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Suicide Prevention and Counseling Research: A Grant Proposal

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Suicide Prevention and Counseling Research: A Grant Proposal

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## **Abstract**

### **Suicide Prevention and Counseling Research: A Grant Proposal**

By Dr. Suzanne S. Hemphill-Dickson

According to the American Foundation for Suicide Prevention, statistics show that, in 2010, suicide was the 10th leading cause of mortality in the United States and claimed more than 38,000 lives (Research Prioritization Task Force, 2014). Veterans and military personnel represent 20% of all known suicides in the United States (U.S. Department of Veteran Affairs [VA], 2015). Suicide is a preventable public health concern and a top priority for the U.S. Department of Defense (Franklin, 2016).

The increase in suicides among the military community has raised concern among policymakers, military leaders, and the public (RAND, 2011). In September 2017, the VA released data on veteran suicide for the first time in the history of the department. Data measuring suicide rates across U.S. states and regions indicate that suicide rates among veterans in the western region and rural areas of the United States are higher than in any other parts of the country. Montana, Utah, Nevada, and New Mexico had the highest rates of veteran suicide, at 60 per 100,000, compared to the national rate of 38.4 per 100,000 for veteran suicides (Suicide Prevention Resource Center, 2017). This grant proposal seeks to provide recommendations for adopting best practices and most cost-effective prevention and treatment strategies in the military community to reduce suicidality and suicides among military and veteran populations (Military Operational Medicine Research Program [MOMRP], 2009). A review of postvention strategies to directly benefit and preserve the human lives of the military and veteran population will also be offered.

By using a multi-phased approach consisting of a meta-analysis, cost-benefit analysis on results of the findings, and profitability matrix, the overall objective is to evaluate the strengths and weaknesses of intervention and postvention, where they are being used, and the effectiveness as it relates to the targeted population. The outcome of the analysis is to determine the impact or effect of the programs, apply findings to the initial purpose for the grant, and “adopt the best practices and cost-effective prevention and treatment strategies in the military community to reduce suicidality and suicides among military and veteran populations” (MOMRP, 2009, p.5).

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## Chapter I: Introduction

### Introduction and Rationale

Suicide claims over 36,000 lives each year and close to 100 lives every day. It is a major public health concern and has become a heightened concern among military and veteran populations (U.S. Department of Veteran Affairs [VA], 2012). For a number of years, the military service, which includes the Army, Navy, Air Force and reserve components have taken a leading role in suicide prevention efforts in the United States and, more recently, in coordinating with other federal agencies to help advance and shepherd the work in the area of suicide prevention (U.S. Department of Defense [DoD], 2010).

The DoD is one of very few employers within the United States that tracks suicide-related behaviors and mandates suicide awareness, education, and training programs. According to the Defense Suicide Prevention Office (DSPO, 2018), the DoD is one of the nation's leaders in suicide prevention efforts, yet the number of suicides continues to increase at alarming rates across all military branches and continues to be a significant public health issue both nationally and in the Armed Forces.

Many reports have highlighted suicide as a major concern within the veteran and active duty military communities. The issue affects all branches of the military, but suicide rates of active-duty Army members are particularly disturbing. According to a research report published in the *Mayo Clinic Proceedings* journal, the Army suicide rate increased 80% from 2004 to 2008 (Lineberry & O'Connor, 2012) and has continued to increase according to both the DSPO and the Veterans Administration.



The continuous growth in suicides within the Army population caused the vice chief of staff of the Army to implement the 2020 Army Strategy for Suicide Prevention, which includes the release of an Army Campaign Plan for Health Promotion, Risk Reduction and Suicide Prevention; an Army Suicide Prevention Task Force; and the Army Suicide Prevention Council. All serve as a part of programs and interventions to investigate the causes of suicide within the Army ranks and to implement policies and programs whose primary purpose is to promote and foster resilience, prevent suicides, and enhance the readiness of the military force (U.S. Army, 2013).

To address the public health crisis of death by suicide among active-duty soldiers and veterans, U.S. government leaders have dedicated an unprecedented increase in research funding to address suicide (DoD, 2012). Interventions and postventions that are timely, systematic, and evidence-based can serve as the foundation for recommendations to assist in reducing suicidality and suicides among active-duty Army services members and veterans serving in regions of the United States that have the highest rate of exposure.

Montana, Utah, Nevada, and New Mexico had the highest rates of veteran suicide as of 2014, which is the most current VA data available. The suicide rate in these four states equates to at least 60 per 100,000 individuals, which is far above the national veteran suicide rate of 38.4 per 100,000 and higher than in any other region (Associated Press, 2017). This grant proposal seeks to provide recommendations for adopting the best practices and most cost-effective prevention and treatment strategies in the military community to reduce suicidality and suicides among military and veteran populations

(Military Operational Medicine Research Program [MOMRP], 2009), as well as to offer postvention strategies and add to the body of scholarly research.

### **Problem Statement**

There is an urgent need for additional scientific research and innovative strategies relevant to suicide prevention that can be used to benefit and sustain the military and veteran populations, specifically within the Army in the western region of the United States (MOMRP, 2009). Effective prevention strategies are needed to promote awareness of suicide while also promoting prevention, resilience, and a commitment to social change (CDC.gov, n.d.).

According to the American Foundation for Suicide Prevention, suicide was the 10th leading cause of mortality in the United States in 2010 and claimed more than 38,000 lives (Research Prioritization Task Force, 2014). Veterans and military personnel represent 20% of all known suicides in the United States (VA, 2015). Deaths as a result of suicide are a preventable public health concern and a top priority for the DoD (Franklin, 2016).

The increase in suicides among the military community has raised concern among policymakers, military leaders, and the public (RAND, 2011). In September 2017, the VA released data on veteran suicide for the first time in the history of the department. Data measuring suicide rates across states and regions of the country indicate that suicide rates among veterans in the western region of the United States and in rural areas of the United States are higher than in any other part of the country. Montana, Utah, Nevada, and New Mexico were found to have the highest rates of veteran suicide, at 60 per

100,000, compared to the national rate of 38.4 per 100,000 for veteran suicides (Suicide Prevention Resource Center [SPRC], 2017).

Akin to intervention is postvention. Postvention is prevention and follows death by suicide. Research indicates that individuals exposed to suicide are at high risk. Postvention is intended to help reduce risk and promote healing (Ruocco, 2017).

### **Purpose Statement**

The purpose of this grant proposal is to encourage the adoption of best practices and most cost-effective prevention and treatment strategies in the military community to reduce suicidality and suicides among military and veteran populations (MOMRP, 2009). A review of postvention strategies to directly benefit and preserve the human lives of the military and veteran population is also offered.

The grant proposal will also explore the following:

1. Theoretical and conceptual framework
  - a. Social ecological model
  - b. Public health framework for suicide prevention
2. Suicide intervention and postventions
3. Challenges and barriers

### **Significance Statement**

The DoD has been struggling with increasing rates of suicide among military personnel for a number of years. In an effort to combat what is said to be a public health crisis, the DoD continues to implement new programs and examine its policies in an effort to prevent more military men and women from taking their own lives. Because evidence-based research is limited (Ramchand et al., 2015), it is challenging to identify

and adopt best practices and most cost-effective measures to help lower suicide rates. Therefore, more research and recommendations are needed, and since the PI and team understands that sociocultural and public health expertise have become critical to policies and strategies intended to promote the health, well-being, and readiness of the Total Force (e.g., active, reserve, National Guard, veteran), the objective of this grant is to identify best practices and most cost-effective prevention programs used in military communities to aid in the reduction of suicide and suicidality, as well as postvention practices. The findings can be replicated in the form of specific recommendations for evidence-based, cost-effective intervention and postventions that can be coined as best practices to help combat suicidality and suicide within the active-duty Army and veteran populations in the western region of the United States.

### **Definition of Terms**

*Active duty:* Full-time duty in the active service of a uniformed service, including active-duty training (full-time training duty, annual training duty, and full-time attendance at a school designated as a military service school (e.g., United States Military Academy; DoD, 2010).

*Dependent/immediate family:* A service member's spouse and children who are unmarried and under 21 years of age or who, regardless of age, are physically or mentally incapable of self-support; dependent parents, including step and legally adoptive parents of the service member's spouse; and dependent brothers and sisters, including step and legally adoptive brothers and sisters (DoD, 2010).

*DoD Suicide Event Report (DoDSER):* The DoDSER standardizes suicide surveillance efforts across the Services (Air Force, Army, Marine Corps, and Navy) to support the DoD's suicide prevention mission (Health.mil, n.d.).

*Family members:* Relatives of service members who may or may not be beneficiaries. This group may include service members' parents, stepparents, grandparents, siblings, aunts, uncles, nieces, nephews, and cousins (DoD, 2010).

*Health care provider:* A broad term encompassing licensed clinical professionals.

*Military health system:* A restoring system that supports the military mission by fostering, protecting, sustaining, and restoring health (DoD, 2010).

*Prevention:* A set of strategies complementary to the role treatment that is aimed at achieving a state of good psychological health, particularly in the context of population mental health (World Health Organization [WHO], 2002).

*Service member:* A person appointed, enlisted, or inducted into a branch of the military services, including reserve components (e.g., National Guard), cadets, or midshipmen of the military service academies (DoD, 2010).

*Suicide prevention interventions:* Interventions that aim to reduce risk factors or enhance protective factors that have been identified (Bagalman, 2016).

*Suicide surveillance:* Collection of data on completed suicides in order to define the scope of the problem (Bagalman, 2016).

*Veterans Health Information Systems and Technology Architecture (Vista):* The Veterans Health Administration electronic medical information/record system (DoD, 2010).

## Chapter II: Review of the Literature

### Introduction

Suicide is the 10th leading cause of death in this country. Nearly 1 million people die as a result of suicide yearly, which is a global mortality rate of 10.7 per 100,000. Every 31 seconds, someone in the United States attempts suicide. Further, an average of 1 person dies by suicide every 11.9 minutes, which is a rate of 13.3 per 100,000, according to the WHO (Uniformed Services University, 2016). WHO also indicates that death by suicide is vastly underreported for a variety of reasons. Some experts have estimated the incidence rate could be 10–15% higher than officially suspected (American Foundation for Suicide Prevention, 2016).

Aligning with reports from the WHO, the American Foundation for Suicide Prevention statistics confirm that suicide was the 10th leading cause of mortality in the United States in 2010 and claimed more than 38,000 lives (Research Prioritization Task Force, 2014).

