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Article Review

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HODGETTS, TJ GREASLEY, IA; 2003
Impact of Deployment of Personnel with Chronic Conditions to Forward Areas. Journal of the Royal Army Medical Corps; Vol 149, pp 277-283

Aim: To identify reasons for inappropriate deployment of soldiers with chronic conditions to an operational environment.

Setting: Two British Army field hospitals in Kuwait, 08 February to 17 March 2003, during a period of troop concentration prior to war fighting (Operation Telic).

Population: All British military personnel on land during the concentration phase, rising to an estimated 28,000 troops.

Methods: Realtime electronic record maintained of all cases presenting to 22 and 33 Field Hospitals judged to be inappropriately deployed.

Results: 50 sequential cases were analysed. 34% were downgraded prior to deployment. Of those who were P2 FE, 85% were judged to have required protection from deployment by downgrading. 20% of all cases had a history of chronic asthma, and of the asthmatics 60% (6/ 10) were not downgraded. 18% of all cases were deployed while waiting for secondary care investigation or review that should have ensured protection from deployment. No patient had an existing 'FT" (forward temperate) of 'LT" (lines of communication temperate) grading: but in four cases it was predictable that the patient's underlying condition would be adversely affected by deployment to a desert environment. In five cases it was identified that the inappropriate deployment could be attributed to clinical management within the civilian sector, with a consequent failure to institute the necessary downgrading process.

Conclusions: Review of the medical grading process is needed to protect those soldiers who are awaiting outpatient opinion or definitive diagnosis from investigation, and to provide an employability grading that matches a soldier's fitness for operational role.

Comment: *Hodgetts and Greasley provide an interesting snap shot of what is no doubt an age old and certainly not unique problem. A pilot program reviewing Australian Army personnel evacuated for medical reasons from OPERATION ANODE (Solomon Island) identified 5 out of 12 cases that were evacuated for known pre- existing conditions. At least two of these were assessed as having been inappropriately deployed on the basis of a retrospective chart review (unpublished data- COL Duncan).*

It is of course easy to be wise in retrospect. It is accepted that the assessment of medical fitness for deployment includes an element of risk management. To provide a more balanced view, it would be of value to know how many people deploy with pre-existing condition who do not become a casualty

from their condition. Further study into the application of the medical assessment process and better definition of the risks of deployment with specific clinical conditions is required to better inform medical officers as they make these decisions.

SMITH T JIMENEZ D SMITH B ET AL
The postwar hospitalization experience of Gulf War Veterans Participating in US Health registries. J Occup Environ Med 2004; 46: 386-397.

In response to concerns that Gulf War veterans were experiencing increased morbidity resulting from wartime exposures in the Gulf War, the Department of Veterans Affairs and the Department of Defense (DoD) initiated clinical registries to provide systematic health evaluations for self-referred Gulf-War veterans. The authors used Cox's proportional hazard modelling with from all DoD hospitals to estimate the probability of hospitalization resulting for any cause, resulting from diagnosis in a major diagnostic category, and resulting from a specific diagnosis of interest. After adjusting for other risk factors, registry participants were 1.43 times more likely to have a postwar hospitalisation than registry non-participants (95% CI 1.40-1.46). These findings support the hypothesis that registry participants were more likely to experience postwar morbidity than veterans who chose not to enrol in the health registries.

Comment: *Little news here. Those who registered are likely to think that they were at greater risk of needing follow up care from their Gulf War service. It follows that they will indeed have increased utilisation of health care.*

DEVUND
Evaluation of a contingency blood donor program on U.S. Navy submarines. Mil Med. 2004 Apr;169(4):292-7.

Objective: Because the role of submarine warfare is shifting from strategic deterrence to littoral force projection, submarine providers will be required to manage combat trauma. Currently, submarine providers have only crystalloid available for the reversal of hemorrhagic shock. A proposal program to provide blood products on submarines was evaluated

Methods: Existing military emergency blood transfusion protocols were reviewed. The restrictions of donation/transfusion onboard submarines were considered.

