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The Australian Defence Deployment Health Surveillance Program – InterFET Pilot Project

Scott Kitchener DrPH, Susanne Connor MPH&TM, Bradley McCall, Sonya Bennett MPH, Adrian Barnett PhD, Christine McClintock PhD, Annette Dobson PhD

Introduction

In 1999, the then Minister for Defence Science and Personnel, Minister Bruce Scott, announced that health reviews would be conducted for all Australian Defence Force (ADF) personnel on future overseas deployments. Traditionally deployment health studies have been retrospective studies examining health issues that have arisen from veterans' concerns on return from deployment.

The Deployment Health Surveillance Program (DHSP) aims to replace this approach with a systematic, prospective collection of data on exposure and health outcomes. The DHSP is designed to provide longitudinal surveillance of health of ADF personnel including individual health measurements that are practical for large epidemiological studies.

The DHSP is being undertaken by the Centre for Military and Veterans' Health (CMVH). This began in 2004 when a Think Tank was conducted to review the various international perspectives of investigating the health and well-being consequences of military deployment.¹ The DHSP now includes four major projects involving The University of Queensland and The University of Adelaide nodes of the CMVH. The first project was a pilot study to establish methods for the wider program. It involved ADF personnel deployed as part of the International Force East Timor (InterFET) Operation compared to a control group of Defence personnel not deploying.

Research aims

Research aims of the InterFET pilot project were to:

1. Develop an assessment of hazards encountered during the operations;
2. Collect and test instruments to measure health and exposure for long-term surveillance of veteran health;
3. Develop a nominal roll of ADF personnel deployed on the InterFET operations;
4. Compare the mortality of those on the InterFET nominal roll with mortality in the comparable Australian national population;
5. Pilot test the collection of data for a sample of the InterFET population and a sample of other ADF personnel who did not deploy on these operations;
6. Establish data linkages across various sources of veteran health information; and
7. Establish an integrated data system and test it to a limited extent (but not to the stage of testing hypotheses).

Hazard assessment

The ADF personnel deployed to East Timor as part of Australia's commitment to the InterFET were exposed to a wide variety of operational, environmental and occupational health hazards. Overall, the principal health threat to the deployed force was environmental, with a large number of health care attendances for conditions related to the tropical environment of East Timor.

A feature of InterFET was the initial rapid force preparation and deployment into war-like conditions in a harsh tropical climate. There was limited opportunity to gather health information locally or for health intelligence to be incorporated extensively into force preparation at all levels. Consequently, there was a lack of detailed information on the health threat available to commanders once in theatre.

We found many existing sources of useful information for hazard assessment within the ADF. However, these were generally retrospective assessments of hazards rather than based on contemporary environmental measurement. This work highlights that adequate health risk assessment of an operational area is critical to military deployment. The timely identification of risk, communicated to the appropriate levels of command is essential to effectively mitigate health risks to personnel. A mechanism for rapidly identifying and quantifying

expected and unanticipated hazards and exposures is also essential to effective prevention and management of perceived risks.

Instruments for surveillance

Internationally, the body of research around post-conflict health outcomes lacks systematically collected data.² The broad approach we chose for the DHSP was to collect information from various sources which are then collated into an integrated database that can be used for signal detection of unusual patterns, and from which data may be extracted for specific research studies. Sustainable sources of information selected were: existing Defence-owned data, existing civilian registries and self-reported data from veterans and comparison sample groups. Such a multifaceted approach has not previously been attempted.

Extensive consultation was undertaken nationally and internationally in the development of a self-reported questionnaire. The Australian Vietnam Veterans' Health Study had obtained data using direct interview methods.³ In contrast self-administered questionnaire were used by the Military Health Research Group at King's College London in their study of the health of veterans of the (1991) Persian Gulf War and more recent conflicts in that region.^{4,5} The survey tools employed by this group were subsequently used by the Australian Gulf War Veterans' Study lending some relevance to the Australian circumstance, although the Australian study was limited to a smaller deployment of mostly Naval personnel.⁶ Other considerations for the content of a self-reported questionnaires were the tools presently being employed in Australian research and particularly those being used by the ADF. Questionnaire items include the Traumatic Stress Exposure Scale,⁷ 10 point Kessler scale (K10) of psychological distress,⁸ the Alcohol Use Disorders Identification Test (AUDIT),⁹ and the Post-traumatic Stress disorder checklist similar to that used in the Australian Gulf War Veterans' Health Study.¹⁰

A comprehensive analysis of oral health has not been a part of many previous veterans' health studies and was considered to be important for the purposes of the DHSP. The tool included for this purpose has been the Oral Health Impact Profile (OHIP-14).¹¹

Additional information was requested regarding medications currently being used, hospitalizations, family history of selected psychological conditions and malignancies, reproductive and child health outcomes. General demographic information sought included confirmation of date of birth, gender, marital

status and the highest educational qualification. A limited civilian occupational history was requested and a more extensive demographic and historic self-reported description of deployments undertaken with the ADF, including environmental or occupational hazards. There was provision for self-report of any other information not covered by the questionnaire, but deemed to be relevant by the respondent.

