



Solomon Islands Health Study Results

March 2009



Prepared by: Dr Annabel McGuire, Mr Michael Waller, Prof Cate D'Este, Dr Christine McClintock, A/Prof Susan Treloar, Prof Annette Dobson

Centre for Military and Veterans' Health, University of Queensland

Centre for Military and Veterans' Health

Mayne Medical School Building
Herston Road Herston QLD 4006

Telephone: 07 3346 4873
Facsimile: 07 3346 4878
Email: CMVH.enquiries@uq.edu.au



Australian Government
Department of Defence
Department of Veterans' Affairs



THE UNIVERSITY
OF QUEENSLAND
AUSTRALIA



Introduction

The Solomon Islands Health Study is the first study in a research program that aims to assess the health and well-being of Australian Defence Force (ADF) veterans who have deployed on operations overseas. It was conducted by the Centre for Military and Veterans' Health as part of the Deployment Health Surveillance Program and funded by the Department of Defence.

This report is a Project Completion Report and is not intended to convey all study results. Further data analyses may be conducted in due course to answer additional research questions. The aim is for study results to be disseminated in a timely manner through peer-reviewed journal publications so that they are publicly available.

Study aims

The overall aim of the Solomon Islands Health Study was to examine whether the health of the veterans who deployed to the Solomon Islands differs from similar Defence Force personnel in several key areas:

- a) Mortality and cancer;
- b) Post Traumatic Stress Disorder (PTSD);
- c) General Health; and
- d) General Lifestyle Factors.

Study population

Four thousand and eighty-nine Defence Force members who deployed to the Solomon Islands before December 2005 were identified from various Defence sources. This group was compared to other ADF members who had not deployed to the Solomon Islands. The Solomon Islands veteran group was frequency-matched to the comparison group of 4092 ADF members on the basis of sex, age group, service (Navy, Army, or RAAF) and service type (Regular or Reserve). All 8181 identified personnel were included in the mortality and cancer studies.

From these larger groups, 500 veterans and 500 comparison individuals were randomly selected and asked to complete a general health questionnaire. The Solomon Islands veterans were also asked to complete a questionnaire specific to their deployment.

Response to the self-report health questionnaire was obtained from 44% of the living sample (5 deceased), but 19% of individuals in the sample could not be located and contacted in the time available. The largest proportion of those who could not be located comprised ex-serving ADF members. An overall response rate of 54% for those who could be contacted was achieved.

Study participation by Solomon Islands veterans and the comparison group was similar (45% and 42% respectively). More women than men participated (58% versus 42%), and participation increased with age group, from 35% in the 21-30 age group, to 47% in those aged 31-40, and to 58% in the over 40s. There was a difference in participation across States, with responses from over 50% of the sample in the ACT, South Australia, Tasmania and Victoria, and less than 40% in Queensland and

Western Australia. Twenty-six percent of ex-serving members in the sample participated in the study, compared to 46% of serving members.

Routinely collected information from Return to Australia Psychological Screens, Post Operational Psychological Screens, and Defence health records was also analysed.

Research questions and study findings

a. Do those who deployed to the Solomon Islands have increased rates of mortality or cancer?

Both the mortality study and the cancer incidence study (all 8181 personnel) compared:

- a) the mortality/cancer rate for Solomon Islands veterans with that of the comparison group
- b) the mortality/cancer rate for Solomon Islands veterans with the general Australian population

The risk of death/cancer incidence in each group was calculated as the total number of deaths/new first cancers divided by the total person-years of follow-up from the start of the Solomon Islands deployment to time of death or end of the study (31 December 2005). The rates were standardised by age and sex.

There were no differences in all-cause mortality between the Solomon Islands veterans and the comparison group [Rate Ratio 1.02 95% CI (0.30, 3.40)]. More importantly, ADF personnel in the Solomon Islands study had a mortality level 57 % lower than can be expected in the general population [Standardised Mortality Ratio 0.43 95% CI (0.23 0.72)].

The National Cancer Statistics Clearing House linkage showed no difference between the Solomon Islands veterans and the comparison group. Numbers of incident cancers were too small to allow a comparison between the ADF personnel in the Solomon Islands study and the general population.

All comparisons were based on small numbers of events and a short follow up time and consequently lacked the statistical power to detect confidently differences between groups, if such differences existed.

b. Do those who deployed to the Solomon Islands have increased rates of post-traumatic stress syndrome?

Data from the Defence psychological screening questionnaire (completed on return to Australia from deployment) and the self-report questionnaire (2007) were used to address this research question.

