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# Abstract from the Literature

by
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**Rosenberg E, Caine Y. Survey of Israeli Air Force line Commander support for fatigue prevention initiatives. Aviat Space Environ Med 2001;72(4):352-356.**

**Background:** Sustained and continuous high-intensity military operations have increased in scope in recent years. These mandate ever more sophisticated efforts to prevent and ameliorate aviator fatigue. Successful implementation of new fatigue countermeasures requires thorough pretesting among experienced aviator opinion leaders: based and squadron commanders.

**Methods:** Anonymous and voluntary survey questionnaire containing background material and Likert-scale questions regarding 14 primary through tertiary fatigue prevention initiatives current in the aeromedical literature or unique to the IAF was distributed to all base and flight squadron commanders in the IAF.

**Results:** Of the commanders, 38% returned fully completed questionnaires. The most popular primary prevention initiatives (garnered 87% support) dealt with reservist aviators:

1. Requiring reserve pilots to arrive at the squadron at least 3h before night flights to facilitate napping time, and
2. Improving scheduling coordination of those reservists employed as civilian aircrew. The chief (88% support) secondary prevention countermeasure endorsed was to utilise stimulant drugs such as caffeine or amphetamine to sustain the alertness of fatigued aviators. Leading the list of tertiary prevention initiatives (75% support) was the suggestion that squadrons debrief the incidence of aviator fatigue, as well as their success in the area of time-management when debriefing high tempo exercises and operational missions.

**Conclusions:** Commanders differentially supported a wide range of fatigue countermeasures. Use of stimulant drugs achieved the broadest support. Instituting specific measures to facilitate alertness in reservist aviators was also a priority. Surveying the degree of commander support for new prevention initiatives provides the basis for prioritisation of scarce resources, should improve line cooperation and provides important experience-proven feedback for researchers and policymakers.

***Comment:*** *A worthwhile approach: asking the operators what they think works and where more investment should go. Nearly all the strategies received more than 500 support - only the mandating of a minimum 6 hours sleep a night was really dismissed. That 88% supported the use of stimulants was the most revealing. It seems the IAF has a lot of familiarity with stimulants, and they are a 'quick fix' to maintain mission readiness.*

**Brickfield F. Pyenson L. The impact of stroke on world leaders. Mil Med 2001;166(3):321-322.**

**Purpose:** Earlier studies by our unit documented frequent disability in world leaders resulting from stroke but did not quantify the incidence of cerebrovascular accidents. We sought to identify the frequency and impact of strokes in world leaders.

**Methods:** Using various sources, we identified world leaders who sustained strokes while in office from 1970 to 1999 and tabulated information on symptoms and subsequent ability to lead.

**Results:** Twenty leaders were identified who had sustained strokes during the study period, for an incidence of 0.444 strokes per 100 leaders/year. Half of the affected leaders lost their political power within the year; most had persistent disabilities, which included motor, speech, cognitive, and emotional deficits.

**Conclusion:** Strokes in world leaders may be slightly less common than expected based on studies of Western populations of similar age, but they are often devastating to a political career. Nonetheless, loss of political power is not inevitable.

***Comment****. From the CIA. It is really surprising, given the pressure political leaders are under, that the stroke incidence appears lower than the expected in western populations. That may be explained by other genetic and cultural differences. However, what is more amazing is that anyone is able to maintain head of government status following a CVA. It is clearly easier to get into power than to lose power in many countries.*

**Memish Z, et al. The cost-saving potential of prevaccination antibody tests when implementing a mass immunisation program. Mil Med 2001;166(1):11-13.**

A seroprevalence study of hepatitis A virus, hepatitis B virus and the varicella-zoster virus was carried out among Saudi Arabian National Guard soldiers with the objective of determining the cost-saving potential of prevaccination antibody tests when implementing an immunisation program for the soldiers. A systematic sampling of 450 blood samples from 1350 soldiers who donated blood at our hospital was carried out. Antibody tests were performed using the enzyme-linked immunosorbent method. The seropositivity rates for antibodies to HAV, HBV and VZV were 97.5, 17.8 and 88.5% respectively. Comparing the cost of pre- vaccine screening with that of universal vaccination, it was estimated that savings of 76% and 32% could be effected for HAV and VZV. Conversely, screening for HBV before immunisation could increase the cost of vaccinating against the disease by 49%. A seroprevalence study could be a useful cost- saving approach to a mass immunisation program against endemic, natural immunity- conferring diseases.