The survey included a list of 64 self-reported symptoms and 61 medical conditions. These lists were created by expanding the list from the UK Gulf War veterans' studies using information from the hazard assessment for the InterFET operations and also compensation claims from the Australian Department of Veterans' Affairs. The common pension claims from veterans of the earlier ADF East Timor deployments are summarized in Figure 1. This shows that the majority of claims by Australian veterans of the conflict in East Timor are for auditory damage, psychological conditions, musculoskeletal injuries, communicable and non-communicable tropical diseases.

Development of the InterFET nominal roll

In excess of 7000 Defence personnel were estimated to have deployed on InterFET, however, the nominal roll received from the Department of Defence included only 4124 veterans with a very small numbers of RAAF and RAN personnel. This nominal roll was essential for linkage to the National Death Index (NDI) and for selection of a random sample for the survey and assessment of Defence owned data.

A random sample was selected of 100 names from the InterFET nominal roll (veterans group) and a random sample of 100 ADF personnel who did not to deploy on these operations (comparison group). However two veterans were incorrectly placed in the comparison group and 23 of the comparison group were found to be ineligible since they were not in the ADF at the time specified for inclusion in the study (the onset of InterFET). This level of ineligibility is not sustainable for the scale of the larger studies and processes for the collation of the nominal rolls for further studies have been refined.

Mortality review

The mortality review was conducted as a comparison of the study nominal role (4124 veterans) and the National Death Index. The mortality statistics for the InterFET are based on total person-years of 25,375, an average of 6.2 years per person. Based on death rates for the Australian population of the same age and sex distribution the expected number of deaths by 2006 for the entire nominal roll was 32, compared to an observed number of just two.

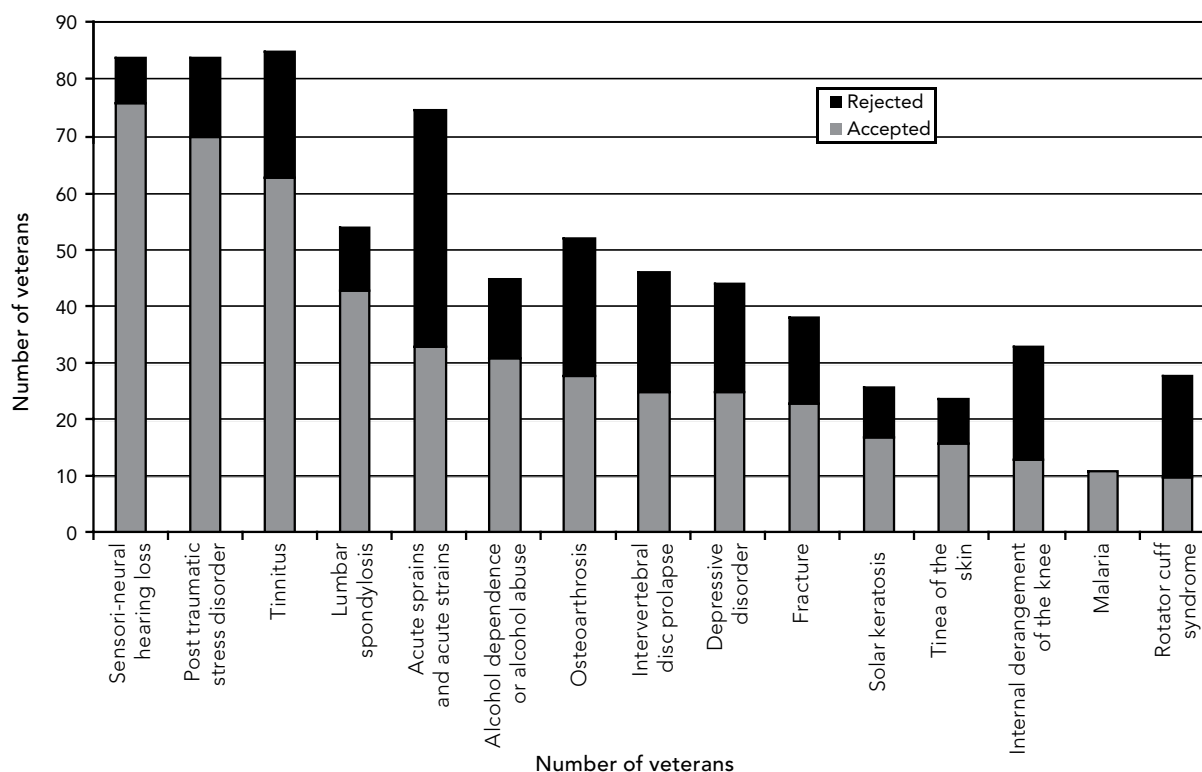


Figure 1. Top 15 accepted and rejected disability claims in 2004/05 using Repatriation Medical Authority Statements of Principles – East Timor veterans only

A number of possible reasons for this difference are:

- Personnel eligible for inclusion on the nominal roll, and who had died were not included on the nominal roll;
- ADF personnel are a group that is generally more mobile than the Australian population and hence may be more likely to have an unregistered death because, for example, they died overseas;
- The National Death Index failed to find real matches because of surname changes or misspellings on the project nominal roll or death register; or
- The healthy soldier effect - ADF personnel may well be healthier than the general population, and hence we might expect to see fewer deaths in the short term.