Based on the analysis of Defence psychological screening questionnaires, fewer than 2% of Solomon Islands veterans reported post traumatic stress symptoms or psychological distress at clinical levels, respectively indicated by PCL-C and the K10 scales.

The data from the self-report questionnaire showed that there were no differences in the level of post traumatic stress symptoms or psychological distress between the Solomon Islands veterans and the comparison group.

However among Solomon Islands veterans, slightly higher overall levels of post traumatic stress symptoms and psychological distress were reported in the self-report questionnaire used in this study compared with the Defence psychological screening conducted at the end of the deployment. For the Solomon Islands veteran group, available Defence Return to Australia Psychological Screening (RtAPS) data showed 4% with a PCL-C score > 30 (low cut-off screening score) and 25% with a K10 score > 15 (medium to high psychological distress) compared with 20% and 40% respectively in the overall available participants' 2007 study questionnaire data.

However, for those who consented to linking these two data sources and where data were available (N = 77-80), there was a fair level of agreement between scores from the different sources ($kappa = 0.25-0.28$), with 61-77% of participants scoring in the same K10 and PCL-C category in both the RtAPS and the 2007 self-report questionnaire.

The differences may be due to development of symptoms over the time that has elapsed since between deployment and completion of the self-report question or factors such as a greater willingness to disclose outside the Defence environment.

c. Do those who deployed to the Solomon Islands have more general health problems?

Data from the Defence medical records and the self-report questionnaire were used to address this question. There were almost no differences in health outcomes between the Solomon Islands veteran and comparison groups, including their Medical Employment Classifications.

Similarly, data from the self-report questionnaire showed no significant differences between the groups on general health measures including the reporting of various diseases and symptoms.

Seventy-one percent of participants rated their health as 'very good' or 'good', and most had good oral health. The most frequently reported symptoms were fatigue (61%), feeling unrefreshed after sleep (56%), headaches (50%), and sleeping difficulties (48%). Twenty-eight percent of all participants reported using medications, most commonly for pain relief and joint conditions. The most frequently diagnosed medical conditions were back or neck problems (41%) and joint problems (29%).

d. Do those who deployed to the Solomon Islands have poorer lifestyle factors, for example tobacco smoking and alcohol consumption?

Data from both the Defence medical records and the self-report questionnaire showed no significant differences between the Solomon Islands and comparison groups on these factors. Using the 2007 study questionnaire data as the most recently collected data, 28% of participants reported consuming alcohol above the 'low risk' level and 21% were current smokers. Smoking levels are not significantly different from that in

the Australian populations. More than 40% of the sample were or had been smokers at some time in their lives. Smoking also tended to increase while on deployment.

Additional deployment specific information

For those who deployed to the Solomon Islands the self-report questionnaire included a deployment section for recording exposures that may have an association with health effects. The data collected may be relevant for answering future research questions and for longer term follow-up.

Eighty-two percent of responding Solomon Islands veterans were full-time members and 5% were reservists on full-time service. Most believed that overall their deployment experience had been positive, with only around 10% rating their deployment as a negative experience.

Over half (53%) of the respondents reported receiving between 2 and 4 vaccinations, but around 15% reported that they had received no vaccinations specifically for this deployment. Nearly 80% of respondents indicated that they had taken antimalarial tablets, most commonly Doxycycline. Sixty-two percent reported taking Primaquine on their return to Australia.

The most common chemical and environmental exposures reported were loud noises (66%), insect bites (66%) and exposure to pesticide fogging or spraying (60%). Seventy-one percent of people reported using an insect repellent.

The most common stressors reported by those deploying to the Solomon Islands were associated with organisational issues or being away from home as opposed to the local environment or the operation itself.

Conclusion

Data from all sources showed no significant differences between the Solomon Islands veteran and comparison groups, although it is important to note that follow-up time (to 2007) was short and power to detect differences was limited. The data collected will however provide a valuable baseline for any future follow up of the health of veterans of the Solomon Islands deployment.

This first study within the Deployment Health Surveillance Program has also provided the opportunity to evaluate the data sources used. The health surveillance system will be more efficient when mechanisms for electronic data capture of routine Defence Health data are implemented and clinical assessment tools are adapted to create quality data for analysis.

Recommendations

Longer-term monitoring of both mortality and cancer is warranted as the follow-up time between Solomon Islands deployment exposures and outcome assessment was short and the latency period for these outcomes is long.

The impact of different and multiple deployments on cancer incidence of ADF personnel should be further assessed by combining the results of all Near North Area of Influence Health Studies (Solomon Islands, East Timor and Bougainville).

Data sources used in this study should be monitored and assessed for ongoing suitability and consistency for health surveillance.