

## APPENDIX C

### Veterans' Health Advisory Panel Application form for Stage 2 project proposal

This form must be completed by the applicant, saved as a PDF, and sent to the Secretary, Veterans' Health Advisory Panel, by email: [tracey.rayner@nzdf.mil.nz](mailto:tracey.rayner@nzdf.mil.nz) by 12 noon Wednesday, 15 March 2017.

Before completing this form please read all the attached information.

**Incomplete or late applications will not be accepted.**

**Font size no smaller than Arial 12pt.**

#### A. COVERSHEET

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## B. MAIN PROJECT PROPOSAL – EXPAND ON PROJECT INQUIRY

### 1. Project title

The psychological and physical health and wellbeing of New Zealand contemporary veterans

### 2. Abstract project proposal

*Below provide a 350 word max plain language summary to describe the research, its aims, key methods and reasons for doing it. NB: This is used to share information regarding the project.*

We aim to describe risk and protective factors for health and wellbeing in veterans who have served during and since the Persian Gulf War. Some have experienced combat, but all have experienced the 'deployment stress' of peacekeeping duties. Most cope well, but a significant few are at risk of poor health outcomes from their experience, either the early 'signature injury' of post-traumatic stress disorder (PTSD) or the later appearance of minor but multiple health complaints, 'multiple symptom illness' (MSI). The personal attributes of resilience and ability to cope, along with good social support, are likely to be protective. Adverse outcomes are more likely in a person with anxiety, depression, aches and pains (somatic symptoms) and insomnia. Building protective attributes during service will improve 'life after service', and the outcomes of this study will define the 'at risk' veteran health profile. Our hypothesis is that recognition followed by intervention and support will minimize the risk of chronic health problems such as sleep apnoea, poor mental health and obesity.

A questionnaire survey of contemporary veterans will identify health outcomes along with risk and protective factors. Two statistical models will be developed. A wellbeing model will predict a good overall health score on the EQ-5D, a standardised measure of health outcome. An adverse model will predict PTSD as measured by the Posttraumatic Stress Checklist, military version (PCL-M).

Protective factors will be the physical, psychological, environmental and social domains of wellbeing measured by the World Health Organization Quality of Life (WHOQOL) questionnaire; resilience by the Connor Davidson Resilience Scale; coping ability through the Brief Cope questionnaire, and social support through the Social Provisions Scale. Risk factors are demographic and psychological, the latter addressed by items on the General Health Questionnaire 28 (GHQ28). An epidemiological case definition of MSI will be developed by analyzing the pattern of health complaints identified, to assess firstly the role of MSI as a risk factor and secondly to develop a clinical case definition.

The immediate outcome will be a screening instrument which identifies the at risk veteran prior to leaving service. Next steps will involve developing community support mechanisms.

### 3. Project duration and dates

The project will be completed over an 18-month period starting on the 1<sup>st</sup> June 2017, finishing on the 30<sup>th</sup> November 2018.

#### 4. Questions / aims / objectives of the research

##### a. Research question (s)

1. What demographic, social and individual factors predict overall wellbeing in contemporary veterans?
2. What are the risk and protective factors for PTSD in contemporary veterans?
3. Which of these factors should be included in a parsimonious screening questionnaire to detect problems prior to military civilian transition?
4. Does MSI exist in this population and if so, is there a recognisable pattern that will assist with developing diagnostic criteria?

##### b. Aims and objectives of the research

*Below, include as many of the project's aims and objectives as required.*

	<b>Objective*</b>	<b>Timeframe (period)</b>
<b>1</b>	Assemble cohort, develop questionnaire	By 31/08/17
<b>2</b>	Questionnaire deployment, data entry	By 31/12/17
<b>3</b>	Data analysis	By 31/3/18
<b>4</b>	Wellbeing and PTSD paper written (q1-q3 above)	By 31/7/18
<b>5</b>	MSI paper written (q4)	By 30/9/18

\*assuming a start date in May 2017

## 5. Background and rationale for the research

*(1 pg. max- Please include and list all references in the references section )*

There are two critical events in the military 'life course', firstly achieving veteran status through deployment, and secondly transitioning from military to civilian life. Both are known to be 'at risk' phases for veterans and their families. Fortunately, most veterans cope well with these changes; they have good health and enjoy their social and physical environments. A significant minority, reported to be 25% in Canada, fare less well.<sup>1</sup> Risk factors for a poorly planned transition appear to lie in the development of psychological and physical ill health.

