Centre for Military and Veterans' Health Mayne Medical School Building Herston Rd Herston QLD 4006
Telephone: 07 3346 4873 Facsimile: 07 3346 4878 Email: CMVH.enquiries@uq.edu.au

* Department of Defence * Department of Veterans' Affairs * The University of Queensland * The University of Adelaide * Charles Darwin University

The Intergenerational Health Effects of Service in the Military

Appendix 9

Power calculations

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Primary health outcomes

Power calculations are presented for some primary outcomes are presented in Table 1. The calculations are based on items from the questionnaire and are calculated for differences in the total score on a continuous scale.

The power calculations presented are based on 10,000 veterans and 10,000 participants in each of the comparison groups being approached to complete the questionnaire and are based on t-test comparisons between two of the three study arms.

Table 1. Power estimates based on 10,000 veterans and 10,000 in one of the comparison groups being approached (Total 30,000 based on 3 arms) 5% level of significance 2-sided test.

Audit Questionnaire	Mean Difference in total AUDIT score	Standard deviation	t-test of two groups			
			Statistical Power			
			Compliance in all study arms			
			30%	50%	70%	100%
Difference	4	8	1	1	1	1
	3	8	1	1	1	1
	2	8	1	1	1	1
	1	8	0.9980	1	1	1

BMI	Mean Difference in total BMI score	Standard deviation	t-test of two groups			
			Statistical Power			
			Compliance in all study arms			
			30%	50%	70%	100%
Difference	6	5	1	1	1	1
	4	5	1	1	1	1
	2	5	1	1	1	1
	1	5	1	1	1	1

K10	Mean Difference in total K10 score	Standard deviation	t-test of two groups			
			Statistical Power			
			Compliance in all study arms			
			30%	50%	70%	100%
Difference	6	8	1	1	1	1
	4	8	1	1	1	1
	2	8	1	1	1	1
	1	8	0.9980	1	1	1

PCL-C	Mean Difference in total PCL-C score	Standard deviation	t-test of two groups			
			Statistical Power			
			Compliance in all study arms			
			30%	50%	70%	100%
Difference	12	15	1	1	1	1
	8	15	1	1	1	1
	4	15	1	1	1	1
	2	15	0.9993	1	1	1
	1	15	0.7330	0.9152	0.9764	0.9971

Mortality rates

The power calculations are based on 10,000 veterans being approached. In the "Morbidity of Vietnam veterans: A Study of the Health of Australia's Veteran Community" (DVA., 1998), 40030 male Vietnam veteran respondents fathered 70867 children. Therefore it is crudely assumed that the number of children will be two in each family in the study will be two.

2024 deaths were reported in children of veterans (2.9%). The current rate of deaths amongst children of veterans is assumed to be higher because of the time interval that has occurred since the Vietnam veterans' health study. Calculations were performed assuming a death rate in the veterans offspring of 4% and 5%.

An intra-cluster correlation coefficient of 0.1 has been assumed and it is assumed that an average of 2 offspring will be selected per family (Design effect of 1.1).

Calculations have been performed for relative risks of 1.1, 1.2, 1.5 and 2.

The results are presented in Table 2.

Table 2. Power of comparison of deaths rates in offspring between two arms of the study. Design effect 1.1. 2-sided significance test. Based on maximum of 20,000 children in each arm.

Rate of deaths in veterans' offspring	Rate Ratio of deaths between Veterans offspring and Comparisons offspring	Statistical Power

		Compliance in all study arms			
		30%	50%	70%	100%
4%	1.1	0.1541	0.2360	0.3160	0.4293
4%	1.2	0.4371	0.6525	0.7986	0.9184
4%	1.5	0.9691	0.9987	1	1
4%	2	1	1	1	1
5%	1.1	0.1864	0.2887	0.3865	0.5193
5%	1.2	0.5300	0.7553	0.8828	1
5%	1.5	0.9906	0.9999	1	1
5%	2	1	1	1	1