There is a heightened concern among the DoD community regarding the elevated rate of suicide among U.S. service members (RAND, 2015). The DoD recognizes that suicide is a preventable public health concern and serves as a top priority within the department (Franklin, 2016). Military life can be stressful for service members and their dependents and often leads to thoughts of suicide (Franklin, 2016). As a result, suicide rate in this population are much greater than in their civilian counterparts (Office of Suicide Prevention, 2016). Veterans and military personnel represent 20% of all known suicides in the United States (Nelson et al., 2015).

In September 2017, the VA released data on veteran suicide for the first time in the history of the department. Data measuring suicide rates across states and regions of the United States indicate that suicide rates among veterans in the western region and in rural areas of the United States are higher than in any other part of the country. Montana, Utah, Nevada, and New Mexico were found to have the highest rates of veteran suicide at 60 per 100,000, compared to the national rate of 38.4 per 100,000 for veteran suicides (SPRC, 2017).

Frieden (2017) recognized, “The Department of Veterans Affairs (VA) has made good strides in reducing suicides among former military personnel, but much more still needs to be done, several senators said at a Senate Veterans' Affairs Committee hearing” (p. 8). The DoD uses a holistic approach to suicide prevention, intervention, and postvention that encompasses a range of medical and nonmedical resources, including foundational theories, stigma reduction, partnerships, and prevention strategies. The objective of this literature review is to review and align relevant research and studies associated with military and veteran suicide to the public health crisis, with a focus on suicide prevention, and to reveal any gaps that exist in the literature. The results of this review include a repository of evidence-based literature for use in a comprehensive meta-analysis, cost-benefit analysis, and profitability matrix, as well as recommendations for additional research.

### **Research Question**

The research question guiding the literature review was as follows: What are the best practices and most cost-effective prevention and treatment strategies in the military community to reduce suicidality and suicides among military and veteran populations?

While considering holistic strategies to help combat suicide and bring awareness to suicide prevention, this literature review is built upon goals and objectives closely aligned with the 2020 Army Strategy for Suicide Prevention and modeled after the National Strategy for Suicide Prevention and recognizes the care continuum (U.S. Army Deputy Chief of Staff, 2013). The continuum consists of three phases: prevention, intervention, and postvention. Once individuals are at risk, they will always be in one of the phases. The 2020 Army Strategy for Suicide Prevention focuses on the four constructs and their interconnection (U.S. Army Deputy Chief of Staff, 2013):

1. Healthy and empowered individuals, families, and communities—Prevention
2. Clinical and community support services—Intervention
3. Treatment and recovery services—Postvention
4. Surveillance, research, and evaluation

### **Suicide Prevention**

According to the VA, U.S. military veterans account for a large population at risk for suicide (Shekelle, Bagley, & Munjas, 2009). A study was conducted with more than 800,000 depressed veterans from 1999 through 2004. The study revealed that during that time period, suicide among veterans was about 7 times higher than in the general population. The study also found elevated rates in groups known to be higher risk, such as males, Whites, and individuals diagnosed with substance abuse (Zivin et al., 2007). The VA examined over 55 million records from 1979 to 2014, from all 50 states, Puerto Rico, and the District of Columbia, to develop a comprehensive snapshot of cases identified as death by suicide in the U.S. veteran population and to provide some insight on ways to address at-risk subsets of the population (VA, 2017).



One of the most pressing problems that suicide prevention professionals are confronted with is the number of suicides within a population when the risk of suicide individually, including among those with multiple risk factors, is low (Ramchand et al., 2014). This concern appears to still be the sentiment, even though the Assistant Secretary of Defense for Health Affairs commissioned RAND to review suicide epidemiology in the military to identify suicide prevention programs classified as state-of-the-art to describe and catalog suicide prevention activities within the department and cross service components, as well as to recommend ways to ensure that activities reflect state-of-the-art prevention science (Ramchand, Acosta, Burns, Jaycox, & Pernin, 2011).

RAND took the epidemiological approach to answer the questions of greatest interest to DoD policymakers and identified suicide rates across military components. In 2008, the U.S. Marine Corps and the U.S. Army had the highest rates (19.5 and 18.5, respectively), followed by the Air Force and Navy having the lowest rates at 12.1 and 11.6 (Ramchand et al., 2011). More recently, military services reported data for the first quarter of 2016, indicating that 58 deaths occurred in active components, 18 deaths in reserve units, and 34 deaths in the National Guard, all by suicide. The highest numbers were within the Army (active components, reserve units, and National Guard; Franklin, 2016).

The DSPO is responsible for integrating a holistic approach to suicide prevention, intervention, and postvention using a range of resources, both medical and nonmedical. The office is committed to leveraging existing knowledge and expertise in suicide prevention to support the concept of a whole-of-life approach and applying it to multiple aspects of military life, including the aspects of the person, the community, military life,

the unit, or an environment that makes death by suicide more likely (risk factors) or less likely (protective factors; Franklin, 2016).

The DSPO partners with a number of leading organizations, such as the Substance Abuse and Mental Health Services Administration, Centers for Disease Control and Prevention (CDC), National Institute of Mental Health, and the VA and incorporates the Public Health Framework for Suicide Prevention, which includes surveillance, risk and protective factors, implementation, and develop and evaluate interventions (Franklin, 2016). A number of conceptual frameworks are used to address myriad questions around military suicide, including active duty members and veterans, as well as the dependents and military community at large. Such frameworks come from the Institutes of Medicine, National Quality Forum, and National Behavioral Health Quality Framework. For the purposes of this study, the primary focus was on the Public Health Framework for Suicide Prevention and the social ecological model.

### **Public Health Framework for Suicide Prevention**

When reflecting upon the concept of prevention as it relates to suicide, it can be approached in two ways: from a public health perspective or from a clinical perspective. The public health approach supports an intervention with the population by focusing on awareness, whereas the clinical approach focuses on an intervention with individuals by distributing medication. Although the clinical interventions are necessary, they are not sufficient because the approach limits its reach to those who have access to a health care system. In contrast, the public health approach or population-based approach reaches the masses and is considered essential to addressing the broader problem with suicide among the veteran population (Bagalman, 2016).

The Public Health Framework for Suicide Prevention consists of three components: surveillance, risk, and protective factors and prevention interventions (Bagalman, 2016). According to Bagalman (2016), there is no single nationwide surveillance system for suicide among all veterans. Suicide surveillance consists of collecting data on completed suicides to define the scope of the problem and using the data to identify risk factors associated with both high and low suicide risk. Identifying the rate of suicide among veterans, identifying the characteristics associated with high-risk and low-risk suicide, and tracking the changes in suicide rates are essential in evaluating and highlighting the full scope of the problem (Bagalman, 2016).

### **Social Ecological Model**

According to Conyne (2013), to be effective at addressing psychological health outcomes, prevention strategies must be comprehensive. Conyne noted the best approaches consider risk and protective factors across multiple determinants of health. The Social-Ecological Suicide Prevention Model is a comprehensive approach that takes into consideration the integration of general and population-specific risk and protective factors. The model takes on a multilevel perspective to provide a structured approach to understanding current theories and intervention–prevention efforts concerning suicide (Cramer & Kapusta, 2017).

The model focuses on societal, community, institutional, interpersonal, and the individual (Conyne, 2013). Based on Bronfenbrenner's (1979) ecological systems theory, the model takes into consideration multiple levels of influence: individual, interpersonal, institutional, community, and society. Based on the premises of promotion and protection of good psychological health, this model is deemed appropriate when considering and

evaluating military prevention programs due to the work and lifestyle of military personnel (Denning, Meisnere, & Warner, 2014).

Conyne's (2013) ecological model builds upon multiple levels of influence:

*Individual-level* influences are personal risk or protective factors that increase or decrease the likelihood of military personnel encountering psychological health problems. The theory suggests prevention effects at the individual level aim to change individual-level risk factors (Conyne, 2013).

*Interpersonal- or relationship-level* influences are factors that increase risk or are protective and that can be attributed to interactions with family, partners, and peers (Conyne, 2013). According to Bronfenbrenner (1979), prevention strategies that address these influences include the promotion of good communication skills in marital relationships and learning to reflect on one's own experiences.

*Institutional-level* influences are factors that increase risk or protect based on formal and informal organizations or social environments. An institutional climate supports healthy relationships based on mutual support and trust (Conyne, 2013).

*Community-level* influences are factors that can increase risk through social norms that do not promote good health. This level of influence can be viewed in terms of geography (neighborhood) or by membership in a group (Conyne, 2013).

*Societal-level* influences are the large, macrolevel factors that influence psychological health, such as gender inequality, societal norms, policies, and regulations (Conyne, 2013).

Again, many models can be used to address effectiveness and best practices regarding prevention programs associated with death by suicide within the military

community. The DoD has deemed them all appropriate models for assessing the value of prevention interventions. The DoD is seeking frameworks that are structured to help guide decision making about what is important to measure the systematic assessment of resilience and prevention. Such frameworks will foster the assessment of existing programs and the development of future prevention strategies for military populations and their dependents (Conyne, 2013).



Figure 1. The ecological model (Conyne, 2013).

### **Suicide Intervention**

The primary purpose for suicide prevention interventions is to aim at reducing risk factors and enhancing protective factors, with the idea of lowering the risk of suicide. Interventions can target the entire population of veterans, at-risk subgroups, or high-risk individuals (Ramchand et al., 2014).

The Veteran Health Administration (VHA) uses veteran-specific research data that help to identify the characteristics associated with higher rates of suicide, referred to as *risk factors*, and characteristics associated with lower rates of suicide, referred to as *protective factors* (Ramchand et al., 2014). The VHA states that identifying risk and protective factors is critical to designing effective interventions intended to lower the

overall rate of suicide by affecting the characteristics associated with it. Moreover, understanding and identifying what risk factors are associated with suicide helps identify at-risk groups and individuals that can benefit from the programs the most (Ramchand et al., 2014).

Interventions are developed as a result of a three-stage process. The first stage focuses on developing and piloting a test on a small scale to make certain they are safe, ethical, feasible, efficacious, and effective. Based on the success of Stage 1, implementation within a large audience takes place as a part of Stage 2. Stage 3 focuses on the evaluation component to verify the effectiveness of the interventions and determine for whom they are the most beneficial (Bagalman, 2016).

### **Suicide Postvention**

Postvention is prevention, and it follows death by suicide. Research indicates that individuals exposed to suicide are at high risk. Postvention is intended to help decrease risk and promote healing (Ruocco, 2017). The primary focus of the concept is on establishing rules and responsibilities for community organizations following death by suicide (Ramchand et al., 2011).