Psychological ill health is an important determinant of subsequent poor health. Those leaving military service early, especially after operational deployment, have been shown to struggle the most with post-deployment psychological issues.<sup>2</sup> One of the critical issues is PTSD, identified as the 'signature injury' of US service men and women deployed to Afghanistan and Iraq,<sup>3</sup> simply because a military career enhances the opportunities for psychological trauma. A high level combat experience, engaging in a fire fight, seeing someone killed or having a death on deployment have been experienced by some New Zealand veterans. Many more have been deployed on peace-keeping missions, which have their own stressors. We have, for example, been learning about moral injury, defined as "perpetrating, failing to prevent, bearing witness to, or learning about acts that transgress deeply held moral beliefs and expectations".<sup>4</sup> More mundane, but still significant, stressors include having to deal with family or financial problems 'by remote control'. Other risk factors are demographic, particularly being female, having experienced prior adverse life events<sup>5</sup> and possibly pre-existing, but undetected, psychological disorders.

Those veterans undergoing transition through medical discharge are also prone to adverse outcomes. MSI was first described in veterans of the 1991 Persian Gulf war. This manifested, at some time after the deployment event, as a cluster of 'medically unexplained disorders.' Combat exposures were not prevalent, therefore PTSD was not suspected; MSI was attributed to chemical and other exposures, prompting a search for causation. This phenomenon, high rates of multiple symptom reporting, has been observed in veterans of other military deployments, including Iraq, Afghanistan<sup>6-8</sup> and East Timor.<sup>9</sup> It has also been reported in groups with occupational chemical exposure e.g. military personnel exposed to jet fuel and solvents,<sup>10</sup> firefighters,<sup>11</sup> and indeed the general population.<sup>12</sup>

MSI is of concern because it persists. Worryingly, a small proportion of Australian veterans with high symptom counts developed chronic diseases 20 years later, including sleep apnoea, psychological disorders and cardiovascular conditions. In keeping with this pattern, they had other risk factors including a high prevalence of obesity, high waist circumference and harmful alcohol use. In addition, they had poorer physical and mental health than their contemporaries.<sup>13</sup> MSI, rather than being an inexplicable pattern of health effects, remains stable in time, and is associated with chronic illness and poor quality of life. Because of the pattern of symptom reporting and the veteran groups reporting it, there is a plausible association between MSI and PTSD.

Crucially, there are opportunities for prevention. Early social intervention for PTSD seems to be protective, the strongest military factors being the provision of unit support and post-deployment support.<sup>5</sup> The role of ongoing community support is less certain, however, in general, increased social support reduces PTSD severity. Many of the symptoms that define MSI are shared with other conditions, and no 'one size fits all' treatment is available or advocated. Nevertheless, a combination of pharmaceutical intervention and cognitive behavioral therapy has been recommended.<sup>14</sup> The rationale behind this proposal is, in the short term (18 months), the identification of risk factors prior to military release. In the medium term we plan (1-2 years, pending further funding) to design a community intervention to prevent long term ill health. In the long term, to identify, and develop, through education and training, those individual characteristics which promote good health and wellbeing.

## 6. Impact of the research to veterans' health (1 pg. max)

### i.e. What difference will the project make?

For transitioning veterans, using the questionnaire at the comprehensive medical assessment will reveal an 'at risk' health profile and identify issues that need to be dealt with. This could be effectively achieved through utilisation of existing networks of Primary Health Organisations (PHOs) and community health practitioners. We can identify PHOs providing medical assessment services for the NZDF, or practitioners with previous military service. At present, there is no formal networking within this group, but in practice this would not be difficult to facilitate. Ideally, and the topic for a future trial, at risk veterans should be referred to one of these 'support' practices or practitioners for follow-up care on release.

For veterans already in the community, we will elicit information about risk factors, some of which, for example high levels of distress, sleep apnoea and alcohol use, are likely to require management. Each individual will receive a summary and interpretation of their questionnaire results and will be advised to contact their health provider where appropriate. A specific support strategy will be deployed for individuals showing high levels of distress (see section 10), in which case we have a support network of operationally experienced veterans who can intervene. The RSA has partnered with the non-government organisation 'No Duff' and New Zealand Veterans Affairs (NZVA) are working collaboratively with them. No Duff has an extensive network of volunteers across New Zealand, the majority of whom are serving and former members of the NZDF, are operationally experienced, and provide 'boots on the ground' practical support, bridging the link between contemporary veterans and the support agencies.