Results: A protocol to provide screening for, implementation of, and a reporting system for contingency blood donation and transfusion onboard submarines was created. The protocol contains all the safeguards of existing U.S. Navy contingency donor programs with the exception of pretransfusion infectious disease testing and cross-matching. However, because the program does not require laboratory capability, it can be implemented by an independent duty corpsman onboard a submarine

Conclusion: This protocol provides blood for the reversal of hemorrhagic shock onboard submarines in the event of traumatic injury.

Comment: *The extremely controlled environment of a submarine negates some of the arguments against a just- in-time blood donation system. If all the crew get adequately screen prior to setting out on a mission, and there is no opportunity for them to alter their infectivity status in the meantime, then it might be a goer. The other problems identified with the practicality of a donor register is that it is just too*

hard to find the pre-screen donors in an emergency: no such problems on a submarine. just how likely is it, though that a submarine is going to be damaged enough to cause injuries requiring transfusion and for the boat to remain sufficiently intact for such support to be practical, but not enough to cause the boat to be unfit for human habitation or for medical care. Is the lack of immediately pre-transfusion screening of sufficient concern to just stick with fluid replacement?

DERAADJ, REDEKOP
A comparison between two systems for pre- employment medical assessment in the Royal Netherlands Army by a randomized, controlled study. Mil Med. 2004 Jun; 169(6):437-43.

In 1998, the basic medical requirements for the Royal Netherlands Army were introduced as a standard for the assessment of the medical suitability of military personnel, consisting of 43 dichotomized points of judgment. This system replaced the old physical capacity, upper limbs, locomotion, hearing, eyesight, and emotional and mental state system, based on the detection of diseases and infirmities. We compared the two different examination systems for their ability to identify suitable recruits. For the latter purpose, we used the two operational measures of availability and health care costs. We performed a randomized, controlled study in which 352 soldiers were monitored for 2 years after being declared fit by one of the pre-employment medical assessment systems in question and having passed their general military training. We found that the pre-employment medical assessment system was the dominant factor for predicting the number of days fit-for-duty, as well as for the health care costs incurred. Those declared fit by the new system showed a statistically significant higher mean number of days fit-for-duty (648 compared with 612) and incurred significantly lower mean health care costs (6396 compared with 746 Euro). In this study, we were not able to uncover the mechanism by which the "basic medical requirements" examination system led to an improvement in outcome. For the present, this mechanism is interpreted because of differences between the two systems.

Comment: *A very interesting system, and one that the ADF could well look at. There is a list of 43 capabilities, such as Can do without medication for 1 month; able to dig 1 m3 12 hours on an incidental basis; able to carry 5kgfor 2 hours every day; able to lift 20kg 150 times every hour, and so on. Some of the requirements seem generous, and some appear difficult to assess - such as the ability to withstand exposure to a relative humidity of less than 35% and more than 90% for more than 4 hours. Nevertheless, by looking at job requirements primarily, rather than disease or disability states, then Dutch do seem to have produced a better outcome. Reduction of health care costs from 746 euros to 396 euros is pretty impressive.*

APPLEJ, HARE P, CRERAR C, WALKER E, WILSON J, BROWN C, MOSES K, HENDRICKSON T, FIELD D, HOFFMAN F, PEDRUS P, MILLERJ, SMITH B. Implementing a smallpox vaccination program aboard an aircraft carrier. Mil Med. 2004 Jun;169(6):455-60.

Objective: To determine the feasibility of implementing a smallpox vaccination program aboard an aircraft carrier in conjunction with anthrax vaccination.

Methods: Retrospective review of smallpox vaccination program conducted from January 17, 2003 to February 19, 2003. Morbidity and loss of manpower were the major endpoints.

Results: There were 5,204 sailors available for vaccination. There were 243 (4.7%) medical exemptions and 24 administrative exemptions. During the program, 4,931 sailors were vaccinated. There

were five reportable complications. Three sailors had autoinoculation, one sailor had localized cellulitis, and one patient had a positive beta-human chorionic gonadotropin during vaccination. None of the complications required medical evacuation. Only two sailors required time off from duty.

Conclusions: Smallpox vaccination can be accomplished rapidly and safely aboard an aircraft carrier. There was not an increase in adverse events compared to historical data despite the close-quarter conditions. Smallpox and anthrax vaccinations can be completed simultaneously with minimal morbidity.