Implementing a postvention program after a suicide is critical, but it is also essential before a suicide because research shows that family members of individuals who die as a result of suicide (spouse, parents, children, siblings) are at risk of suicide (Norton, 2015). Norton (2015) coins postvention as being the same as prevention. Thus, postvention is prevention. Therefore, suicide prevention efforts should include a comprehensive postvention component that reduces risk and promotes healing for the immediate family and reaches into the community to support the broader group of loss

survivors, including friends, coworkers, first responders, treatment providers, and others exposed to the death (Norton, 2015).

As indicated earlier in the review, suicide prevention includes three components: prevention, intervention, and postvention (Norton, 2015). However, postvention is often overlooked or omitted from prevention programs. Norton (2015) noted that postvention is an integral part of comprehensive suicide prevention efforts.

### **Findings**

The literature disclosed that thousands of studies have been conducted over the past 40 or more years in an attempt to characterize suicide risk and protective factors to improve prevention efforts. Many of the studies are a combination of research involving nonmilitary participants both in the United States and internationally (Villatte, 2015). The review indicated that, historically, suicide rates among U.S. service members were nearly half those of their civilian counterparts (Eaton, Messer, Garvey Wilson, & Hoge, 2006; Kessler et al., 2013). Ramchand et al. (2011) asserted “the challenge in identifying best practices for suicide prevention is the lack of data on the effectiveness of programs” (p. 41). According to the investigators, a best practice for suicide prevention is supported by empirical evidence that shows the reduction in rates.

A study that involved examining data from the 2005–2012 National Violent Death Reporting System for 16 states (963 counties) mapped suicides among current military and veteran decedents between the ages of 18 and 35 years old. The study further compared incident circumstances of death in high-density counties (counties with the highest rate of deaths) versus those in medium- and low-density counties with the intention of better understanding the precipitators of suicide in counties most affected.

Finally, the study identified potential areas of focus to align with military and VHA intervention sites (Logan, Fowler, Patel, & Holland, 2016).

Investigators report that within the National Violent Death Reporting System of the 16 states, an estimated 262 (33%) current military suicides occurred in just 10 counties, which is equivalent to 1% of the counties, and 391 (33%) veteran suicides occurred in 33 counties, which is equivalent to 3.4% of the counties. Data indicate that mental health and domestic disputes were the common causes or precipitating circumstances. Some causes differed between cases, depending on high versus medium- and low-density counties. Intervention sites were identified in high-density counties and the conclusion indicated that military and veteran suicides are centered in a small number of counties (Logan et al., 2016).

Due to concerns about suicide risk, Villatte et al. (2015) sought to characterize nonfatal suicide attempts in a sample of 1,759 service members and veterans across the armed services who were receiving treatment at either Military Health System or VHA clinics. A comparison was made between veteran and active-duty service members. That is, Villatte et al. investigated characteristics of suicide attempts in veterans ( $N = 746$ ) and active-duty service members ( $N = 1,013$ ) receiving treatment for acute suicide risk. The primary research questions were as follows: “What proportion of active-duty service members versus veterans in suicide-related treatment has ever attempted suicide?” “Do timing, method, and lethality of nonfatal suicide attempts differ between service members and veterans?” “Are there differences between service members and veterans in terms of demographic and military variables associated with attempted suicide?” (Villatte et al., 2015, p. 5).



Variables examined as a part of the study were demographics, military association (e.g. service branch, combat deployment, years of military service), and nonsuicidal self-injury as they relate to nonfatal suicide attempt in service members and veterans (Villatte et al., 2015). Interviews (standardized clinical and semistructured) and instruments such as the Self-Harm Behavior Questionnaire (Gutierrez, Osman, Barrios, & Kopper, 2001) were used to assess lifetime instances of self-directed violence, suicidal intent, suicide threats, and suicide ideation, as well as method of injury and whether a need existed for medical attention (Villatte et al., 2015).

Results indicated that 34% of service members reported a history of nonsuicidal self-injury, and 51% reported a previous suicide attempt, while prior self-injury was reported in only 28% of suicide attempts and 10% suicide deaths in the 2013 DoDSER annual report (Smolenski et al., 2014). Overall, suicide prevention is complex and multifaceted, and it necessitates good assessment strategies that are comprehensive and capture accurate data on risk and protective factors. Villatte et al. (2015) highlighted that skilled clinicians should be able to focus directly on suicide as the problem to be treated and on policies informed by the best available empirical data.

## **Conclusion**

Study after study has substantiated the claims and echoes the sentiment that preventing military suicide is and should continue to be a top priority of the DoD and VA, with approximately 53% of federal dollars accounting for dollars spent on suicide research (National Action Alliance for Suicide Prevention, 2015), confirming the need for more consistent and effective intervention and postvention programs. The DoD has focused efforts on suicide surveillance using the DoDSER system, which is an event-

based epidemiological data collection system developed to examine the circumstances of suicide behaviors among service members (Bush et al., 2013). To strengthen data collection efforts, the VA is improving suicide surveillance by integrating information from the National Death Index, state mortality records, suicide behavior reports, the Veterans Crisis Line, and the VA's universal electronic medical records (Kemp & Bossarte, 2013).

This review provided a summary of studies associated with military and veteran suicide as it relates to suicide prevention and the public health crisis. It also highlighted the gaps in the literature that align with the characterization of suicide attempts in active-duty service members and veterans. Finally, it focused on clinicians, policymakers, and researchers on mechanisms that can be used to contribute toward the military culture with regard to suicide treatment among current and former military personnel.

### **Chapter III: Methodology**

#### **Funding Agency – U.S. Army Medical Research and Materiel Command, Military Operational Medicine Research Program**

For more than 200 years, the Army has worked to protect soldiers from emerging health threats and has made impacts on the advancement of medicine. In 1958, the U.S. Army Surgeon General's Medical Research and Development Board, the Army Medical Research Board, was converted to the U.S. Army Medical Research and Development Command. Its primary purpose was to serve as the central agency for all Army military medical research and development, with a focus on improving preventive medicine measures and rapid treatment techniques—that is, making an impact to preserve the health and safety of soldiers (Army.mil, n.d.).

As a result of a reorganization, November 3, 1994, marks the birth of the U.S. Army Medical Research and Materiel Command (MRMC). The reorganization, resulted in the Army's Medical Department enabling the MRMC to prevent illness and injury in deploying forces, to equip the Army's medics to provide the best possible combat casualty care, and to ensure medical logistics systems that enhance medical readiness. The MRMC is still the command for providing solutions for American soldiers who serve to protect the United States. Its motto is "Protect, Project, Sustain" (Army.mil, 2010).

The U.S. Army Medical Research Acquisition Activity provides opportunities for contracts, grants, and cooperative agreements to support the command's research staff, scientific efforts, advances in development support, medical products, logistics support, and supplies valued at more than \$1.5 billion and involving 38,000 transactions annually (Army.mil, 2018).

As a result of supplemental appropriations, the Defense Health Program provided \$273.8 million under Battle Casualty and Psychological Health Research to specifically target the prevention, diagnosis, treatment, and mitigation of deployment-related injuries and psychological health concerns, of which \$3.5 million was dedicated to support suicide prevention and counseling research (MOMRP, 2009). MOMRP falls under the purview of the U.S. Army Medical Research and Material Command. MOMRP is responsible for managing efforts directed toward suicide prevention and counseling research.

The primary goal of this funding opportunity is to adopt the best practices and most cost-effective prevention and treatment strategies in the military community to decrease suicidality and suicides among military and veteran populations (MOMRP, 2009). The response to this solicitation will provide recommendations toward finding a solution for the adoption of best practices and most cost-effective prevention mechanisms as a result of identifying effective suicide intervention and postvention military programs through a meta-analysis; quantifying the costs and benefits of programs specific to the military or that can be adapted to the military through a cost-benefit analysis, and composing a profitability matrix to determine the effectiveness of military programs versus the cost of those same programs.

### **Grant Announcement**

The grant announcement includes critical topics that are germane to suicide prevention. Responses to this solicitation can include studies to validate existing suicide prevention strategies that focus on suicide prevention interventions across phases of the deployment cycle, studies to validate new and existing suicide risk assessment measures

and screening tools in military and veteran populations, studies to validate new and existing crisis intervention strategies and clinical postintervention and case management approaches for service members and veterans identified at higher suicide risk, studies to validate new and existing treatment models for patients at risk for suicide with mental or physical illness, or studies to develop valid treatment-related outcome measures and tracking systems for supporting clinical care across treatment settings and in geographically separate locations.

The research is intended to be tailored for use within a military milieu across field garrison, shipboard, primary care, behavioral health care, or combat settings. Other factors such as individual, peer, family, community, culture, and social that may affect the selection, implementation, and outcomes of empirically validate should be included. The award amount cannot exceed \$3.5 million inclusive of direct and indirect costs, with a maximum period of performance of 4 years. The complete solicitation announcement can be found at <https://www.grants.gov/web/grants/search-grants.html?keywords=W81XWH-08-MOMRP-SPCR>.

### **Grant Proposal Reviewers**

**Rebecca Upton, PhD, MPH.** Rebecca L. Upton, PhD (Brown 1999), MPH (Emory 2014) is a professor of sociology and anthropology at DePauw University and coordinates the Global Health Program. She has held the Edward Myers Dolan Professorship in Anthropology and is the recipient of the Edwin J. Minar Award for Excellence in scholarship. In 2009–2010, she was a Fulbright scholar and visiting faculty at the University of Botswana and the Centre for the Study of HIV and AIDS in Gaborone, Botswana. She researches and writes on infertility and HIV/AIDS in northern

Botswana, on the construction of work and family among contemporary American families, and the intersections of qualitative and quantitative methodologies in her work in Africa and the United States. She teaches a range of courses at DePauw, including Public Health in Africa, African Cultures, the Anthropology of Death, Gender & Anthropology, African Art and Museum Studies, the Anthropology of Contemporary American Culture, Ethnographic Methods, History of Anthropological Theory, and Culture, Medicine & Health: An Introduction to Medical Anthropology.

**Michael L. Hawkins, MS.** Michael L. Hawkins is United States Army, Retired. He served for over 20 years as a military police officer responsible for counseling, assigning, professional development, discipline, and training of personnel with a mission of providing law enforcement and security services for a military/civilian community of more than 10,000 customers; assigned subordinate leaders to key positions and monitored the nurturing and counseling of all assigned personnel; planned and conducted professional development training for subordinate leaders; and reviewed, evaluated, and established policies, plans, and procedures such as crisis management plans, standing operating procedures, and emergency response plans.

