

## **East Timor Health Study**

### **SUMMARY PROJECT COMPLETION REPORT**

#### **Key Findings**

The East Timor Health Study is one of three studies in the Near North Area of Influence and contributes to the first wave of findings on the health of ADF personnel who deploy.

From the five research questions there did not appear to be clear, significant findings in relation to mental health distress, physical symptoms, exposures, health behaviour, mortality and cancer incidence.

However, there are a number of findings that support further research and additional investigation. The difference in mental health scores between CMVH and Defence surveys, the higher number of reported symptoms for deployed personnel, and the impact of multiple deployments are all requiring further investigation.

It is important to note that the findings from this and the other studies to date represent the first wave of information to inform further studies and longitudinal research that will enable short term and long term health surveillance for ADF veterans.

#### **Background**

East Timor is located in the eastern part of Timor, an island in the Indonesian archipelago that lies between the South China Sea and the Indian Ocean. After the newly independent East Timor swore in its first government, the United National Mission of Support in East Timor was established to provide assistance to core administrative structures critical to the viability and political stability of East Timor, to provide interim law enforcement and public security, and to contribute to the maintenance of external and internal security.

The East Timor operations began in June 1999. It was anticipated that a two-phased operation may be required, with the first phase being an emergency evacuation of Australians and other nationals authorised by the Australian Government from East Timor. The second phase of initial operations was anticipated to involve reinforcing evacuation forces, in order to establish protected areas in East Timor until public safety was restored under a United Nations international force.

The six operations in East Timor covered by this study spanned a period from June 1999 to May 2005, including a combination of 'warlike' and 'non-warlike' operations. Operations WARDEN, TANAGER and CITADEL were 'warlike', while Operations SPITFIRE and SPIRE

were 'non-warlike'. Operations FABER and CITADEL had both 'warlike' and 'non-warlike' periods. Operations in East Timor are ongoing.

## **Introduction**

The Department of Defence has an agreement with the Centre for Military and Veterans' Health (CMVH) to undertake independent studies within the Deployment Health Surveillance Program. A study has been completed by CVMH for the Solomon Islands and another for Bougainville in parallel to this study. Findings from the health studies will inform a long-term and ongoing health surveillance program to support the health and well-being of Defence personnel and veterans.

## **Aims**

To conduct an investigation of the health status of ADF personnel who deployed to East Timor between 19 June 1999 and 13 May 2005.

## **The Key Research Questions**

The following key research questions were asked in investigating the health status of deploying ADF personnel:

- a. Do East Timor veterans have different rates of negative mental health outcomes relative to an ADF comparison group who did not deploy to East Timor?
- b. Do East Timor veterans have different general health problems from an ADF comparison group who did not deploy to East Timor?
- c. Do East Timor veterans have different health behaviours relative to an ADF comparison group who did not deploy to East Timor? For example, were there different rates of tobacco smoking and alcohol consumption?
- d. What deployment issues and hazards were reported by East Timor veterans?
- e. Do East Timor veterans have different rates of mortality or cancer from an ADF comparison group who did not deploy to East Timor?

## **The Study Design**

This study is of retrospective, cross-sectional design with a comparison group matched across the strata of age, gender, Service (Navy, Army and Air Force) and service type (regular or reserve).

## **Methodology**

Following ethics approval, the study was undertaken in 2008. In answering the research questions the following sources of data were utilised:

- Mortality and Cancer incidence registries
- A comprehensive self-reported health status questionnaire

- A deployment experiences self-report questionnaire
- Defence Health Records (from Unit Medical Records or Central Medical Records)
- Defence psychological screening records: Return to Australia Psychological Screen (RtAPS) and Post Operational Psychology Screen (POPS).

**Table 1. Summary of data collection**

<b>Data Source &amp; Collection</b>	<b>Veterans</b>	<b>Matched Comparison</b>
Identified on nominal roll as eligible	19,710	17,501
Mortality and cancer incidence registries	19,710	17,501
Invited to participate in study	3,999	2,501
Completed self-report health questionnaire	1,833	951
Defence health data	1,451	920
Deployment questionnaire	1,593	N/A
RtAPS in database with scales used in current research	1040	N/A
RtAPS and corresponding POPS data	395	N/A

## Study Findings

### **a. Do East Timor veterans have different rates of negative mental health outcomes relative to an ADF comparison group who did not deploy to East Timor?**

CMVH data show the proportion of respondents reporting in the highest (most distress) category was slightly, but not statistically significantly higher for the East Timor veterans using the K10 and PCL-C scores. The PCL-C is a self-report measure that asks about problems in relation to stressful experiences where a high score is a good predictor of PTSD. The K10 is a scale measuring non-specific psychological distress that aims to measure the level of anxiety and depressive symptoms a person may have experienced in the four weeks prior to the questionnaire completion.

An analysis of scores from these instruments completed either immediately post-deployment (RtAPS) or collected by CMVH showed increasing rates of distress in the data collected by CMVH..

Further research will seek to discover the reason for this difference.

### **b. Do East Timor veterans have different general health problems from an ADF comparison group who did not deploy to East Timor?**

When asked about their perception of general health 38% of East Timor veterans responded that their health ranged from ‘very good’ to ‘excellent’ in comparison to 47% of the matched non-

East Timor veterans. A further 41% and 37% of East Timor veterans and the comparison group rated their health in the middle category of 'good'. Eighteen percent of veterans and 15% of the comparison group rated their general health as 'fair'. 'Poor' health was endorsed by 3% of veterans and 2% of the matched comparisons. Overall, the mean rating of general health was significantly lower for the East Timor veterans compared with the comparison group.