Comment: *The bit that I am most interested in is the exemptions. 243 medical exemptions and 24 'administrative' exemptions. In my discussions with US authorities, it seems that people can get exemptions for a variety of reasons, including religious objection. If exempted, they can still remain in the military and proceed with deployment to an area that has been determined to require a particular vaccination for force protection reasons. The Australian position, that personnel must be vaccinated for them to be fit for deployment, is not the way they do business. There was one refusal of vaccination, but what happened to this person is not detailed.*

BRITT Tw, DAVISON J, BLIESE PD, CASTRO CA. How leaders can influence the impact that stressors have on soldiers. Mil Med. 2004 Jul; 169(7):541-5.

The present review addresses the importance of leader behaviours in influencing the extent to which various stressors soldiers experience (e.g., high workload and lack of sleep) are related to different types of strains (e.g., psychological health, poor job satisfaction, and low morale). Research conducted by the Walter Reed Army Institute of Research (WRAIR) in the area of leadership is reviewed. Researchers at the WRAIR have examined the role of leadership as a predictor of stress, as a buffer against the negative effects of stress, and as a variable that predicts or enables variables that have been found to decrease the adverse effects of stress (e.g., role clarity, self-efficacy, and job engagement). A key strength of the WRAI R program of research is the use of multilevel modelling to examine how perceptions of leadership at the unit level are related to unit and individual soldier well-being and motivation.

Comment: *Strong leadership is good for psychological wellbeing. Role clarity, job engagement and self-sufficiency are parameters that are related to health outcomes throughout industry, not just the military. Walter Reed research has focused on supportive roles by leaders and task clarification. There is much more work to be done on aspects that is perhaps more military in nature: self-sacrifice and cohesion to a common goal. The need for predictive diagnostic tool for units and individuals at risk of stress-related poor outcomes is clear.*

HAURET KG, KNAPIKJJ, IANGEJL, HECKEL HA, COVAL DL, DUPLESSIS DH.
Outcomes of Fortjacksou's Physical Training and Rehabilitation Program in army basic combat training: return to training, graduation, and 2-year retention. Mil Med. 2004 Jul; 169(7):562-7.

Basic trainees at Fort Jackson, South Carolina, who were unable to continue basic combat training (BCT) because of a serious injury were assigned to the Physical Training and Rehabilitation Program (PTRP). Between January 3, 1998 and July 24, 2001, 4258 trainees were assigned to the PTRP. Using a retrospective cohort study design, return to training and BCT graduation rates were evaluated. PTRP graduates were compared with matched non-PTRP graduates for 2-year retention in the Army. More

PTRP women than men were discharged from the PTRP (60% and 48%, respectively, $p < 0.01$). Of PTRP trainees returning to BCT, 10% and 12% of men and women, respectively, were discharged from the Army compared with overall Fort Jackson discharge rates of 9% and 15% for men and women, respectively. Comparing PTRP graduates to matched non-PTRP graduates, there were no differences in 2-year retention for men (14.9% and 14.7%, respectively; $p = 0.93$) or women (26.6% and 30.1%, respectively; $p = 0.19$). Despite the high discharge rate in the PTRP, the BCT discharge rate for trainees who successfully rehabilitated was similar to the overall discharge rate at Fort Jackson. The 2-year retention in service for PTRP trainees who graduated from BCT was similar to that of non-PTRP trainees.

Comment: *A very interesting study indeed. I am not aware of similar studies elsewhere, and there was no attempt to set the US experience in a global context in this paper. Approximately half of all trainees who were removed from their basic training course for medical reasons were discharged without every completing the training. However, those who were able to be returned to the training program and graduate had a career that was no different from their non-injured peers. There were assessment s according to sex and age, but not be diagnosis. Young females had the highest discharge rate once being assigned to the PTRP. Older females lead the same rate as males.*

ROBINSON JP, FUSION-KEHOE D, FRANKlIN GM, WU R. Multidisciplinary pain center outcomes in Washington State Workers' Compensation. J Occup Environ Med. 2004 May; 46(5):473-8.