Currently serving as a civil servant responsible for researching, interpreting, analyzing, and applying Joint Base policies and instructions relating to EM, passive defense, CBRNE, and HAZMAT programs. Establishes policies and procedures for accomplishment of Base Emergency Preparedness Orientation (BEPO), Unit Control Center (UCC, Air Force Emergency Response Operations (AERO) Introductory, AERO Command and Control, and EM Representative training. Responds to contingency and disaster, receives and evaluates notification. Establishes and assumes Command and

Control in the Emergency Operation Center (EOC), and informs the Mission Support Group Commander. Certifies in the Emergency Response Program; National Incident Management System (NIMS), ICS: 300, 400, Defense Support Civil Authorities, (DSCA); Federal Emergency Management Agency (FEMA) certifications. Conducts research and develops emergency management plans, including measures to minimize casualties and damage from natural disasters, major accidents, wartime operations, and military operations other than war.

**Johanna M. Hinman, MPH, MCHES.** Johanna M. Hinman is associate director of education for the Department of Surgery in Emory University's School of Medicine. Johanna has 18 years of experience in public health education, health communication, program planning, and project management. A graduate of Emory's Rollins School of Public Health (RSPH) and a Master Certified Health Education Specialist, Johanna has worked for the CDC and the Arthritis Foundation National Office. She spent 10 years at the RSPH, working in tobacco control and environmental health and in the Emory Prevention Research Center (EPRC). Johanna oversaw EPRC administration, managed supplemental funding applications, led communication and dissemination efforts, supervised project staff, and coordinated partnership activities. In 2012, she joined the Department of Surgery, where she oversees programs and initiatives for education and training of medical students, surgery residents, fellows, and faculty members. She also administers the Center for Surgical Anatomy and Technique (CSAT), which engages innovative teaching and simulation practices for the training of surgeons.

Johanna is active in the Georgia Public Health Association (GPHA) and the American Public Health Association (APHA). She is a past chair of APHA's Public

Health Education and Health Promotion Section and the GPHA Health Education and Health Promotion Section, and a past president of the RSPH Alumni Association. She is the Immediate Past President of GPHA. Johanna also teaches in the Executive MPH Program at RSPH.

**Sheila Fair Bailey, BA.** Sheila Fair Bailey is a supervisory health systems specialist with over 32 years of federal health care experience with the Department of Veteran Affairs. Ms. Fair Bailey's career has included serving in the positions of hospital statistical analyst, administrative officer for nursing and geriatric service lines, hospital training specialist, and the facility public affairs officer.

Ms. Fair Bailey is currently a health system specialist – executive officer to the director, where she has full-delegated authority and responsibility management support to the director and the management team. In this role she is responsible for developing, planning, and evaluating facility operations. She is the medical center representative for administrative matters and communications with key stakeholders to clarify communication issues, as well as provide support for all areas of health care management to include financial management, human capital management, strategic planning, project management communications management, policy/process development, and assignment management.

Most recently, she assumed leadership responsibility for the Consumer Relations division, which includes the Office of Patient Experience, Public Affairs and Employee Engagement. In this role, Ms. Fair Bailey is accountable for plan development, execution, and evaluation of initiatives related to patient and employee satisfaction which requires expertise in patient and public relations, congressional protocol, and media relations.



A vocal and passionate advocate for veterans, she attended Virginia Union University where she completed her degree in business administration with an emphasis on management.

Significant accomplishments include the development and implementation of a facility Best Practice Hub to streamlining and standardizing hospital best practice submission. She collaborated with facility engineers to develop a proposal for Congressional approval for a 155,000-square-foot Health Care Center/Medical Specialty Care Outpatient in a densely populated veteran locale to address 5-year hospital growth of 23.4% and a shift in veteran population.

**Amelia J. Walker, RN, BSN, MSN.** Amelia J. Walker has been a registered nurse for over 16 years, receiving her bachelor of science in nursing from the University of Oklahoma, College of Nursing, and her master of science, nurse executive, from Kaplan University. She was a nurse case manager with the 15th Medical Group at Joint Base Pearl Harbor-Hickam, Hawaii, providing support to service members, veterans, and their family members. In this role, Amelia actively participated on a committee working directly with the vice president of Hawaii market operations for United Healthcare Military & Veterans. Prior to this, Amelia was a clinic nurse manager and obstetrical educator at the Makalapa Naval Health Clinic on Pearl Harbor during the implementation of the Home Medical Model, where she also assumed duties for the lieutenant junior grade presiding as head nurse. She worked at Madigan Army Medical Center as a telephone triage nurse while helping to establish the Patient-Centered Home Medical Model. At Fort Campbell, Kentucky, Amelia was the first referral management center liaison for Health Net Federal Services-Tricare North Region working with military

personnel and veterans, establishing a partnership with network clients to improve continuity for patient care. In addition, she was a staff nurse on the Short Stay Surgical Recovery and Gastroenterology Lab Unit at Southwestern Medical Center. Amelia started her career as a case manager/clinical coordinator at Agape Comprehensive Home Health Agency. Amelia has received several honors and recognition throughout her career, such as the Commendation Award for Service from the 15th Medical Group, Joint Base Pearl Harbor Hickam; Service Award from the Department of the Navy; and Service Award from the Department of the Army. Her professional memberships include the Royal College of Nursing Publishing, National League for Nursing, SALUTE Honor Society, and the Honor Society of Nursing Sigma Theta Tau International.

Throughout her nursing career, Amelia has provided teaching and instruction on various health issues in the community, volunteering her time and expertise. As a military spouse for 27 years, she has focused on military health care, working with Wounded Warriors and coordinating care with internal and external organizations to deliver health care services to active duty service members, veterans, and their families.

### **Protection of Human Subjects**

This grant proposal meets the criteria under the Federal Policy for the Protection of Human Subjects (“Common Rule”) for a waiver of informed consent. This project involves no more than minimal risk to subjects and involves secondary analysis of existing data (HHS.gov, 2018).

### **Chapter IV: Incorporation of Reviewers Comments**

I would like to take this opportunity to thank the reviewers for their insightful and timely comments that helped build a stronger grant proposal that can be used to help

inform strategies associated with suicidality and suicide with Army activity-duty soldiers and veterans in the western region of the United States. Detailed responses to the comments are provided below:

### **Reviewer 1 Comments**

- **Comment 1:** Clear preliminary data exist – the topic is pressing and timely

**Response to comment 1:** This research is very timely and much research is needed.

- **Comment 2:** Theoretical framework is appropriate but could be more detailed – can more details/specifics and statistics be provided here? They are included but it is unclear as to what specific factors in the socio-cultural environment may be contributing to the suicide outcome and risks. How are these risks determined?

**Response to comment 2:** This section will be revised.

- **Comment 3:** The aims, methods and procedure are appropriate. The profitability matrix and analysis measures (cost-benefit and meta-analysis) are clear and particular strength of the proposal overall.

**Response to comment 3:** No additional modification will be added.

- **Comment 4:** Clear feasibility (although see note below – how much data? How many data points will be collected?) and timeline for completion and submission of reports.

**Response to comment 4:** This section will be updated.

- **Comment 5:** Informed consent is not an issue as all data have been collected and secondary sources will be utilized (see below for query about whether or not other

kinds of data collection such as interviews would be value added – why or why not?).

**Response to comment 5:** Additional data related to family members could be added, if data is available. This section will be revised.

- **Comment 6:** Clear inclusion/exclusion criteria except for definition of Midwest region. Given the reliance on SEM, is there something about the states or region that is outlined that seems particularly important to note?

**Response to comment 6:** This section will be revised to include the definition of the Midwest, alignment of suicide to the region.

- **Comment 7:** Impact is perhaps one of the strongest aspects of this proposed project – are there specific clinical applications or policy changes that can be surmised as a result of the preliminary research?

**Response to comment 7:** An additional look at this, will be done and added.

- **Comment 8:** Proposal is appropriate and addresses the RFP.

**Response to comment 8:** Minor modification will made to the submission, based on reviewer comments.

### **Reviewer 2 Comments**

- **Comment 1:** I have no recommendations on the matrix

**Response to comment 1:** No modifications will be made to the matrix.

- **Comment 2:** I really enjoyed reading the proposal and find it to be very informative and well organized.

**Response to comment 2:** The topic is very timely and much research in the area of suicidality and suicide is needed across all branches.

- **Comment 3:** Grammatical errors, done in track changes are minor.

**Response to comment 3:** An extra layer of proofreading will be conducted.

### Reviewer 3 Comments

- **Comment 1:** The use of Cochrane framework is a strength of the proposal, relying upon standardized methods to identify promising interventions and postvention strategies.

**Response to comment 1:** The Cochrane framework is well known in the public health and healthcare arena.

- **Comment 2:** The inclusion/exclusion criteria should be clarified – as written, it is not clear whether any individuals will be asked to participate in a particular study (apparently not) or merely their records included or excluded from the study.

**Response to comment 2:** This area will be revised.

- **Comment 3:** What specific data on service members and their families will be reviewed? It is a strength to include families of service members in the overall considerations of this study, however there is no clear statement about how closely related a family member must be to be considered for inclusion. In addition, there is no statement on the type of Response to comment 3: data on family members that will be included.

Additional information will be added in this area.

- **Comment 4:** Because this secondary analysis of existing data, it would be helpful to see an example of the data that will be reviewed beyond simply incidence of suicide or suicidal attempts.

**Response to comment 4:** An example of the data will be inserted in this area.

- **Comment 5:** The methods are well described, but it is not entirely clear what the final product will be – will there be specific recommendations attached to the results of the cost-benefit and net benefit analysis and the profitability matrix? Will the “most cost beneficial” or “most profitable” programs be the only ones assumed to be appropriate for further adoption and implementation?

**Response to comment 5:** A modification will be made in this area, with clear deliverables stated.

- **Comment 6:** It is certainly worthwhile to review existing interventions and postventions for effectiveness and cost-benefit. The impact would be more clearly defined if the proposal clarified how the Cochrane-type review will lead to specific recommendations or actions.

**Response to comment 6:** Additional protocol will be added in this area.

- **Comment 7:** The study seems very feasible overall, though it is not clear that the data available on each of the studied programs will fully answer cost-benefit and profitability questions.

**Response to comment 7:** There may be gaps in the review. Utilizing the Cochrane Methodology will help with addressing implications for further research.