***Comment:*** *The outcome will clearly be dependent on the natural level of seroconversion in the community being dealt with. The HAV positivity will be a little less than 98% in Australia, methinks.*

**Weaver J, McAlister W. Vision readiness of the Reserve Forces of the US Army. Mil Med 2001; 166(1):64-66.**
In 1996 and 1997, the Army conducted an exercise to assess the ability to rapidly mobilise the reserve forces. In accordance with Army requirements, each soldier was evaluated to determine if he or she met vision and optical readiness standards. Of the 1947 individuals processed through the optometry section, 40% met vision requirements without correction and 32% met vision requirements with their current spectacles. The remaining 28% required examination. A major impediment to processing reserve units for deployment is the lack of vision and optical readiness. In the mobilisation for the Persian Gulf War, significant delays were incurred because of the time required to perform eye examinations and fabricate eyewear. However, as a result of this exercise, current prescriptions will be available in the event of mobilisation. To ensure readiness, all units should perform such exercises periodically.

***Comment:*** *Yep, eyes are and always will be a big problem. The exercise of testing all reservists is a mammoth job, and then maintaining accuracy of prescription another problem 'Just in time' testing may well be the preferred option for reservists still, because of the logistic hurdles.*

**Kortepeter M, Krauss M. Tuberculosis infection after humanitarian assistance, Guantanimo Bay, 1995. Mil Med 2001;166(2):116-120.**
Upon redeployment to Fort Lewis, Washington, from operation Sea Signal in Guantanimo Bay, Cuba, 55 of a military police unit was identified as positive for Purified Protein Derivative (PPD). A case-control study was conducted to document the number of converters and to identify risk factors among the soldiers for PPD

conversion while in Cuba. Forty-six of the soldiers (3.7% of the unit) met the criteria for PPD conversion as a result of deployment. Forty-four converters and 84 controls completed surveys. Logistic regression showed that statistically significant independent risk factors for PPD conversion included working around coughing migrants (odds ratio = 6.73, Confidence interval = 2.2- 20.4) and birthplace outside of the USA (OR 4.89, CI 1.3-18.5). Contact in the psychiatric hospital (OR 0.22, CI 0.05-0.900 and contact with migrants with known tuberculosis (OR 0.16, CI 0.05-0.54) appear to be protective factors, possibly because known tuberculosis patients and hospitalised patients most likely would be on treatment and rendered noninfectious. With the US military's involvement in humanitarian and refugee operations in countries highly endemic for tuberculosis, service members are at increased risk of acquiring tuberculosis infection. Detection of tuberculosis infection and appropriate treatment should become a higher priority within the US military.

**Klein L, Kasper M. NATO medical support to crisis response operation - A strategic view. Internat Rev Armed Forces Med Services 2000;73(3):165-169.**

***Comment:*** *The rather quixotic, even mercurial translations rendered in this publication act to limit its value. Nevertheless, it is worthwhile to persevere, as this is a way to observe activities within the continental component of NATO. This article describes some changes to the principles underlying NATO medical support. Much parallels changed thinking in Australia. For instance, standard of care should as far forward as is possible, be equivalent in operational setting to peacetime, with a seamless flow through the treatment hierarchy, and a reduced forward health logistic footprint. There is then a description of medical policy and doctrine. There is definitional capacity here, with policy topping the hierarchy, below which sits joint doctrine and component doctrine – while here we have policy sitting under doctrine. Then command and control in the joint environment. The wording is revealing coordinate, establish, support. Little in the way of command and control here. It is apparent that single nation medical support is preferred, or at worst, one nation providing all the 'nucleus' and other nations supplementing this. The idea of true multinationality is a long way off.*

**Fenner P, Harrison S. Irukandji and Chironex fleckeri jellyfish envenomation in tropical Australia. Wilderness Environ Med 2000;11(4): 233-240.**

**Objective:** To compare the temporal distribution of Irukandji and Chironex fleckeri stings, the demographics of victims, the prevailing physical conditions and the time of the sting, and the prevalence of unsuitable first aid strategies.

**Methods:** Retrospective assessment of 478 Chironex and 544 Irukandji stings in Queensland and the Northern Territory of Australia.

**Results.** Adolescent and young adult males were the most common victims of Irukandji (medial age 21 years) and Chironex stings (median age 16 years). Most Chironex stings occurred on the legs, while Irukandji stings were most common on the arms. Vinegar was correctly used to remove tentacles in 90.5% of Chironex stings, whereas inappropriate treatments were used in the remaining cases. Chironex stings were reported in every month in the Northern Territory, and in all months but June and July in Queensland. The peak prevalence for Chironex stings occurred in January in both areas, while the number of Irukandji stings peaked in December in Queensland and in May in the Northern Territory. Chironex stings were more common on still, cloudy days, whereas Irukandji was more common on still, clear days. Irukandji stings were more frequent than Chironex stings on rough days (p= .0005). Chironex and Irukandji stings were similar with respect to tides, moon phases, and rainfall. Conclusions. This study failed to predict exact weather patterns or other contributing factors to reduce the risk of stings to an acceptable level but did identify several factors that increase the incidence of stings. The 'stinger-free season reported on Chironex warning signs is inaccurate and should be changed to warn bathers that Chironex may be present year-round, particularly in the Northern Territory.