We know from a previous small qualitative study that veterans do not always identify themselves as veterans, but are perhaps more likely to do so if they have been involved in combat.<sup>15</sup> This lack of identity means that veterans are unlikely to identify their veteran status to healthcare providers. We propose a close engagement of veterans in the project. From past experience this will raise interest in health issues and, to some extent, help to normalise health-seeking behaviours.

The impact on the NZVA will lie in knowledge about the prevalence of PTSD and MSI, particularly what MSI 'looks like', the risk factors to look for and the nature of the interventions required. Importantly, we can use the EQ-5D to calculate economic indicators in the form of quality adjusted life years (QALYs) for a disease or health condition experienced by veterans. Cost-benefit intervention analyses will be facilitated.

MSI is important because it is accorded one of the 'Statements of Principle' (SOPs), developed by the Australian Repatriation Medical Authority (RMA). The SOPs have been adopted by NZVA as principles through which eligibility for NZ veteran benefits may be assessed. We do not know how many symptoms, or what pattern, is indicative of MSI as a health disorder. The symptom groups in other veterans fall into three categories: fatigue, mood-cognition dysfunction, and musculoskeletal complaints. The New Zealand pattern will differ, but we aim to develop a specific New Zealand case definition and SOP for MSI. This will add objectivity to the decision making process. Additional impact will be felt through MSI serving as a 'red flag' to community health providers, signalling potential veteran ill-health. If the red flags are recognised, primary prevention will be possible for serving personnel, with secondary (impact reduction) and tertiary (health problem management) strategies for veterans.

Value also lies in the recognition by veterans and health providers that multiple but minor health complaints may be MSI and that PTSD may be a sub-clinical risk factor. Early Intervention should prevent minor complaints developing into chronic conditions.

Military service is also associated with positive health features, including good HRQoL, hopefully enjoyed by the majority of veterans. We do not yet know which domains of HRQoL, physical health, psychological health, social relationships or the environment are most important. Other protective factors will be the ability to cope and resilience. Interventions must include all of these elements. We recognise that the social determinants will be different for the 16% of Māori in the NZDF: our team will specifically address these.



## 7. Addressing the *Guiding Principles for Investment*

*(In approx. 2 pg. clearly outline how the project will meet each principle below)*

### **1. Take a broad holistic view of health research, including the physical and mental health and wellbeing, and social outcomes of veterans and/or their families.**

We embrace a truly holistic view of health in terms of taking a 'whole of life' approach and assessing overall well-being. The EQ-5D is an outcome measure of health status applicable to a wide range of health conditions and treatments, it provides a simple descriptive profile and a single index value for health status that can be used in the clinical and economic evaluation of health care as well as in population health surveys, and for which preference weights exist to derive QALYs. The descriptive system comprises 5 dimensions: mobility, self-care, usual activities, pain/discomfort and anxiety/depression. It can be used to assess the health impact of chronic conditions such as PTSD and MSI, on the other hand, a high score indicates good health. The World Health Organization's WHOQoL instrument is an approach to health assessment involving the subjective appraisal of health-related quality of life (HRQoL), a concept that measures general well-being and well-being in the physical, psychological, and social domains, high scores in which indicate satisfaction and are protective factors. It also assesses the individual's perceptions in the context of their culture and value systems, and their personal goals, standards and concerns.

There is an increasing interest in 'military-civilian transition,' which can be a difficult period for veterans and their families. There has been little substantive research about New Zealand veterans, but we know that veterans do develop chronic health problems later in life. We have shown, for example, that New Zealand Vietnam veterans were initially healthier as regards to mortality, but that higher rates of cancer were experienced in more recent time periods.<sup>16</sup> As regards to hospital admissions, they have markedly elevated rates of chronic obstructive pulmonary disease, renal failure and, compared to the general population, high rates of hospital admission for drug and alcohol use.<sup>17</sup> Some of these conditions are related to unhealthy lifestyle factors (drugs and alcohol) and some healthy factors (diet and exercise) from military service which have probably not been maintained post-service. Some of the chronic health conditions in these groups may however be related to post-traumatic stress disorder, and some may be indicative of MSI. If so, early intervention has the potential for savings in long-term health costs.