We conducted this study to evaluate the clinical and disability status of injured workers 4.6 years after undergoing multidisciplinary pain centre evaluation, comparing subjects who received treatment to subjects who were evaluated only. Three hundred injured workers were selected for a telephone survey; 150 had received pain centre treatment and 150 had been evaluated but not treated. The survey included the SF- 12, and questions about subjects' pain intensity and current work status. A workers' compensation database indicated the disability status of subjects. The response rate was 50%. In multivariate analyses, treated and evaluated-only subjects did not differ significantly in disability status, pain intensity, SF-12 scores, or current work status. At 4.6 years follow up, there was no evidence that pain centre treatment affects either disability status or clinical status of injured workers.

Comment: *Watch out for multidisciplinary pain centres. A few more hits like this and your popularity could take a pounding.*

BRUGHA R, DONOGHUE M, STARLING M, NDUBANI P, SSENGOOBA F, FERNANDES B, WALT G. The Global Fund: managing great expectations. Lancet. 2004 Jul3;364(9428):95-100.

The Global Fund to fight AIDS, Tuberculosis, and Malaria was created to increase funds to combat these three devastating diseases. We report interim findings, based on interviews with 137 national-level respondents that track early implementation processes in four African countries. Country coordinating mechanisms (CCMs) are country-level partnerships, which were formed quickly to develop and submit grant proposals to the Global Fund. CCM members were often ineffective at representing their constituencies and encountered obstacles in participating in CCM processes. Delay in the dissemination of guidelines from the Global Fund led to uncertainty among members about the function of these new partnerships. Respondents expressed most concern about the limited capacity of fund recipients--government and non-government--to meet Global Fund conditions for performance-based disbursement. Delays in payment of funds to implementing agencies have frustrated rapid financing of disease control interventions. The Global Fund is one of several new global initiatives superimposed on existing country systems to finance the control of HIV/AIDS. New and existing donors need to coordinate

assistance to developing countries by bringing together funding, planning, management, and reporting systems if goals for disease control are to be achieved.

Comment: *Australia recently announced a contribution to the Global Fund: $24 million over 3 years. This is pitiful compared to most of our peers. Australia is likely to be faced with a very substantial disaster in PNG and also throughout the Pacific over the next 10 years from the spread of AIDS. Some estimates are putting a figure of 100000 HIV positive people in PNG in that time unless massive inroads are made in prevention.*

LEACH J.
Why people 'freeze' in an emergency: temporal and cognitive constraints on survival responses. Aviat Space Environ Med. 2004 Jun; 75(6):539-42.

Background: Many witnesses attest that victims of a disaster often perish despite reasonable possibilities for escaping because their behaviour during the initial moments of the accident was inappropriate to the situation. Frequently witnesses report victims 'freezing' in the face of danger.

Objective: The aim of this paper was to identify the possible factors underpinning 'freezing' behaviour in disaster victims.

Methods: Witness testimonies, survivor debriefings, and official inquiry reports from shipwreck and aircraft emergencies were analysed for their behavioural content.

Results: It was found that 'freezing' behaviour was a frequently cited response by witnesses to a disaster. 'Freezing' causes evacuation delays which increase the danger, establishing a closed loop process and further extending evacuation delays. This behaviour can be accounted for by considering the temporal constraints on cognitive information processing in a rapidly unfolding, real-time environment.

Conclusion: Cognitive limitations help to explain why survival training works and why there is a need for a survival culture to be developed. They also highlight the need to understand the behaviour of children under threat as being different from that of adults due to the different stages of their neurological and cognitive development. There are implications for the development of proactive, rather than passive, life support equipment.

Comment: *Evacuation standards from aircraft are based on the principle that the aircraft can be completely cleared of passengers within 90 seconds. The inherent delays in the human response as cited in this article are bad enough. We are about to get aircraft with a capacity of 700 or more people. How long does it take to embark all these people? This article emphasises the need for training in survival procedures. These does seem to be impractical for the vast bulk of the populace -from cost, from the impact it would have on those prepared to fly, from the cognitive learning principles that suggest it will only be effective, if at all, for a short period of time. Automated hatch opening, rescue systems that seek out and assist passengers, revisiting life support equipment design to better take into account human fallibility are all canvassed. Some will no doubt come to pass.*

LINDHOLM M, DEJIN-KARLSSON E, WESTIN j
HAGSTROM B, UDEN G.
Physicians as clinical directors: working conditions, psychosocial resources and self-rated health. Occup Med (Lond). 2004 May;54(3):182-9.