The most common symptoms reported by respondents were fatigue, sleeping difficulties and feeling unrefreshed after sleep, with approximately 60% recording these events. Overall, East Timor veterans perceived their general health to be worse than the comparison group and reported significantly more symptoms than ADF personnel who did not deploy to East Timor.

**c. Do East Timor veterans have different health behaviours relative to an ADF comparison group who did not deploy to East Timor? For example, were there different rates of tobacco smoking and alcohol consumption?**

CMVH and Defence data show that East Timor veterans were more likely (5% vs 3% CMVH and 2% vs 1% Defence) to report risky drinking behaviours than the comparison group.

There were no differences in smoking behaviour between the East Timor veterans and the comparison group.

Body Mass Index (BMI) data showed that 33% of East Timor veterans and 36% of the comparison group were in the healthy weight range (18.5 – 25.0) of the BMI. In the higher range of 25.0-30.0 there were 48% of veterans and 45% of the matched group while 18% of both veterans and the matched group were in the 30+ range. Since June 2006 applicants with a BMI of 30.0-33.0 who satisfy all other health standards have been deemed fit for entry, irrespective of their body fat percentage.

**d. What deployment issues and hazards were reported by East Timor veterans?**

An analysis of vaccinations showed that approximately one third of individuals for whom data were available required four or more vaccinations in the three months prior to deployment. It is currently unclear whether any specific combination or timing of administration of vaccinations required for deployment to East Timor has a relationship to any particular health effects.

Most respondents used some form of insect repellent at least daily or weekly, and over half had their clothing and tent treated with pesticide. Ninety-four percent of respondents reported using some form of antimalarial medication, and 67% reported taking Primaquine on return to Australia. Most of these (98%) reported good compliance with the regimen with very few reporting a reaction to Primaquine. Primaquine is used to treat malaria and to prevent the disease from coming back in people that are infected with malaria.

Fifty-five percent of participants reported their health was the same at the time of the survey compared with their recollection of their general health, and 40% reported that it was worse now.

A wide variety of exposures to hazards on deployment were reported by East Timor veterans. Most respondents reported: being close to loud noises (81%); living in an area recently treated with pesticides (80%); and being bitten by a variety of insects (79%).

The major stressors reported by East Timor veterans included risk of vehicle accidents (71%) and separation from family and friends (70%), but most felt that they had made a useful contribution to the local population (82%) and the military mission (95%).

**e. Do East Timor veterans have different rates of mortality or cancer from an ADF comparison group who did not deploy to East Timor?**

Both the Mortality Study and the Cancer Incidence Study compared the mortality/cancer rate for East Timor veterans with that of the comparison group and with the general Australian population.

There were no statistically significant differences in the mortality rates for East Timor veterans and the matched comparison group; however, both groups had lower all-cause mortality rates than those observed in the general population of the same age.

An analysis of the overall cancer incidence rate in the East Timor veteran group showed no statistically significant differences and also showed a similar pattern to the rates observed in the general population of the same age.

**Additional comparison between 'warlike' and 'non-warlike' operations**

An initial comparison of differing effects, depending upon the time of deployment to East Timor, shows a consistent trend demonstrating that those who deployed during the first warlike operations have slightly worse physical (perceptions of general health and symptoms) and mental health outcomes in comparison with those who deployed later.

It is apparent that the changing face of deployments, in addition to deployment location, may affect outcomes. It will be important to consider the nature of different operations within the same deployment location in further studies on the consequences of deployment.

**Study strengths and limitations**

The overall response to the questionnaire was adequate (43%) but there was a lower response rate in comparison to either the Bougainville or the Solomon Islands studies, although reasons for these differences are unclear.

Longer follow-up times and additional alternative methods for contacting, particularly ex-serving members have the potential to increase response rates in future studies.

Without an electronic health information system being used consistently throughout Defence the researchers were required to seek information from paper Unit Medical Records or Central Medical Records. Such a process was limiting in the number of Defence records that could be utilised.

There are limitations in the evaluation of the reported levels of mental distress in current and ex-serving members of ADF personnel. Changes in policy and process in the ten years since Defence psychological data have been collected have been significant. The psychological screening from the earlier parts of the East Timor deployment were not available for the warlike operations, however this does not imply that they were not conducted.

Members of the comparison group may have deployed to locations other than East Timor and all participants may have deployed to other and in some cases many other locations.

### **Future research**

The Near North Area of Influence (NNAI) Study will be analysing results from the Bougainville, East Timor and Solomon Islands studies to answer research questions in relation to the effect of multiple deployments on health, differences in mental health findings that correlate to different research approaches, and patterns in self-report symptoms.

There are many specific research questions that can and should be explored to inform the Department of Defence, the Department of Veterans' Affairs and the public audience about potential consequences on mental and physical health on deployment. CMVH will be engaging members of Defence advisory committees and their Scientific Research Team in identifying, analysing and preparing papers to identified questions.

Specifically, further research is planned on the impact of multiple deployments, associations between specific exposures and particular health outcomes, and comparisons of health outcomes between the different Services and the Australian public.