The largest differences between observed and expected numbers of deaths were in men aged 25 to 34. This difference could support the hypotheses of either a more mobile population or a healthy soldier effect.

Defence-owned health data

A significant part of the InterFET pilot project was to explore the use of Defence-owned routinely gathered health data to support longitudinal health surveillance of ADF personnel.

A search of archived routine health assessments produced 96% of the latest available records for the veterans sample and 93% for the comparison group. However, vaccine records were located for only 1% of the sample. Of those records obtained, almost 90% were from the two years immediately before the date of sampling (the end of 2005) and thus were reasonably recent (Figure 2). The Defence, health records are potentially a rich and contemporary source of data.

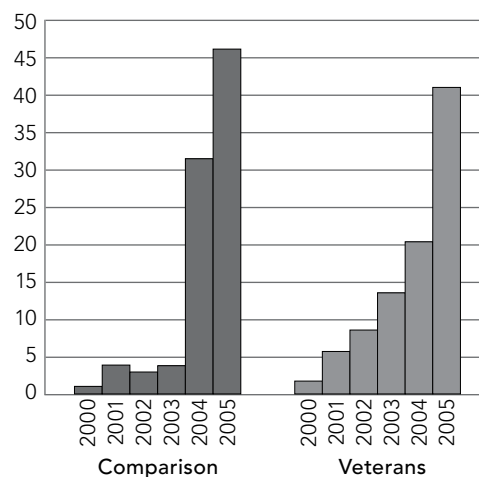


Figure 2. Numbers of latest available Defence-owned health records for the comparison and veterans groups by year.

Vaccine records will need to be sourced elsewhere for future projects. It is proposed to explore using HealthKeys (the electronic health database being implemented in Defence) directly for this information in addition to accessing the missing health records from the archives.

The self-reported questionnaire

Two hundred questionnaires were mailed out (100 each for the comparison and veteran groups) to addresses provided by Defence. Incorrect addresses were subsequently identified for 58 of the sample of 200 (35 from veterans group and 23 from the comparison group) among the ADF personnel still serving at the time of the study. One possible reason for these addresses to be incorrect was the posting cycle that occurred immediately after the nominal roll was provided to CMVH. It was not possible to determine how many addresses provided for civilians were also incorrect. Dead mail was received back for 11 packages including six identified as having incorrect addresses and five not previously known to be incorrect addresses. From the total of 137 (200-58-5) mail-outs not known to be sent to incorrect addresses, there were a total of 19 responses (14%); seven from each of veteran and comparison groups and five telephoned refusals.

The current British Op Telic study recently published initial findings indicating that even with media promotion, pre-notification, financial incentives, enclosed letters of support, within two years of the Operation and at the height of public debate regarding Gulf War Syndrome and British involvement in the war, only a 35% response rate was received from an equivalent first mail-out of questionnaires.

While the response rate for mail-out of the self-report questionnaire is very low, this aspect of the InterFET pilot project still achieved its desired aims in terms of:

- developing a foundation questionnaire,
- trialing the questionnaire,
- developing and trialing a recruitment strategy.

Factors considered to have contributed to the low response for the self-report questionnaire include no pre-recruitment media strategy; incorrect addresses for participants; no participant reimbursement; and size and structure of questionnaire.

Conclusions

The Deployment Health Surveillance Program has opened opportunities to link Defence-owned, routinely gathered health information and occupational-environmental hazard reports with self-reported and potentially other purposively collected information from veterans, and information contained in civilian registries regarding veterans and Defence personnel. The promise of this epidemiological opportunity has now been tempered by the reality of significant limitations identified in the InterFET pilot project.

The project was developed to act as a foundation for a prospective longitudinal surveillance program. The design is a significant innovation from previous retrospective veterans' health. All aspects of the design are capable of being repeated and used to obtain longitudinal information. Key elements have been designed to immediately permit longitudinal comparison with Defence data collected before and after operations and to articulate with tools presently employed by Defence for health assessments.

Finally, the design features not previously used in veterans' health studies and developed in this project have been tailored for ready use across operations beyond those of InterFET, for the differing nature of operational conditions from service-assisted evacuations and humanitarian assistance to war-like operations. In particular, they recognize the need to consider the health effects of multiple deployments which a common experience of ADF personnel presently.

We have successfully identified many strengths and limitations of accessing civilian registries, Defence-owned and self-reported data on recent veterans. The InterFET pilot project and the lessons learnt from this aspect of the program have been used to design subsequent studies of veterans of deployments of the Solomon Islands, Bougainville, East Timor and Middle East area of operations. The Defence Deployment Solomon Islands Health Study is already underway.

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