



Fuel Handler of the Air Cavalry, by Mario H. Acevedo, watercolor on paper, Persian Gulf, 1991.
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Chapter 13

MEANS RESTRICTION AND SUICIDE PREVENTION IN THE US ARMED FORCES

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THE PROBLEM OF SUICIDE IN THE US MILITARY

Over the past several years, considerable national attention has been paid to the tragedy of suicide in the US Armed Forces. Although the US military has typically had suicide rates lower than a demographically matched subset of the general US population, this trend has changed over the past decade, and most notably since 2005 when the rate of suicide in the Army and the Marine Corps surpassed that in the general US population.¹ This higher rate occurred despite considerable human and financial resources expended in confronting the challenge of suicide by US military personnel. Rates in the Navy and Air Force, with some undulations over the years, have increased only modestly from 2001 levels.

In 2005, suicide was the fourth leading cause of death among US military personnel, after hostile action, accidents, and illness. In 2008, suicide exceeded illness to become the third leading cause of death.² In 2012, deaths from suicide among US military personnel exceeded those killed in combat in Afghanistan, as reported by the Associated Press.³ The Department of Defense Suicide Event Report (DoDSER) for that same year noted 304 deaths among US military personnel determined by the Armed Forces Medical Examiner System to have been suicides, and another 46 deaths strongly believed to have been suicides but still pending final determination,⁴ a significant increase from the 301 confirmed or suspected suicides reported the previous year. The rate of suicide in the Army and Marine Corps for 2012 was 29.7 per 100,000 and 24.3 per 100,000, respectively; both these rates are increased from the 2010 rates of 21.72 per 100,000 for the Army and 17.21 per 100,000 for the Marine Corps.⁴ The Air Force suicide rate for 2012 was 15 per 100,000, half the Army rate and essentially unchanged from 2010 (15.51 per 100,000).⁵ When compared to preliminary 2011 US vital statistics data, rates of suicide in the US military well exceed overall national rates (12.0/100,000) as well as the rate for Americans aged 25 to 44 years (14.9/100,000).⁶

How and Why Service Members Die by Suicide

Given these disheartening statistics, the individual services and the Department of Defense (DoD) have endeavored to understand the methods of suicide used by US military personnel and the risk factors that may contribute to such behavior. The DoDSER statistics show that the vast majority of suicide deaths in US military personnel in 2012 resulted from either a self-inflicted gunshot or hanging.⁶ Firearms caused 65.1% of suicide deaths, and of these, just over three-quarters

(75.8%) were nonmilitary weapons.⁶ Firearms were present in the homes of more than half of completed suicides. Asphyxiation, to include hanging, accounted for a quarter of all deaths by suicide.

Service members who commit suicide are typically male, Caucasian, in the active component, younger than 25 years of age, and in the enlisted pay grades of E1 through E4. Although some studies have suggested that traumatic brain injury (TBI) and posttraumatic stress disorder may be risk factors for suicide,^{7,8} the majority (57.9%) of those service members who died by suicide in 2012 did not have a known history of a mental health disorder. However, the loss of a relationship, legal difficulty, or job loss or demotion was frequently present in service members who committed suicide. In addition, most did not communicate to others their intent to kill themselves before doing so, which suggests that many of these suicides may have been impulsive. Less than half of those who died by suicide in 2012 had a history of deployment as part of Operations Iraqi Freedom, Enduring Freedom, or New Dawn; and fewer than 10% of the suicides among service members in 2012 occurred during deployment.⁴

In their analysis of data from the Naval Health Research Center's Millenium Cohort Study, a prospective longitudinal study of military personnel designed to identify service-related effects on health, LeardMann and colleagues found that neither the number and length of deployments nor combat experience were associated with an increased risk for suicide.⁹ Rather, mood disorders and alcohol-related problems were significantly related to risk for suicide ($P < .001$).⁹ The findings, however, were based on only 83 suicide deaths among the study cohort for the period between mid-2001 and the end of 2008; whereas 2012 saw a 30% increase in the number of active duty suicides over 2008.¹⁰

Efforts to Reduce the Number of Suicides in the US Military

In response to the increase in the rate of suicide among US military personnel, DoD and each of the service branches have undertaken initiatives aimed at—among other goals—increasing suicide awareness, decreasing the stigma, and ensuring prompt referral for those needing evaluation and treatment. Despite these programs, the suicide rate among US military personnel has increased since 2001, with an increase from 15.8 per 100,000 in 2008 (when the DoD first standardized suicide reporting across all the services)

to 22.7 per 100,000 in 2012.^{4,10} A detailed description of each service's suicide prevention programs is beyond the scope of this chapter. An excellent overview of the various programs each service has used since the 1980s to address suicide in the military can be found

in the August 2010 Report of the DoD Task Force on the Prevention of Suicide by Members of the Armed Forces.¹ However, certain service-specific and DoD-wide programs merit brief mention in the following paragraphs.

