviations should be minimised. Spell out non-standard abbreviations at their first mention in the text followed by the abbreviation in parentheses. Avoid uncommon abbreviations and jargon.

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7. Submission of manuscripts

Covering letter

Your covering letter should be submitted electronically with the manuscript as a separate file. It can contain author identifying information as it will not be shown to peer reviewers. It should include:

- Why the paper should be published in the Journal of Military and Veterans' Health
- Details of suggested reviewers

Proofs

Proofs will be sent in electronic form as a PDF to the corresponding author who should read them carefully. Major alterations to the text cannot be accepted at this stage. The proofs should be corrected and returned to the Editorial Office by fax or email (image) within 48 hours of receipt.

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The software files must be named so that each is uniquely identified and attributable to your submission. All files submitted should be named to include the following information in the order below:

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- Corresponding author initials
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Quail G Asthma in the military Text of paper.doc
Quail G Asthma in the military Figure 1.eps

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The files can be compressed using a .zip compression format. File size must not exceed 10 Mb for a given email. If there are file size concerns contact the Editorial Office.

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Each author must read the authorship, licence to publish, conflict of interest and acknowledgements sections of this form and then acknowledge agreement with each section by ticking the check boxes. The corresponding author must also read and sign the statement on the acknowledgements section. Original signed copies of the form must be sent to the JMVH 113 Harrington Street, Hobart.

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Date



CALL TO AUTHORS

The Journal of Military and Veterans' Health is a peer reviewed quarterly publication published by the Australian Military Medicine Association. Its Editorial Board has identified the themes for the journal's 2011 editions.

Edition	Theme	Publication Date	Closure of article submission date
January 2011	AMMA Conference 2010 Papers	18 January 2011	5 November 2010
April 2011	Korean War	18 April 2011	4 February 2011
July 2011	Occupational Health and Safety for Military Health Professionals	18 July 2011	6 May 2011
October 2011	Tropical Medicine of Operational Interest	17 October 2011	5 August 2011

Categories for the above include:

Original Research/Original Articles, Short Communication, Review Articles, Reprinted Articles, Case Studies, Abstracts from the Literature, Biographies, History, Book Reviews, Commentary and View from the Front.

The JMVH would be delighted to receive articles for consideration on these themes. Please note that although these are the themes for 2011, we encourage authors to continue to submit articles on a range of topics on military medicine and veterans' health.

See the JMVH website for authors' instructions and Submit your article online at www.jmvh.org

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