Background: Physicians in clinical directors' positions fulfil their commitments in demanding work environments characterized by organizational changes and economic cutbacks. Little is known about the self-rated health of this group.

Aim: To investigate whether self-rated health was associated with psychosocial working conditions, professional networks, job support, social networks and social support, sick leave and salary in Swedish physicians working as clinical directors.

Methods: A self-reported questionnaire was sent to 373 clinical directors. Odds ratios (ORs) were used for estimating the bivariate association between self-rated health and psychosocial resources.

Results: A total of 274 clinical directors agreed to participate in the study. The response rate was 73%. The clinical directors exposed to high job demands had a significantly higher probability of low self-rated health [OR= 3.4 and 95% confidence interval (Cl) = 1.6-7.0] than those who were not in this situation. Furthermore, participants who were exposed to high job demands had an increased risk of low self-rated health (OR= 3.8 and 95% CI = 1.8-8.1) irrespective of available social support inside or outside work. High average working hours more than doubled the risk of low self-rated health (OR = 2. 2 and 95% CI = l.l-4.4)

Conclusion: The job demands on physicians in clinical directors' positions may exceed ordinary means of support with consequent adverse effects on self-rated health. More research is needed to investigate the interaction between job demands and support systems in this group of health care workers.

Comment: Most findings of people in high demand I high prestige jobs does not suggest objective or subjective reported health status is adversely affected. However, combining high demand with low emotional support will have an adverse effect. If this is combined with moving into an area that the individual is not keen on, reducing clinical or research duties in favour of management, or adding new tasks on top of existing demand, and for duties where there has been inadequate preparation and training, it could well be a recipe for poor self-reported health. The implications for the ADF are clear.

FRANZBIAU A, WERNER RA, YIHAN j. Preplacement nerve testing for carpal tunnel syndrome: is it cost-effective? J Occup Environ Med. 2004 Jul;46(7):714-9.

Is not hiring otherwise-qualified workers who have an abnormal post-offer preplacement (POPP) median nerve test a cost-effective strategy to reduce workers' compensation expenses related to carpal tunnel syndrome (CTS)? We performed a retrospective dynamic cohort study based on 2150 workers hired at a company between January 1996 and December 2001and who underwent POPP median nerve testing. Workers were followed until they left the company or until follow-up ended in May 2003. Results: Thirty-five cases of work-related CTS occurred during follow- up, and 9.13 cases could have been avoided. However, if the company had not hired workers with abnormal POPP nerve test results, it would have suffered a net loss of $357,353. Conclusion: Not hiring workers with abnormal POPP nerve tests to reduce costs of work-related CTS is not a cost-effective strategy for employers.

Discussion: Cost-effective? How about ethical? How do they know the 9 cases could have been avoided? The mean tenure of those with abnormal POPP nerve test results did not differ from those with normal nerve conduction pre-employment. In the introduction the issue of whether denying employment to those with slowed median nerve conduction is legal, with respect to the Americans with Disabilities Act,

this was not further addressed. And it won't be, given the decisive result economically against such testing.

THORNE CD, KHOZIN S, MCDIARMID MA.
Using the hierarchy of control technologies to improve healthcare facility infection control: lessons from severe acute respiratory syndrome. J Occup Environ Med. 2004 Jul;46(7):613-22.

Health care facilities need to review their infection control plans to prepare for the possible resurgence of severe acute respiratory syndrome, other emerging pathogens, familiar infectious agents such as tuberculosis and influenza, and bioterrorist threats. This article describes the classic "hierarchy of control technologies" that was successfully used by occupational and environmental medicine professionals to protect workers from illness and death during the resurgence of tuberculosis in the 1990s. Also discussed are related guidelines from building and equipment professional organizations and novel infection control techniques used successfully by various hospitals in Asia, Canada, and the United States during the 2003 severe acute respiratory syndrome epidemic. Taken together, they suggest a framework upon which a comprehensive infection control plan can be crafted to prevent the spread of deadly infectious agents to health care workers (clinicians and paraprofessionals), uninfected patients and visitors.

Comment: Lots of good practical experience and advice here: engineering controls, work practices and education with PPE as a supplement.