THE US AIR FORCE SUICIDE PREVENTION PROGRAM

Air Force Instruction 90-505, the Air Force Suicide Prevention Program, is an updated version of a program initiated by the Air Force in 1996 in response to an increase in suicide rates in the early 1990s.¹¹ Before implementation of the program, the Air Force had seen an increase in its suicide rate from approximately 10 to 12 suicides per 100,000 to almost 17 per 100,000.¹² The Air Force program takes a community-based approach and comprises 11 tenets:

1. Leadership involvement
2. Addressing suicide prevention through professional military education
3. Guidelines for commanders on use of mental health services
4. Unit-based (community) preventive services

5. Wingman culture (community education and training)
6. Investigative interview policy (hands-off policy)
7. Trauma-stress response
8. Community Action Information Board and Integrated Delivery System
9. Limited privilege suicide prevention program
10. Commander consultation tools
11. Suicide event tracking and analysis¹¹

A 2003 study by Knox and colleagues identified a 33% relative risk reduction for suicide in Air Force personnel after introduction of the program.¹³ A more recent review found that, with the exception of 2004, the Air Force experienced a reduction in its mean suicide rate of about 21% since implementation of the program.¹⁴

POSTDEPLOYMENT HEALTH ASSESSMENT AND REASSESSMENT

The postdeployment health assessment (PDHA) and reassessment (PDHRA), instituted in 2003 and 2005, respectively, are instruments designed to collect data related to a service member's experiences during deployment as well as identify behavioral or physical symptoms that warrant referral for further evaluation. A PDHA should be completed within 5 days pre- or

postdeployment, but not later than 30 days postdeployment. The PDHA is supposed to be reviewed by a healthcare provider in a "face-to-face" interview with the service member. The PDHRA is completed 90 to 180 days postdeployment. As with the PDHA, the PDHRA is to be reviewed by a healthcare provider, and any necessary referrals are made at that time.

DEFENSE CENTERS OF EXCELLENCE FOR PSYCHOLOGICAL HEALTH AND TRAUMATIC BRAIN INJURY

The Defense Centers of Excellence were established in November 2007 to "integrate knowledge and identify, evaluate and disseminate evidence based practices and standards for the treatment of psychological health and TBI within the Defense Department."¹⁵ The Defense Centers of Excellence comprise three centers: (1) the Defense and Veterans Brain Injury Center, charged with serving service members and veterans

with TBI; (2) the Deployment Health Clinical Center, which is charged—among other things—with compiling data from the PDHA and PDHRA; and (3) the National Center for Telehealth and Technology, which is involved in the evaluation and deployment of new technologies in support of psychological health and TBI, and compiles and publishes data for the annual DoDSER reports.

ARMY STARRS

According to its web site, the Army Study To Assess Risk and Resilience in Service (STARRS) is "the largest study of mental health risk and resilience ever conducted among military personnel."¹⁶ In collabo-

ration with the National Institute of Mental Health, the Army STARRS study, which runs through 2014, is designed to analyze risk for suicide, as well as psychological resilience, in military personnel, with

the hope that the findings of this study will inform suicide prevention, resilience enhancement, and other strategies designed to reduce the rates of suicide in the military population.

A recently published study of the Army STARRS data showed that factors increasing the risk for suicide included being male, Caucasian, and junior enlisted rank; these factors are consistent with the most recent DoDSER findings. Other factors included a recent demotion and a currently or previously deployed soldier.¹⁷ Although the Army STARRS study did find a correlation between deployment and suicide that was not identified in the Millenium Cohort Study by

LeardMann et al, the different study designs as well as the populations studied (all armed services in the case of the Millenium Cohort Study, compared to the Army-centric Army STARRS) may account for this discrepancy.