- **Comment 8:** It is assumed but not explicitly described that the contractors would be given full access to the needed databases.

**Response to comment 8:** This statement will be added, “The PI will request access to all data that is public, from the Human Research Protection Office (HRPO). The PI will address all pertinent issues relating to the data in the proposed research.”

- **Comment 9:** The transition plan is included in the proposal, but it is not entirely clear how necessary it is for the type of work being proposed.

**Response to comment 9:** As a part of the solicitation (pg. 15), a transition plan is required for compliance.

- **Comment 10:** Additional proofreading needed – there are frequent typographical and grammatical errors throughout.

**Response to comment 10:** Additional proofreading will be done.

- **Comment 11:** The proposal will address identified gaps in terms of analysis of effective interventions and postventions.

**Response to comment 11:** No modification to be made in this area.

- **Comment 12:** The benefit is clear – having an evidence-based approach to prioritizing interventions and postventions should aid in reducing suicide.

**Response to comment 12:** It is the intention of the study to aid in the reduction of suicidality and suicide, amongst the targeted population.

- **Comment 13:** This is not an intervention in and of itself. Presumably, the results of the analysis will point to those programs that should be deployed. Notably, deployability of a given intervention is not explicitly stated to be a criterion within the overall analysis framework.

**Response to comment 13:** This section will be revised.

- **Comment 14:** Overall, this appears to be very responsive to the RFP.

**Response to comment 14:** Only modifications that add an additional layer of clarity will be added.

- **Comment 15:** The background and context is clearly described. A dearth of effectiveness data exist, which this study should address.

**Response to comment 15:** No modification will be made to this section.

- **Comment 16:** The included work plan/timeline does not clarify the specific timing of internal milestones.

**Response to comment 16:** The timeline will be modified to add an additional layer for clarity.

- **Comment 17:** The significance of describing the evidence-based for particular interventions and postventions is clearly laid out and is the strength of the proposal. The proposal appears to be well aligned with the RFP.

**Response to comment 17:** The intentions of this response is to provide recommendations for interventions and postventions that have been tested and proven effective.

#### **Reviewer 4 Comments**

- **Comment 1:** This is a very impressive proposal. I believe the acceptance of and the outcome associated with the study will benefit the masses.

**Response to comment 1:** Over the years, the Military Operations Medicine Research Program, have it a goal to provide funding opportunities to further research, in order to adopt best practices, and cost-effective prevention strategies in the military community to reduce suicidality and suicides among military soldiers and veterans.

- **Comment 2:** I understand this grant will focus on mid-western Army service members and to a lesser degree Veterans. I would be interested in learning if the



results will be transferable to all branches? It is hopeful that a study could be done to determine whether risk factors are similar across all sectors and whether military branch indoctrination has any impact on suicidality.

**Response to comment 2:** Additional research would have to be done in order to generalize across the Armed Forces.

- **Comment 3:** Take a look at the Colombia Risk Assessment.

**Response to comment 3:** The Columbia-Suicide Severity Rating Scale (C-SSRS) is a very timely questionnaire used for suicide assessment. Since this study is using existing data and not collecting data, this tool is not applicable.

- **Comment 4:** Are you proposing to develop standard policies and procedures to assess mental fitness for Active Duty?

**Response to comment 4:** This study is not intended to develop standard policies and procedures, rather it is intended to provide recommendations.

- **Comment 5:** At the conclusion of the study, will the information obtained serve to reduce suicides in all branches of the military, as well as for Veterans?

**Response to comment 5:** This study only focuses on one branch of the military. The results will not be able to be generalized across all branches, without further research.

- **Comment 6:** The VA treatment of suicidality is the same across all military branches, so it will be interesting to learn whether factors that result in suicide are the same for the study cohorts.

**Response to comment 6:** There is much research needed in this area. Additional investigation is needed in order to make the generalization.

## Reviewer 5 Comments

- **Comment 1:** The Project Narrative is precise and states the objective of the proposal. Leading in regarding the overall report of “...20% of all known suicides...”), does this take into account the age/sex composition from overall national census in comparison active duty personnel and veterans?

**Response to comment 6:** The statistic takes into consideration age/sex. This section will be revised to make it clearer.

- **Comment 2:** Utilizing the Cochrane Methodology approach is fundamental with evidenced-based healthcare, which will prove to be effective in gathering current data and information for this grant proposal.

**Response to comment 2:** Cochrane is well known in the field of public health. Results from reviews meet the quality criteria and they are considered reliable.

- **Comment 3:** Noted reference to Cochrane Handbook for Diagnostic Test Accuracy Reviews for questions about the collection and synthesis of data.

**Response to comment 3:** The Cochrane Handbook is reference as the source for the comprehensive approach.

- **Comment 4:** The proposed tasks are clearly defined. Analyses are straight-forward.

**Response to comment 4:** The proposed tasks are outlined in the project work plan, under Project Milestones.

- **Comment 5:** Since existing data from DoD files will be used, and the grant proposal falls under “Common Rule”, does the HIPAA (Health Insurance

Portability and Accountability Act) and the use of PHI (Patient Health Information) have any bearing)?

**Response to Comment 5:** For this study HIPAA and PHI are not applicable, since existing data is being used.

- **Comment 6:** The continued rise in suicide rates amongst Army active duty soldiers and veterans warrants a review of current programs and treatment modalities. The impact will be significant if new pre/post interventions are identified, which can help change standards of care.

**Response to comment 6:** Utilizing the Cochrane Methodology to conduct a meta-analysis, can help identify evidence based interventions.

- **Comment 7:** Is there a plan for delay, in the study?

**Response to comment 7:** There is currently no plan for delay. This will be added into the response.

- **Comment 8:** Since, existing data is being reviewed, there seems that there would be no concern with participation; the PI will have to access.

**Response to comment 8:** Existing data will be reviewed. The PI will have access.

- **Comment 9:** The statistical plan is detailed appropriately and thoroughly explains the process and applications; the analysis plan is consistent.

**Response to comment 9:** No additional revision will be made.

- **Comment 10:** Referenced in Appendix B; it is noted that SMEs can be contacted. Mental health professionals, military personnel, and social services within the military health community can certainly provide additional support. The level of effort are appropriate as stated in Appendix B.

**Response to comment 10:** The contracting team has “reach back” into the military and mental health communities that can be engaged for specific expertise and advice.

- **Comment 11:** Broad review of the literature across a number of available resources (DoD, databases, the MOMRP, etc.) is evident. As mentioned in previous comments, the PI and team will be reviewing existing data, so a clinical setting is not required.

**Response to comment 11:** There will be an extensive review of existing data.

- **Comment 12:** With the abundance of available literature currently available, this proposed study has potential to further close the gap in the area of suicidality amongst Army soldiers/veterans. The extensive review of literature by the PI and team may identify these gaps to improve future treatment modalities.

**Response to comment 12:** This study, will add to the body of knowledge and provide the opportunity for further research.

- **Comment 13:** The NDAA, DoD, DSPO, VA and other departments/organizations, have actively attempted to mitigate the rise in suicide rates. Currently, there are numerous strategies that have been implemented, but, recent data shows suicides still occur. Identifying specific interventions that have been effective, and reevaluating current practice, may provide a fresh platform for tackling this tragic concern.

**Response to comment 13:** A comprehensive cost-benefit analysis and profitability matrix will help to identify those interventions and postventions that have been proven to be the most effective.

- **Comment 14:** Overall, the proposal is innovative, and as stated previously, may provide a fresh approach to current issues. There are multiple, complicated facets to mental health in the military, and it is necessary for agencies and individuals to continue researching best practices, programs, treatments, and literature. This grant proposal, again, has the potential to improve identifying and lowering risks for Army active duty soldiers and veterans. Changing clinical practice is ever evolving. Preliminary work indicates support for the grant proposal.

**Response to comment 14:** We continue to see funds being allocated for the monitoring future suicide research with the greatest likelihood of reducing suicide morbidity and mortality.

## **Chapter V: Grant Proposal**

### **Project Narrative**

According to the American Foundation for Suicide Prevention, statistics show that, in 2010, suicide was the 10th leading cause of mortality in the United States and claimed more than 38,000 lives (Research Prioritization Task Force, 2014). Veterans and military personnel represent 20% of all known suicides in the United States (VA, 2015). Deaths as a result of suicide are a preventable public health concern and a top priority for the DoD (Franklin, 2016).

The intent of this grant proposal is to adopt best practices and most cost-effective prevention and treatment strategies in the military community to aid in reducing suicidality and suicides among military and veteran populations (MOMRP, 2009). A review of intervention and postvention strategies, mirrored with a cost-benefit analysis and a profitability matrix, will be offered to illustrate how best practices can directly benefit and preserve the human lives of the military and veteran populations.

### **Statement of Work**

Under the purview of the MOMRP, the principal investigator and team (see Appendix B) will research and recommend adoption of best practices and most cost-effective prevention and treatment strategies in the military community to assist with the reduction of suicidality and suicides among military and veteran populations.

Recommendations will align directly with the following MOMRP critical areas:

- Validation of existing prevention strategies that focus on suicide prevention interventions across phases of the deployment (pre- and post-interventions).

- Validation of existing suicide risk assessment measures and screening tools in military and veteran populations (meta-analysis, cost-benefit analysis, and profitability matrix).

Research will be substantiated by (a) a thorough review and knowledge of scientific literature relevant to the purpose, (b) a theoretically and hypotheses driven approach, and (c) a translation into clinically and operationally relevant military applications.

### **Proposed Task**

Task 1: Comprehensive meta-analysis utilizing the Cochrane methodology (time frame: Months 1–4):

- a. Identification of relevant studies from Cochrane Library, EMBase, JAMAevidence, Medline, Medline (EBSCO), Medlineplus, PubMed
- b. Selection of studies for inclusion and evaluation of their strengths and limitations on the basis of clear, predefined criteria
- c. Systematic collection of data
- d. Appropriate synthesis of data

Full description of the Cochrane approach is detail in the *Cochrane Handbook for Systematic Reviews of Interventions* (March 2011) and the *Cochrane Handbook for Diagnostic Test Accuracy Reviews* (February 2017).

Task 2: Cost-benefit analysis (time frame: Month 5+)

- a. Identify approximately four interventions and four postvention programs from relevant studies
- b. Determine costs and benefits and assign a monetary value to each cost and to each benefit

The analysis will compare costs and benefits for approximately four interventions and postvention programs.