***Comment****: This article, together with the accompanying one describing the venom characteristics of the box, blubber and Irukandji jellyfish, have advanced the understanding of these envenomation complexes. The box jellyfish is the most dangerous jellyfish in the world, with Australia averaging one death every two years. The ever-*

*increasing presence of the Australian military in the north should bring more focus on the management of these conditions.*

**Chang E, et al. Planning for an annual episodic mass gathering emergency department and clinic utilisation in Yellowstone. Wilderness Environ Med 2000;11(4):257-261.**

**Objective:** Planning and providing emergency and primary care for a large transient population of visitors and employees in a national park can be problematic. Furthermore, planning for emergency and primary health care needs of visitors and itinerant workers in a wilderness area national park has not been well documented. A study was performed to analyse emergency and primary health care utilisation in a national park.

**Methods.** Data was gathered from all patients presenting to lake Hospital Emergency Department in Yellowstone in 1995, and a retrospective chart review was performed.

**Results.** Two distinct populations with different health care needs were identified.

**Conclusion.** Utilisation analysis revealed differences between conventional mass gatherings and the mass gatherings in Yellowstone. Because of the unique conditions and populations found in a wilderness area, conventional mass gathering emergency medical service models may not be an appropriate model for planning health care in a national park. Analysis of utilisation data can help plan resources for emergency and primary health care for a park population.

***Comment:*** *I was looking for the comment on getting consent for each participant to have their reports reviewed for this study. Didn't get a mention. I trust the ethics were considered at some stage. Low utilisation at 5.2 visits per 10000 visitors, compared to other quoted studies at 16-32 per 10000 visitors. Of course, the demographics will vary, as will activities that will influence injuries and illness.*

**Walter, E et al. Influenza A in a basic training population: Implications for directly observed therapy. Mil Med 2000;165(12):941-943.**

**Purpose:** To describe our evaluation of basic trainees exposed to influenza A and our experience with mass prophylaxis.

**Methods:** Using a structured interview, 101 individuals were evaluated for symptoms of influenza A. Nasopharyngeal wash specimens were obtained from symptomatic troops; amantidine prophylaxis was prescribed for all. Diagnosis was confined using a rapid influenza assay or shell vial culture. After completing prophylaxis, the group was reevaluated to determine medication compliance and perceived side effects.

**Results:** At baseline, 80 trainees reported symptoms.Three additional cases of influenza were identified, two using the rapid assay. Reported compliance with the amantidine prophylaxis was 46.5%.

**Conclusions:** Nonspecific complaints that could be consistent with viral infection were numerous in this basic trainee cohort. The rapid assay allowed us to expediently identify additional patients, who were then removed from the cohort to limit further transmission. Compliance with prophylaxis was poor; thus directly observed therapy is recommended.

***Comment:*** *The US military has been vaccinating recruits against Influenza for many years - since an episode in the US Air Force Academy in the 1970s which stopped the academy in its tracks for several weeks. No epidemiological studies were done to evaluate the benefits and costs of the vaccination program: it just became entrenched. We have recently seen some good studies on young healthy working population in the Northern hemisphere that suggest there is a cost-benefit in vaccinating such a group. The likelihood is that an institutionalised group such as recruits would also benefit.. Would be a great study to do...*

*As for this study, how you differentiate symptoms of Influenza A from symptoms of Influenza B and many other viral injections - I do not know. Of 80 trainees with 'symptoms', only 2 actually had infection confirmed. It is not determined by this study that in recently vaccinated troops there is any advantage in giving prophylaxis, but the paper glosses over this issue.*

**Pope R, Schumacher J, Creedon J. The effectiveness of the parachutist ankle brace in reducing ankle injuries in an Airborne Ranger battalion. Mil Med 2000;165(12):944-948.**

The purpose of this study was to determine if the parachutist ankle brace (PAB) decreases the number and severity of ankle injuries in an airborne Ranger battalion. A retrospective study was performed covering a 38 month period. A computer database was used to track all jump injuries with a diagnosis of ankle pain, sprain, or fracture. The frequency was calculated for ankle injuries per 1000 jumps and the average length of medically restricted duty per ankle injury. A total of 13782 static line parachute jumps were conducted during the study period. Without the PAB, 35 ankle injuries were seen (4.5/1000 jumps) with 9 fractures and 316 days of medical restrictions. Using the PAB, 9 ankle injuries were seen (1.5/ 1000 jumps) with 3 fractures and 71 days of medical restriction per 000 jumps. The correct use of the PAB appeared to significantly decrease the incidence of ankle injuries in this battalion.

***Comment:*** *The study was limited because of some difference in the jumps performed by the PAB versus the non-PAB wearers. There were more jumps onto the airfield in the latter group. There was no information on prevailing conditions, other equipment and so on. Thus, this study is indicative only, but certainly worth a second look.*