### **2. Focus On Research That Aims To Benefit The Health Of Veterans and/or Their Families By Informing Policy And Practice.**

As regards to policy, both PTSD (No. 82 and 83, 2014)<sup>18</sup> and MSI 'chronic multi symptom illness' (No. 55 and 56, 2014)<sup>19</sup> have SOPs. This project will have immediate policy impact on MSI by identifying any NZ veteran-specific pattern of the numbers and types of symptoms. We can also look at the relationship between PTSD and MSI in terms of associations and/or risk modification. In the short-term, it is important that veteran health issues are recognised through the 'red flag' of MSI, a prompt for community practitioners to inquire about PTSD, social dysfunction and current levels of social support.

In the short to medium-term we aim to influence policy and practice in two areas: firstly a comprehensive medical examination prior to civilian transition, secondly through developing an existing health network as a veteran health support network.

This will help to inform proposed changes in that NZDF are at present improving upon the 'pre-release' medical assessment. We will contribute to this by validating specific screening measures, from the suite of questionnaires being deployed, that identifies at risk contemporary veterans.

We are very strong advocates for routine follow-up post-discharge, ideally by the existing network of 'enlightened providers' who can screen for social support using the Social Provisions Scale (SPS), shown to be predictive of stress reduction and expected to be a protective factor in this study.

In the longer term, NZDF is actively developing interventions to improve resilience and personal coping resources. This proposal has capacity to focus that effort by identifying which personal domains of wellbeing, physical, psychological, or social, are most closely correlated to wellbeing.

### **3. Focus on contemporary veterans (from the 1990 Gulf War onwards).**

The contemporary veteran experience is different from those of previous veteran groups because it incorporates shorter, but more frequent, deployments. While combat experience has also been less frequent, moral injuries are more likely and within family stresses experienced more frequently, and for longer periods overall.

Most of the more recent deployments, certainly to Timor Leste, the Solomon Islands and Afghanistan, have depended on reservists, whose deployment experience is somehow different. Compared to regular personnel, reservists have been shown to have significantly elevated rates of common mental disorders and PTSD. Possible explanations have included different operational experiences, altered perception of risk, lack of cohesion with regular forces, lack of peer support, and difficulties adjusting to civilian life post deployment.<sup>20</sup>

### **4. Focus on issues relevant to New Zealand.**

A 2015 survey of workers and employers identified cultural factors determining the Kiwi response to health and safety<sup>21</sup> are also likely to shape the veteran approach to health problems. Firstly the 'harden up' attitude in the face of hardship is a particularly military, and maladaptive, coping mechanism. Secondly, we are known for a 'she'll be right' attitude, an optimistic outlook meaning that, despite barriers or conditions that are not optimal, we continue to perform a task to get the job done. Lastly, New Zealanders are not keen to stand out from the crowd. The 'tall poppy syndrome' means that New Zealand veterans will often avoid volunteering information.

The veterans of Aotearoa/New Zealand have their own set of values, shaped by the cultural identity and values of the warrior tribe, Ngati Tumatauenga. We have found that the spiritual dimension is much valued and truly shared in the military,<sup>22</sup> however, taha wairua is often neglected in community healthcare for this group. We will recruit a Māori research fellow to our team to ensure that our networking has an effective reach, the methods are culturally appropriate for Māori participants, their health beliefs and values are taken into account, that communication is effective and that outcomes are of benefit to Māori.

### **5. Work collaboratively with other agencies, including Veterans' Affairs and the NZDF, to help ensure the relevance of research, optimise research design, leverage funding, and maximise the benefit for veterans.**

The principal investigators reflect our partnerships. We have strong links with the NZDF, NZVA the RSA and No Duff. Section 3d outlines the plan for a steering group with representation from these agencies. We are actively leveraging other resources, specifically from Lotteries Health Research and the Health Research Council, the outcomes of which will be known by the end of March 2017. The focus in these is similar: If successful in one or both we will be able to increase the sample size and thus the power of the study to assess important between-group differences in health and wellbeing. Nationally, the RSA and No Duff have agreed to assist with recruitment and the RSA National Office has offered a contribution to communication costs. We are additionally in discussion with the Ranfurly Veterans Trust and regional RSA Welfare Trusts about a follow up to this proposal by developing an intervention trial, randomly allocating transitioning veterans to either 'supported' or 'routine' primary care.