Task 3: Profitability matrix (time frame: Month 9+)

- a. Collect data from national organizations and agencies (National Registry of Evidence-Based Programs, The Centre of Research Excellence in Suicide, The Defense Suicide Event Report, Suicide Prevention Resource Center, One World in Data, Military Suicide Research Consortium, National Center for Health Statistics and the Veteran Administration)
- b. Analyze data

A profitability matrix is intended as an evaluation of the value of the specific intervention and postvention programs. Profitability will be expressed in terms of a ratio where the denominator is a gain in health from a measure (years of life, sight-years gained) and the numerator is the cost associated with the gain (Gold, Siegel, Russell, & Weinstein, 1996).

## **1. Background**

### **1.1. Project overview**

As a result of the rising suicide rate among the U.S. Armed Forces from 2001 to 2008 and the requirements of the National Defense Authorization Act for Fiscal Year 2009, the Secretary of Defense established the DoD Task Force on the Prevention of Suicide by Members of the Armed Forces. The task force's role was to examine, draw conclusions, and issue recommendations to improve DoD suicide prevention initiatives. In August 2010, the task force delivered 76 recommendations to improve the DoD's suicide prevention efforts.



The task force's first recommendation was to create a Suicide Prevention Policy Division at the Office of the Secretary of Defense within the Under Secretary of Defense for Personnel and Readiness to standardize policies and procedures with respect to resilience, mental fitness, life skills, and suicide prevention. This was achieved when the department created the DSPO in November 2011.

The Task Force on the Prevention of Suicide by Members of the Armed Forces concluded that effective suicide prevention entails supporting leaders at every level, providing service members the best available resources, and fostering a culture of Total Force Fitness. As a result of the task force's incisive and wide-ranging findings on suicide prevention, DSPO closely aligned its mission to its recommendations. Since its establishment, the DSPO's mission has been to provide advocacy, program oversight, and policy for DoD suicide prevention, intervention, and postvention efforts to reduce suicidal behaviors in service members, civilians, and their families. The department's efforts remain strategically aligned to support an environment where suicide prevention is integrated into military, civilian, and family policies and programs.

Despite the many efforts to combat concerns around suicide prevention, there is an urgent need for additional scientific research and innovative strategies relevant to suicide prevention that can be used to benefit and sustain the military and veteran populations, specifically within the Army in the western region of the United States (MOMRP, 2009). Effective prevention strategies are needed to promote the awareness of suicide while also promoting prevention, resilience, and a commitment to social change (CDC.gov, n.d.).

The increase in suicides among the military community has raised concern among policymakers, military leaders, and the public (RAND, 2011). In September 2017, the VA released data on veteran suicide for the first time in the history of the department. Data measuring suicide rates across states and regions of the country indicate that suicide rates amongst veterans in the western region and rural areas of the United States is higher than any other part of the country. The states of Montana, Utah, Nevada, and New Mexico had the highest rates of veteran suicide at 60 per 100,000, compared to the national rate of 38.4 per 100,000 for veteran suicides (SPRC, 2017).

### **1.2. Rationale**

The purpose of this grant proposal is to adopt the best practices and most cost-effective prevention and treatment strategies in the military community to reduce suicidality and suicides among military and veteran populations (MOMRP, 2009). A review of postvention strategies to directly benefit and preserve the human lives of the military and veteran population will also be offered.

### **1.3. Theoretical approach**

The CDC's social ecological model will be used to build, contextualize, and present foundational evidence to answer leadership questions. The social ecological model helps explain how problematic behaviors emerge at different levels (e.g., individual, relationship, community, and society) and helps show how the effects of an intervention at one echelon (e.g., community) can have consequences at other echelons (e.g., relationships). Further, it helps with understanding the range of factors associated with a risk of violence or protection from experiencing or perpetrating violence. As shown in Figure 2, the overlapping rings, illustrate how factors at one level, influences

factors at another level. The model also suggests that, in order to prevent violence, it is necessary to act across multiple levels of the model at the same time (CDC, 2018).

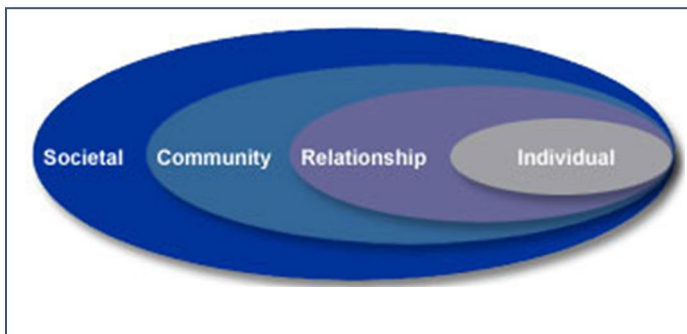


Figure 2. CDC's social ecological model.

The CDC provides a plethora of valuable information based on evidence-based studies that confirm the assumptions that prevention efforts for any health or disease issue require integrated multilevel efforts within a SEM (Cramer & Kapusta, 2017). There are benefits to aligning the SEM model to suicide prevention. First, the literature on suicide risk and protective factors tends to be fragmented by SEM level. A model such as this provides a potentially comprehensive framework for organizing risk and protective factor knowledge. Next, the SEM of suicide prevention can provide a foundation for multilevel intervention and prevention program design and implementation (Rubens & Shehadeh, 2014). Last, talk of a multilevel approach to suicide prevention can provide a framework for the reorganization of current theories of suicide. Causal theories of suicide do not fully integrate the multilevel perspectives (Cramer & Kapusta, 2017). To illustrate the brevity of the model as it relates to death by suicide, a search of terms such as *suicide*, *risk factors*, *protective factors*, *prevention*, *intervention*, *review*, and *meta-analysis* was conducted on articles from 1980 to 2017 published in Pubmed, Medline, Psychinfo, and Psycarticles to highlight major suicide risk and protective factors (see Table 1).

Table 1

*Compilation of Major Suicide Risk and Protective Factors Organized by Levels*

Risk factors	Protective factors
Societal:	Societal:
Economic downturn/depression	Healthy economy
Living location with less restrictive firearms laws	Living in location with more restrictive firearm laws
Seasonal variation	Mental health funding
Stigma about mental health and treatment	Northeast United States
Air pollutants	
Viruses/parasites	
Poverty	
Mountain region of the United States	
Western and southern United States	
Community:	Community:
Exposure to community violence	Crisis support lines/hotlines
Local suicide epidemic <sup>a</sup>	Healthcare/mental healthcare access
Barriers to healthcare access	Effective mental healthcare
	Trained gate keepers
	Community involvement
	School-based support and intervention programming <sup>b</sup>
Interpersonal/relationship:	Interpersonal/relationship:
Living in household with firearm	Presence of social support <sup>a</sup>
Exposure to suicide/contagion <sup>a</sup>	Use of social support <sup>a</sup>
Family violence	Perceived social support <sup>a</sup>

*Note.* Source: Cramer and Kapusta (2017).

<sup>a</sup>Strongest risk/protective factor for suicide risk.

<sup>b</sup>Risk or protective factor demonstrating unique importance for a specific population.

In the military, the social ecological model has been adapted to cover command, installation, and service levels. The social ecological model is used to guide research and interventions in the civilian domains as well. The research team view the social ecological model (see Figure 2) as a good evidence framework for this project because it is a model that has been empirically validated to explain a wide range of problematic behaviors, including suicidal behaviors in the civilian sector. This will allow MOMRP to more easily integrate and translate research evidence from the civilian sector to military environments. In addition, the SEM is a model that has been socialized with senior DoD leadership (e.g., executive director for force resiliency) and other DoD offices that address problematic behaviors in the military (e.g., Sexual Assault Prevention and

Response Office, Family Advocacy Program, Operation Live Well). Having the social ecological model will help to facilitate MOMRP's ability to exchange research evidence with other program offices because the social ecological model is commonly recognized and provides a common language with other program offices that may define risk and protective factors common to suicide in different ways.

#### **1.4. Technical approach to project and evaluation process**

The research team understands that suicide is a pressing challenge for DoD. As the proponent for suicide prevention in the military, research and data analysis efforts must be focused around three fundamental questions:

1. How well is DoD doing in reducing the number of suicidal behaviors?
2. What can DoD do to take better care of at-risk or suicidal members of the military community (e.g., service members, dependents, and civilian personnel)?
3. How can DoD do a better job at intervening with problems the military community faces before they escalate to such a point that an individual seriously considers taking his or her life?

To answer these questions, MOMRP must be involved in a blended approach of public health and social science methods involving original research design, secondary analyses of existing research, and integration of previous research findings.

Identifying measures of effectiveness for a complex problem such as suicide in the military is a difficult task because (a) some indicators of suicidal ideation and behaviors are difficult to detect and (b) it is difficult to demonstrate the extent to which a program or intervention led to or partially led to someone deciding not to take his or her

life. Since death by suicide is an irreversible outcome, and attempt by suicide represents a difficult outcome for many service members and their families to recover from, the goal of our effort is to identify measures of effectiveness that would identify and mitigate, if not completely reverse, problematic, self-destructive behaviors (e.g., substance abuse, relationship conflict) before they motivate an individual to decide to die by suicide.

Our approach begins with meeting with Faye Peiffer, Dr. Joan Hall, and other program stakeholders to discuss progress that has already been made on developing measures. The approach focuses on population-focused measures of effectiveness that do not point to measures of effectiveness at the programmatic or intervention level. We understand that there have been significant efforts to define and classify suicide prevention programs and interventions. The current MOMRP leadership must determine the extent to which these programs or interventions are effective. Our team's program evaluation approach will help identify these program- and intervention-level measures, as displayed in Table 2.

An evaluation to measure a program or an intervention's impact can take multiple forms. First, outcome measures can be reviewed and analyzed to determine whether short-term or long-term goals have been met with measurable indicators of increased behaviors, reductions in morbidity and mortality, or overall cost savings. Second, advanced statistical analyses can focus on effectiveness of specific elements of a program or intervention or the benefits of a program or intervention.

Table 2

*A Multidimensional Framework for Evaluating Effectiveness of Suicide Prevention**Programs and Interventions*

Measure type	Content of effectiveness to be measured	Potential measurement activities
Process	Alignment of goals to content	Discussion with program staff, unit leaders, key informants from target population
Process	Implementation fidelity	Discussions with and observations of program staff, unit leaders, key informants from target population
Outputs	Immediate by-products of programs and interventions	Retrieval and analysis of administrative records for trainings, referrals, and utilization of support staff or resources
Outcome	Short-term improvements in behaviors	Retrieve survey data from Service members and families
Outcome	Long-term improvements in quality of life	Retrieval of personnel and health records data from Service members and families, Command Units, and Installation Communities
Return on investment	Comparative effectiveness of one program or intervention over another	Meta-analysis of data on suicide-related outcomes across the targeted community
Return on investment	Cost-benefit comparison of a range of programs or interventions targeted at specific suicidal outcomes	Economic analysis and systematic review of programs and interventions across the targeted community

**1.5. Relevant literature**

MOMRP needs knowledgeable research staff who understand how to conduct evidence-based reviews to help make informed decisions relevant to suicidality and suicide among military and veteran populations. We approach technical and literature reviews as opportunities to examine published information in a particular subject area and sometimes within a certain time period. For this project, we reviewed literature and studies published between 2001 and 2017. The years 2001–2009 are critical because they were at the height of military suicide (see Section 1).

To remain current with industry trends relative to suicide prevention, we will conduct literature reviews on best practices and new developments in the areas of prevention, intervention, and postvention. As appropriate, we will leverage our institutional knowledge to identify scholarly, policy, scientific, and gray literature that

identifies new policy, program, or methodological challenges relevant to MOMRP. To supplement our understanding of the attitudes, behavioral intentions, and opinions related to suicidal attitudes and behaviors, we will review relevant DoD-sponsored literature. We will leverage suicide prevention, public health, and research method Subject Matter Experts to assess the validity of theoretical models and the fit of research methods applied in the literature to current or proposed research problems on suicide in the military. In our work, we structure complex search algorithms using controlled and free-text terms within bibliographic databases in the life sciences (Medline, EmBase, PubMed, Cochrane).

### **1.6. Citations**

A comprehensive list of citations can be found in Appendix A.

## **2. Hypothesis**

MOMRP needs research hypotheses grounded in theory, informed by existing empirical evidence, and crafted in such a way that they clarify the relevance of current suicide theories toward the issue of suicide prevention in the military. To develop research hypotheses, we will begin with a review of the literature. We will search for gaps and inconsistencies in the extant literature that require further empirical testing. In the field of suicide prevention, we understand that multiple theoretical models offer either competing or complementary explanations of factors that influence the decision to die by suicide. RAND's 2011 report titled *The War Within* described the problem of suicide in the military and presented intrapersonal and interpersonal correlates of suicide that drew from a broad range of theories describing cognitive (e.g., pervasive hopelessness), affective (e.g., negative emotions), behavioral (e.g., suicidal intent or planning), and



physiological (e.g., traumatic brain injury) origins to suicide prevalence and incidence. With this understanding of the diverse theoretical causes of suicide risk, we will craft hypotheses that explore how variables informed from these different theories interact among vulnerable populations and different preventive interventions and programs that may block or mitigate the negative impact of such interactions.

Our hypotheses will be structured in such a way that they match the statistical relationships demonstrated in past studies through advanced analytic techniques such as structural equation modeling. In addition, the terms we use in our hypotheses will reflect past research and current reporting standards generated from organizations such CDC, American Association of Suicidology, American Public Health Association, American Psychological Association, American Medical Association, and the Institutes of Medicine.

Hypothesis: What are the best practices and most cost-effective prevention and treatment strategies in the military community to reduce suicidality and suicides among military and veteran populations?

### **3. Technical Objectives**

The primary purpose for suicide prevention interventions is to aim at reducing risk factors and enhancing protective factors with the goal of lowering the risk of suicide (Ramchand et al., 2014), and postvention is intended to help decrease risk and promote healing (Ruocco, 2017). The technical objective is to answer the following questions related to suicide intervention and postvention in order to recommend and implement the best practices and most cost-effective prevention and treatment strategies within the

military community to aid in reducing suicidality and suicides among military and veteran populations.

- Between 2001 and 2017, what existing prevention intervention and postvention strategies were used across services, and specifically the Army, that aid in preventing and coping with death by suicide within the active-duty and veteran communities?
- What research has been done on existing suicide risk assessment measures and screening tools to aid the active-duty military and veteran populations, specifically the Army?

#### 4. Project Milestones

WORK PLAN/TIME LINE: Activities & Milestones	Year I	Year II	Days post	Progress reports (Complete only for progress reports)
Create or implement a competent Suicide Prevention Policy Division.	2018	2019	90	
Develop standard policies and procedures to assess mental fitness.	2018	2019	90	
Assess leaders to ensure they are providing best resources for service members.	2018	2019	90	
Collate evidence based research to collect data on suicide prevention strategies necessary to sustain military and veteran population mental health.	2018	2019	90	
Identify best practices and cost effective treatment to lower suicide incidence rates.	2018	2019	90	
Assess population needs and provide suicide counseling and support within family programs.	2018	2019	90	
Assess DoD standard process and procedures for intervening with problems military and veteran populations encounter.	2018	2019	90	
Define process for identifying and assessing suicidal ideation and behaviors of military and veteran population.	2018	2019	90	

Upon grant award, a comprehensive project plan will be developed that will include a work breakdown structure for each task in accordance with the deliverable schedule set forth by the project officer. The plan will incorporate a Gantt chart and RACSI matrix to show and monitor internal timelines. The project team will include agile

methodology to keep the project officer abreast of project progression and changes to the timeline in terms of delay, incorporate change management procedures prior to any deviations being made, and indicate the overall impacts to the project.

## **5. Military Significance and Impact Statement**

The DoD has been struggling with increasing rates of suicide among military personnel for a number of years. In an effort to combat what is said to be a public health crisis, the DoD continues to implement new programs and examine its policies in an effort to prevent more military men and women from taking their own lives. Because the evidence-based research is limited (Ramchand et al., 2015), it is challenging to identify and adopt the best practices and most cost-effective measures to help lower suicide rates. Therefore, more research and recommendations are needed, and because our team understands that sociocultural and public health expertise has become critical to policies and strategies intended to promote the health, well-being, and readiness of the Total Force (e.g., active, reserve, National Guard, veteran), the objective of this grant is to identify best practices and cost-effective prevention programs used in military communities to aid in the reduction of suicide and suicidality, as well as postvention practices.

## **6. Public Purpose**

The purpose of this project is to promote public health awareness through health research. Health research is intended to help inform effective ways to prevent and treat disease. The findings from this project will provide means to improve the care and treatment of military soldiers, veterans, and their families that are at risk or victims of death by suicide, as well as the general public. The impact of this grant award could have

a direct impact on clinical applications and policy changes that will address the needs for this targeted population.

This grant proposal is intended to yield important information about suicide trends and risk factors, outcomes of interventions and postventions programs, cost-benefit analysis, and a profitability matrix that will provide insights into an economic evaluation to ensure the effectiveness and efficiency of public health resource allocation.

## **7. Methods**

At the heart of science, research, policymaking, and other decision-making activities are the data. The VA/DoD Suicide Data Repository was established in 2013 and became operational in 2014 to serve as a comprehensive and longitudinal archive on suicide and other forms of mortality among veterans and service members. A number of data sources from other federal agencies, ranging from CDC's National Death Index, the Social Security Administration Death Register, the Defense Enrollment Eligibility Reporting System, and other DoD mortality, injury, health, and benefit databases can be used for supplemental purposes to support the findings and recommendations for this project.

In accordance with Section 2 (Research & Related Other Project Information Form), Block 11 (Other Attachments), of the solicitation, the principal investigator will address all pertinent issues related to the use of human participants or data in the proposed research. The principal investigator will adhere to the outlined practice and submit all required forms directly to the Human Research Protection Office to obtain data. The project team will also adhere to the protocols for accessing national databases.

The methodology is guided by the social economic model, the VHA approach to the Public Health Framework for Suicide, the National Strategy Strategic Direction, and the 2020 Army Strategy for Suicide Prevention. The areas of analysis under review will be prevention, intervention and postvention.

### **7.1. Methods for selecting data under review**

The Military Operational Medicine Research Program (MOMRP) sponsored the Military Suicide Research Consortium to develop and evaluate the efficacy and effectiveness of clinical interventions related to suicide prevention. Access to data in the Suicide Data Repository is available to all DoD and VA affiliated investigators and requests are reviewed by the Board of Governance.

### **7.2. Meta-analysis**

We set up automated queries in several scholarly research databases (e.g., Google Scholar, Medline, PsycINFO, Sociofile) with suicide-related search terms derived from the DSPO taxonomy of research outcomes to monitor the publication of new research in suicide prevention. In addition, we will conduct periodic checks and Rich Site Summary feeds of non-DoD websites known to release new research on suicidology, which may be relevant to the military, such as the American Association of Suicidology, SPRC, Military Suicide Research Consortium, and American Suicide Prevention Foundation.

We will use the Cochrane methodology to conduct an environmental scan of policy, research, and relevant resilience programs, including the following:

- Policies looking for risk and protective factors of resilience and suicide prevention

- Research articles, reports, case studies, chapters, books, and military websites examining relationships between domain (mind, body, spirit, social) and resilience, well-being, hardiness, and total fitness
- Recommendations, policies, measurement tools, and metrics specifically related to resilience from government agency web sites and nationally recognized research-based health organizations

### **7.3. Cost-benefit analysis**

We will incorporate an economic evaluation in which the costs of the intervention are compared to the benefits in turns of dollars. The cost-benefit analysis will consider all costs and benefits incurred over time, including those postintervention, because benefits could occur well into the future.

The analysis will include two summary measures: Benefit–cost ratio ( $B / C$ ) and net benefit ( $B - C$ ). The benefit-cost ratio is found by dividing the intervention’s net benefits by its net cost. The result indicates that, “for every dollar spent on the intervention,  $X, Y$  dollars are saved” (Lane, Soyemi, & Corso, 2016). If the ratio is greater than \$1, then the intervention produces more benefits than it costs. In contrast, a negative ratio comes from a negative numerator or denominator and infers that the benefits have negative costs or negative benefits, respectively.

The second summary measure is the net benefit. This measure is derived by subtracting the net benefits from the net cost. The intervention will have a positive return on investment if the net benefits are greater than zero.

The existing interventions will be assessed based on one of three categories: direct, indirect, or intangible. The direct benefits are the medical expenses saved because

of suicide prevention or the treatment associated with the disease or illness linked to suicide risk. Productivity gains as a result of prevention or treatment, such as improved health outcomes as a result of soldier satisfaction, morale, and retention, are considered indirect benefits. Intangible benefits are difficult to quantify. Improved psychological health is an intangible benefit.