### **6. Build on existing research infrastructure and capability, including the Statistics NZ Integrated Data Infrastructure (IDI).**

Our model for co-ordinating capability is the Canadian Institute for Military and Veteran Health Research, the core of which is a partnership with academia, clinicians, military, veterans, government, industry and 'groups of caring Canadians'. The network of academic researchers from 40 Canadian Universities has 4 international affiliates, the University of Otago being one of the latter. Our own effort, the University theme "health of veterans, serving personnel and their families" successfully engaged with key stakeholders, including the signing of a research



memorandum of understanding with the NZDF. Our research team has practical experience in working with the NZDF in both military medicine and psychology, which will maximize knowledge translation.

We agree that the IDI will be essential for future research. Our team has experience of working with the IDI and are discussing the 'criteria for adding data' with Statistics New Zealand and will shape the project in order to facilitate data exchange. If approved will ask for an 'ad hoc' load of survey outcome data into the IDI. The most value will lie in consistent, valid and repeated data entry. This survey would form an ideal 'base-line,' with the regular data input source being the questionnaire data from the comprehensive medical assessment. Other researchers will then be able to link health data with, for example, Income, Education, Migration and Justice data.

**7. (NB: Is not required at this time; see note in pack)**

**8. Compliance with Government procurement guidelines will be a paramount consideration when making investment decisions**

We have read, understood and undertake to comply with these guidelines.

## **8. Research design and methodology** (3 pg. max)

### **a) Design and methodology**

#### **Design**

The design is a cross-sectional prevalence study.

### **b) Participants and location(s)**

#### **Study base**

We would like to sample the entire veteran cohort, estimated to be in the order of 9000 individuals. This will be difficult within the present funding constraints, but we are confident of gaining additional support. A 55% response rate will give us a sample size of 4950 which will give more than adequate power to run a logistic regression model using the PCL-M, EQ-5D and WHOQOL data, also to run the factor analysis. We will however aim for the response rate of 60-70% reported in the Canadian 'life after service' studies, which will help to ensure that our findings are generalizable to the NZ veteran population.

A specific strategy must be developed to engage Māori, who comprise at least 16% (in practice likely to be higher) of the NZDF and whose perspectives and experiences need to be specifically explored. This component will be led, and the team will be advised by, our Māori health research partners, Te Roopū Rangahau Hauora Māori o Ngāi Tahu (Ngāi Tahu Māori Health Research Unit). Of concern is the fact that, in previous post-deployment screening, Māori were 11% less likely to complete a screen, as were men and those aged 35-39 years.<sup>23</sup>

We will, if the project is funded, assemble the sample from a number of different sources, the legacy 'ATLAS' database, the 'medals' database listing all those who have been decorated for service and the medical 'Profile' database which lists all currently serving personnel. These all contain identifiers: the legacy database will provide the service number, surname and initials only; the medals database may additionally have forenames and dates of birth and the current medical database will have NHI numbers. With surnames, forenames and dates of birth we were able to trace 83% of a Vietnam veterans cohort, but still had 17% missing, half of these having no address and one third being overseas.

We suspect that the Bosnia sub-cohort, for which there are likely only surnames and initials, will be the most difficult to trace, however an additional source of information will be the electoral roll, which includes surname, forenames, dates of birth and occupations (if specified). The East Timor and Afghanistan sub cohorts will be less difficult to trace as many should appear on the 'Profile' medical database.

We recognise the need to deploy a specific strategy to reach 'at risk' veterans: those unemployed, in precarious employment, in strife or homeless. No Duff and the RSA have offered to commit resources to this.

When we have selected a deployed group, we will assess whether or not we can sample, matched for age, sex, self reported ethnicity and an arm of service, a non-deployed 'referent'

group. The feasibility question arises because multiple deployments have been frequent, and few will not have deployed at least once.

We will follow our standard procedures for recruitment and informed consent. An information pack will be posted to all potential participants with an information sheet carefully setting out: how they have been selected and assuring privacy; the purpose of the study; what the participants will be required to do and how the data will be used, stored and reported upon. Contact details will be given for of the Health and Disability Advocacy Service, NZVA, the mobile number of the principal investigator (PI), and No Duff. The potential participant will be given the choice of responding on-line, which is our preferred option, in which case an individualised link will be sent to them by email. They will also get options of receiving a paper questionnaire, or being interviewed by telephone. Informed consent will be sought by return of a consent form, or if on-line, through a survey 'field.' An opt-out option will also be given. We will ask for a means of contact, explaining that, for reasons of participant safety in such surveys, we may need to get in touch to explain their individual results. A support strategy is outlined in section 5: this will be developed in collaboration with NZVA, the RSA and No Duff.

The project will be based in the Department of Preventive and Social Medicine at the Dunedin School of Medicine.

### **c) Data collection, analysis, and management**

Data collection will be by online, written or telephone questionnaire, as previously outlined.

The main instruments will be those informed by our experience in studying PTSD in first responders after the Christchurch Earthquake. The PCL-M is a 17-item instrument, with a high accuracy of diagnosis, reflecting DSM-IV PTSD symptoms with possible scores ranging from 17 to 85. The WHOQoL will measure the respondents' overall perception of quality of life and health in four domains with 26 total questions. The EQ-5D 'five dimensions questionnaire' will assess mobility, self-care, usual activities, pain/discomfort, and anxiety/depression. The 24-item Social Provisions Scale (SPS) will assess social relationships and various dimensions of social supports. The General Health Questionnaire-28 (GHQ-28) will screen for emotional distress and possible psychiatric morbidity in four sub-scales, somatic symptoms, anxiety/insomnia, social dysfunction and depression. Alcohol Use Disorders Identification Test (AUDIT) was developed by the WHO as a screening tool for excessive drinking, and to assist in brief assessment. The Connor-Davidson Resilience Scale (CD-RISC) will measure respondents' resilience, that is to say the ability to cope with stress. All have good validity and predictive ability with the added advantage of construct validity in their sub-scales. There are two veteran-specific advantages to this approach. Firstly, in identifying which of the sub-scales are predictive of outcomes and are suitable for inclusion in the comprehensive medical assessment questionnaire. Secondly, in that the EQ-5D has specific utility in facilitating the computation of Quality Adjusted Life Years (QALYs) for use as a 'cost utility' outcome measure in planning health care programmes or interventions. Consideration will be given to the use of alternative or additional instruments, for example Adjustment Disorder (AD) as measured by the AD New Module 20 questionnaire which we could use and validate in this sample.

MSI will conform to the CDC definition as 'the presence of (for at least six months) of one or more chronic symptoms from at least two of three categories namely fatigue, mood-cognition (symptoms of feeling depressed, difficulty remembering or concentrating, feeling moody, feeling anxious, trouble finding the right words or difficulty sleeping) and musculoskeletal (symptoms of joint pain, joint stiffness or muscle pain)'. We aim to develop a New Zealand specific model for MSI based on a combination of instrument responses (using for example the GHQ to identify somatic symptoms e.g. insomnia and depression), direct questions (asking for example about joint pain) and open ended questions about self-reported symptoms.

For PTSD, the statistical technique will depend on the prevalence of PTSD and distribution of

PCL-M scores, but we expect to construct a logistic regression model based on a score of 30 or more and find an overall model of 'best fit', defining prevalence odds ratios (ORs) and 95% confidence intervals for risk and protective factors.

For MSI, a factor analysis will describe the pattern of symptom reporting. If this matches international experience, 3 factors will explain the majority of the variance in the data. The first factor is likely to be a New Zealand specific factor, the second a 'cognitive distress' or somatic (tendency to worry about disease) factor and the third a neuromuscular component. When the factors have been identified, we can develop an epidemiological case definition based on the number and severity of symptoms. The relationship with the EQ5-D score and PTSD can then be assessed, with the aim of developing a clinical case definition.

Contingent upon additional funding, the research strategy will also include a qualitative component to address the spirituality dimension and the social indicators of purpose, dignity and social inclusion. As the knowledge gained will be novel, a health impact and/or cost utility analysis will inform policy development in the veteran health and social support domains.