#### **7.4. Profitability matrix**

To capture a holistic view of each selected intervention and postvention in terms of evaluation for both program effectiveness and economic feasibility (profit), we will construct a profitability matrix (see Figure 3). The matrix will look at each intervention (respectively) in its current state (i.e., what is) and possible future state (i.e., what could be) based on evidence from existing data. The purpose is to highlight the “sweet spot” within existing programs, focus on what can be done differently, and help MOMRP quantify strategy execution for alignment with goals and objectives as it relates to death by suicide within the U.S. mid-western population. Using this type of segmentation will reveal which programs benefit the target population and yield the highest gains or returns (lives touched).

**Profit Matrix**

		Product Category			
		Highest Profit 1	Profitable 2	Marginally Profitable 3	Loss 4
Customer Category	Highest Profit A				
	Profitable B				
	Marginally Profitable C	↑	↑		
	Loss D				

Adapted from "A New Way to Maximize Contribution", by Robert Sabath, Supply Chain Management Review, May-June, 2003

Figure 3. Profitability matrix.

Upon the conclusion of this study and based on the multi-phased approach consisting of the findings from the meta-analysis, cost-benefit analysis, and profitability matrix, a recommendation will be offered for adopting the best practices and the most cost-effective prevention and treatment strategies in the military community to reduce suicidality and suicides among military and veteran populations (MOMRP, 2009). The overall objective is to evaluate the strength and weaknesses of intervention and postvention, where they are being used, and the effectiveness as it relates to the targeted population. The outcome of the analysis is to determine the impact of existing programs and to apply findings to the initial purpose for the grant.

### 7.5. Description of compensation plan

There will be no compensation plan associated with this grant proposal, because the research will be conducted using existing data.



## **7.6. Type of Consent**

This grant proposal meets the criteria under the Federal Policy for the Protection of Human Subjects (“Common Rule”) for a waiver of informed consent. This project will involve no more than minimal risk to subjects and family members, as it will involve secondary analysis of existing data (HHS.gov, 2018). Examples of data points could include sex; age; race; ethnicity; education; marital status; component; rank/grade; enlisted occupational group; officer occupational group; history of deployment; event location country; event setting; event method; used alcohol during event; used drugs during event; death-risk gambling; planned/premeditated; observable; suicide note left; communicated potential for self-harm; residence at time of event; reside alone at time of event; gun in home or immediate environment; duty environment; deployed at time of event; any mental health diagnosis; sleep disorder; history of traumatic brain injury; family history of mental illness; prior self-injury; psychotropic medication in past 90 days; pain medication at time of event; health and social services in past 90 days; failed or failing relationship in past 90 days; friend and family stressors in past 90 days; history of friend or family death by suicide; administrative or legal problems in past 90 days; excessive debt or bankruptcy in past 90 days; workplace in past 90 days; abuse, assault, or harassment victimization in past year; and abuse, assault, or harassment perpetration in past year (DoDSER, 2016).

## **7.7. Major inclusion and exclusion criteria**

For this grant, the major inclusions include active-duty or retired Army soldiers who are at risk to death by suicide or have committed suicide and their survivors. Participants must currently live in the mid-west or they must have lived in the western

region of the U.S. during the time of the incident. The western region is defined as the western United States and rural areas, specifically Montana, Utah, Nevada, and New Mexico. This area has been classified as having the highest rate of suicide among the targeted population (Associated Press, 2017). Additionally, no individuals will be asked to participate in this study. Only secondary data will be used. A major exclusion will be the rest of the population that does not meet the inclusion criteria as outlined above.

### **7.8. Participants**

Existing data from DoD files from Army Service Components and their families will be used in this grant. No data outside of secondary data will be collected or used.

### **7.9. Military Population**

The annual DoDSER presents comprehensive data on suicide and suicide attempts from all service branches. In September 2017, the VA released data on veteran suicide for the first time in the history of the department. Data measuring suicide rates across states and regions of the United States indicate that suicide rates among veterans in the western region and rural areas of the United States is higher than any other part of the country. Montana, Utah, Nevada, and New Mexico were found to have the highest rates of veteran suicide at 60 per 100,000, compared to the national rate of 38.4 per 100,000 for veteran suicides (SPRC, 2017).

As recent as March 31, 2018, the DoD *Quarterly Suicide Report*, published by the DSPO, released data that provide the number of deaths by suicide. In the first quarter of 2018, the report showed that 80 deaths by suicide occurred in the active component (Air Force, Army, Marine Corps, Navy), with Army having the highest rate of incidence; 18 deaths by suicide in the reserves (Air Force Reserve, Army Reserve, Marine Corps

Reserve, Navy Reserve), with the Army Reserve again having the highest rate of incidence; and 23 deaths by suicide in the National Guard (Air National Guard, Army National Guard), and again the Army National Guard had the highest incidence rate. See Appendix B for a comprehensive breakdown by components (Vazquez, 2018). For purposes of this grant, the military population under focus will be the Army in the mid-western region of the United States.

### **7.10. Interventions and Postventions**

This grant process will consider four interventions and four postventions that will be selected based on evidence-based research and literature. Interventions are aimed at reducing risk factors and enhancing protective factors, with the goal of lowering the risk of suicide. Interventions can target the entire population of veterans, at-risk subgroups, or high-risk individuals (Ramchand et al., 2014), and postvention is intended to help decrease risk and promote healing (Ruocco, 2017). We will focus on programs targeted toward the Army and implemented in the Midwest, specifically programs for active-duty soldiers at risk, veterans, and military family members.

## **8. Transition Plan**

A successful transition is the key to retaining critical staff and their knowledge, while ensuring continuous service to MOMRP and its stakeholders. Our transition approach is based on our experience successfully transitioning federal contract work and understanding that although transitions pose challenges, they are also an opportunity for improved project management and higher quality or differently skilled staff.

Post-award, we will provide MOMRP with a copy of a draft transition plan for review, discussion, and feedback. We will work in good faith with the incumbent or other

grantees to determine the nature and extent of the required phase-in and phase-out services. The transition plan will specify activities, milestones, and dates for transferring responsibilities for all aspects of the work. The transition plan will be reviewed with the Contracting Officer Representative and MOMRP leadership for approval. The plan will include project management, staffing, and knowledge transfer activities.

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## Appendix B: Grant Team

Emory University – Rollins School of Public Health will serve as the prime contractor, with Dr. Suzanne Hemphill as an independent investigator. Dr. Hemphill will serve as the principal investigator with collaboration from her team of research analysts and public health analysts. Collectively, the team brings to MOMRP:

- **A focus on science and research** providing a breadth of science and research support to DoD and HHS and its partners on public health’s most vexing problems including injury prevention (intentional and unintentional), environmental health, emerging infectious diseases, and chronic diseases, among others. The services provided to both DoD and HHS are directly relevant to the statement of work (SOW) under this solicitation, including data management, quantitative and qualitative analyses, evaluation, technology support, studies, surveys, and related regulatory compliance (OMB, IRB, HIPAA, FISMA/NIST).
- **An understanding of MOMRP and its mission** is supported under the Defense Health Program appropriations under “Battle Casualty and Psychological Health Research” targeting prevention, diagnosis, treatment, and mitigation of deployment-related injuries and psychological health concerns.
- **Highly skilled staff and subject matter experts** with well over 60 years of working experience with a minimum of a Master’s degree in education. The team is augmented by a cadre of public health, social science, and research professionals. Finally, the team has “reachback” into a network of subject matter experts (SMEs) that can be engaged when specific expertise and advice is required.

## Appendix C: DoD Service and Components—Death by Suicide (2012 through Q1, 2018)

### Attachment A

#### DoD Service and Component - Death by Suicide CY2012 thru Q1 2018

DoD Service and Component	CY2012	CY2013				Total 2013	CY2014				Total 2014	CY2015				Total 2015
	Total	Q1	Q2	Q3	Q4		Q1	Q2	Q3	Q4		Q1	Q2	Q3	Q4	
Active Component	321	67	61	70	58	256	72	72	59	73	276	60	71	72	63	266
Air Force	50	7	14	15	12	48	19	11	13	19	62	14	17	16	17	64
Army	165	33	28	33	27	121	26	33	32	35	126	33	28	32	27	120
Marine Corps	48	11	12	14	9	46	11	9	6	8	34	3	12	13	11	39
Navy	58	16	7	8	10	41	16	19	8	11	54	10	14	11	8	43
Reserve Component	204	55	56	53	56	220	46	34	48	42	170	42	54	72	46	214
Reserve	72	27	16	23	20	86	24	14	20	21	79	13	21	37	18	89
Air Force Reserve	3	1	2	5	3	11	2	1	3	4	10	1	1	3	4	9
Army Reserve	50	21	11	15	12	59	13	4	15	10	42	9	17	21	8	55
Marine Corps Reserve	11	4	1	2	4	11	4	5	1	2	12	1	1	8	1	11
Navy Reserve	8	1	2	1	1	5	5	4	1	5	15	2	2	5	5	14
National Guard	132	28	40	30	36	134	22	20	28	21	91	29	33	35	28	125
Air National Guard	22	2	2	6	4	14	6	2	4	2	14	8	5	5	3	21
Army National Guard	110	26	38	24	32	120	16	18	24	19	77	21	28	30	25	104

DoD Service and Component	CY2016					CY2017					CY2018	
	Q1	Q2	Q3	Q4	Total 2016	Q1	Q2	Q3	Q4	Total 2017	Q1	Total 2018
Active Component	62	56	63	79	280	75	58	70	82	285	80	80
Air Force	10	15	14	22	61	19	12	14	17	62	10	10
Army	31	20	42	37	130	33	24	26	33	116	35	35
Marine Corps	12	11	8	6	37	7	9	15	11	42	12	12
Navy	9	10	19	14	52	16	13	15	21	65	23	23
Reserve Component	56	51	45	51	203	53	63	65	38	224	41	41
Reserve	18	24	18	20	80	21	29	27	16	93	18	18
Air Force Reserve	5	2	1	2	10	2	4	5	0	11	0	0
Army Reserve	6	13	11	11	41	12	20	17	14	63	12	12
Marine Corps Reserve	4	6	5	4	19	5	3	2	0	10	4	4
Navy Reserve	3	3	1	3	10	2	2	3	2	9	2	2
National Guard	38	27	27	31	123	32	39	38	22	131	23	23
Air National Guard	5	5	1	3	14	2	4	3	3	12	3	3
Army National Guard	33	22	26	26	109	30	35	35	19	119	20	20