#### **d) Quality assurance**

We propose to establish an external 'peer review panel' with representation from the '5 eyes' partners, The USA, Australia, Canada, the UK and New Zealand. Recruited so far are:

Professor Nicola Fear, Professor of Epidemiology and Director of the King's Centre for Military Health Research, London UK

Associate Professor James Burch, Department of Epidemiology and Statistics, University of South Carolina, and Dorn Dept. of Veterans Affairs Medical Center, Columbia, SC USA.

## **9. Publication and dissemination plan**

*Outline your dissemination plan, including publications, activities and any events and their expected delivery dates*

Following previous practice, we intend that the main output should be publication in a reputable scientific journal, thus ensuring the gold standard of peer review.

The draft of this paper will be provided to the VHAP, Veterans' Affairs and NZDF at least 4 weeks prior to submission, giving the opportunity to comment. We will then wait for peer review to take place. We have in the past (within a day or so) successfully negotiated a firm publication date with "BMJ Open," the ideal date being the 11<sup>th</sup> November 2018. The article will be freely available to veterans.

We will then follow our previous strategy of public dissemination by releasing the results to veterans before publication, with a 'plain language' summary of the results and the offer to participate in a presentation, in the past held at the National Office of the RSA in Wellington.

There will also be value in holding a research theme meeting on or around that time to discuss and agree on the next steps in the trial of community support.

We consider that the value to the VHAP will lie in formulating advice to the Minister on objective criteria to develop New Zealand specific SOPs for PTSD and MSI. It will also help them to decide on future research priorities and funding opportunities.

	<b>Outputs/Events</b>	<b>Date (expected)</b>
1	Initial consultation period prior to finalizing the sampling frame and questionnaires	01/05/17 to 30/08/17
2	Questionnaire development, drawing up the sampling frame and web based application development	01/06/17 to 31/08/17
3	Questionnaire distribution and deployment, concurrent data entry	01/09/17 To 31/12/17
4	1 <sup>st</sup> Progress report	By 15/12/18
5	Data analysis	01/1/18 to 31/3/18
6	Write up report	01/4/18 to 31/07/18
7	2 <sup>nd</sup> progress report, draft peer review paper developed, dissemination plan discussed	By 31/07/18
8	Peer review process complete, re-writes and submission complete	01/08/18 to 30/09/18
9	Dissemination strategy operationalised	By 11/11/18

*Add more rows as required*

## **10. Ethical issues**

We will seek ethical approval through the Multi-Region Health and Disability Ethics Committee, to whom we will explain the risks and benefits. We have submitted our proposal for assessment by the Ngāi Tahu Research Consultation Committee, who will give us feedback in due course.

We know from experience that there is the inherent risk of upsetting individual veterans who have been approached, as some will want to know how and why they have been selected (or targeted). A carefully worded statement in the information sheet, the random element of selection and the assurance of confidentiality will help to reduce this risk. Previous experience suggests that giving the mobile number of the PI also facilitates resolution, as a short dialogue will all but eliminate this risk.

We are likely to find cases of PTSD. This will be minimised by computing the PCL-M score immediately upon receiving the questionnaire. A score of 40 or above suggests that intervention may be necessary, in which case the PI will make personal contact, a strategy that has previously proved successful.<sup>24</sup> The PI is also a member of No Duff with the capacity to mobilise that support network.

The questionnaires will be numbered, the key to which will be kept separately and securely by the PI. The questionnaires themselves will be stored under lock and key in the office of the Project Research Associate until the data entry has been completed. Password protection will secure the electronic questionnaires and the synchronized data backup. On completion of the project paper questionnaires will then be transferred to the secure data storage facility within the Department of Preventive and Social Medicine and stored for 20 years. Access will be limited to the PI and Research Associates.

## 11. Funding budget

	Year 1		Year 2		Total	
	Budget \$	FTE	Budget \$	FTE	Budget \$	FTE
<b>Salaries:</b>						
Principal Investigator/s	5,705	0.03	2,910	0.02	8,615	0.05
Associate Investigators	6,579	0.07	3,424	0.03	10,003	0.1
Postdoctoral Fellows	14,574	0.18	6,556	0.08	21,130	0.26
Research & Technical Assistants	25,067	0.38	11,932	0.18	36,999	0.56
Others – Data Manager	8,913	0.13	4,545	0.07	13,458	0.2
<b>Total salaries</b>	<b>60,838</b>		<b>29,367</b>		<b>90,205</b>	
Salary related costs	4,423		2,135		6,558	
<b>Total salaries and related costs (a)</b>	<b>65,261</b>		<b>31,502</b>		<b>96,763</b>	
<b>Direct costs:</b>						
Expendables	1,800		3,800		5,600	
Equipment depreciation						
Equipment rental						
Postgraduate student stipends						
Subcontractors						
Extraordinary expenditure						
<b>Total other costs (b)</b>	<b>1,800</b>		<b>3,800</b>		<b>5,600</b>	
<b>Subtotal (a + b)</b>	<b>67,061</b>		<b>35,302</b>		<b>102,363</b>	
GST at 15%	10,059		5,295		15,354	
<b>Grand Total</b>	<b>77,120</b>		<b>40,597</b>		<b>117,717</b>	

## 12. Budget justification

A/Prof David McBride will be the PI on the project with overall responsibility for design, data analysis, interpretation and drafting the papers. He has over 30 years of military medical experience, 22 of these with the NZDF. He has served full time as a Senior Medical Officer dealing with transition issues, with operational experience in Northern Ireland, Timor Leste and Afghanistan.

Dr Ariyapala Samaranayaka, the associate investigator, is a biostatistician and has worked on a wide variety of projects involving hospital data, ACC data, official statistics, sports injuries, motor vehicle traffic crashes, farm and work injuries, disabilities, large longitudinal cohort studies and cross sectional surveys. Ari will advise on the statistical methods, guide the analysis and assist with interpretation.

Ms Amy Richardson, the post doctoral fellow, is a post-doctoral researcher. Amy's PhD thesis investigated the influence of psychological factors, including illness perceptions, coping, and social support, on the future of mental and physical functioning of patients with head and neck cancer and their family members. She will assist, along with a Māori health researcher (to be recruited) the team with selection of the study sample; data collection, cleaning and husbandry; assisting with the analysis and writing drafts.

Research Fellow Māori. To be recruited through the networks of the Ngāi Tahu Māori Health Research Unit. The research fellow will share the responsibilities with Ms Richardson. Opportunities will arise to help articulate our research questions within a Māori health framework, build relationships during the project which help knowledge translation for Māori and build research capacity, particularly in veterans' health.

Mr Dave Barson, the technical asisistant, has skills in developing databases, application programming and information retrieval. He will have input to the design and management of the web based information system. He is familiar with the IDI.

A/Prof Brian Cox is our epidemiological advisor who will advise on sampling and data interpretation.

Dr Emma Wyeth is Director of the Ngāi Tahu Māori Health Research Unit. Dr Wyeth will ensure that our research methods are appropriate, that we resolve any contentious or difficult issues, that the research has potential benefit to Māori and that the results are disseminated within the appropriate networks.

A/Prof Sarah Derrett is Director of the Injury Prevention Research Unit and is the New Zealand representative on the Euroqol Scientific Committee which manages the use of the EQ-5D. She has led a number of studies focused on predictors of HRQoL and disability outcomes, including PTSD and economic analyses.

### **Team members from other institutions**

Dr Dianne Gardner is a psychologist with particular interest in workplace psychology, and in particular wellbeing within the NZDF.

Dr Shane Harvey is a clinical psychologist with an interest in applied and abnormal psychology. In the course of his PhD he gained an extensive background in theory generation, observation techniques, focus groups, psychometric development and analysis. As the Massey University

Clinic Director at Palmerston North, he has been involved in delivering Acceptance and Commitment Therapy and other mindfulness based services to military service personnel and alcohol and drug services.

Dr Daniel Shepherd's research interests lie in psychometric assessment and the application of psychophysics to the assessment and explanation of maladaptive psychological processes. He will assist with design, analysis and interpretation of the relationship between psychosocial stressors, personality, and health.

### 13. Host declaration and signatures

*Signed by duly authorised signatory on behalf of the host organisation*

#### Principal investigator/s (First Named) declaration

I declare that the details provided in this proposal are true and correct.

Signature:

Name:

Date:

**Host and institutional approval** to conduct this research from and under the host institution with its support is declared by:

Signature:

Name:

Date:

*signed by duly authorised signatory on behalf of the host organisation*



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