In another study based on the Army STARRS data by Nock and colleagues, about one-third of postenlistment first suicide attempts were associated with preenlistment mental disorders, particularly panic disorder, posttraumatic stress disorder, and intermittent explosive disorder, whereas postenlistment intermittent explosive disorder and depression were also associated with an increased risk for attempted suicide.¹⁸

REPORT OF THE DEPARTMENT OF DEFENSE TASK FORCE ON THE PREVENTION OF SUICIDE BY MEMBERS OF THE ARMED FORCES, AUGUST 2010

The National Defense Authorization Act (NDAA) of 2009 provided for the establishment of a “task force to examine matters relating to prevention of suicide by members of the Armed Forces” and required the task force to “submit to the Secretary (of Defense) a report containing recommendations regarding a comprehensive policy designed to prevent suicide by members of the Armed Forces.”¹ The report of the task force described four main focus areas for a suicide prevention program: (1) organization and leadership; (2) surveillance, investigation, and research; (3) wellness enhancement and training; and (4) access to, and delivery of, quality healthcare. Within the four focus areas, 76 specific recommendations were made by the task force, which was guided by the following principles:

- Suicide and suicidal behaviors are preventable.
- Suicide prevention begins with leadership and requires engagement from all facets of the military community.
- Suicide prevention requires long-term, sustained commitment using a comprehensive public health approach.
- Service member wellness and fitness (mind, body, and spirit) is essential to mission accomplishment (and suicide prevention).
- Recommendations of the task force should reflect the best available practices and scientific evidence, as well as expert consensus.
- The recommendations should be consistent with the culture of the armed forces and capitalize on the strengths of the armed forces.¹

MEANS RESTRICTION

Means restriction, as defined by Johnson and Coyne-Beasley, is the idea “to separate, in time and space, a particularly lethal means with which to commit suicide from those who would attempt suicide.”¹⁹ Means restriction includes such strategies as placing barriers on bridges to prevent jumping, limiting the availability of toxic chemicals or drugs, detoxifying gas in homes, installing catalytic converters in cars, and restricting access to firearms. In their review of studies of suicide prevention interventions published between 1966 and mid-2005, Mann and colleagues found that educating physicians on recognizing and treating depression, and restricting access to lethal means of suicide, were effective interventions.²⁰ The primary focus of this section is on restricting access to firearms as a method of suicide prevention and its potential to reduce suicides in the military.

Means Restriction and Suicide Prevention

The notion of restricting access to firearms as a method of reducing the number of suicides in the US military may appear at first glance to be both counterintuitive and impractical because firearms and other methods to inflict injury or death are a stock-in-trade of any military organization. However, a considerable body of literature exists to support the benefits of this approach as part of an overall suicide prevention strategy. This strategy is based on four characteristics of suicide in general, and suicide in the military in particular.

First, suicide is often an impulsive act. In 1980 Williams, Davidson, and Montgomery at the University of Tasmania studied—shortly after admission to a hospital—two cohorts of persons who had attempted suicide and found that 40% of attempters had

contemplated suicide for less than 5 minutes before acting.²¹ Simon and colleagues replicated these findings in their more recent study of near-lethal suicide attempts among 153 people aged 13 to 34 years, in which 24% attempted suicide within 5 minutes of deciding to do so.²² Interestingly, both studies found that alcohol use before the attempt did not significantly increase the risk for impulsively attempting suicide. Using a less conservative definition of impulsivity, Deisenhammer and colleagues found that for almost half of 82 suicide attempt survivors, the time from first thought of suicide to actual attempt was 10 minutes or less.²³ In their study of 30 serious suicide attempters, Peterson and colleagues said more than half contemplated the act for less than 24 hours.²⁴

Second, the presence of firearms tends to increase the overall risk of suicide, not merely the proportion of suicides in which a firearm was used. David Hemenway, Matthew Miller, and their colleagues at the Harvard School of Public Health have conducted a considerable amount of research in this area. The findings of much of this research are available on their web site (<http://www.meansmatter.org>).

Miller and his colleagues studied the question of whether increased availability of firearms increased the overall number of suicides, rather than simply the proportion of suicides by firearms, and found that an increase in firearm availability was associated with an increased suicide rate.^{25,26} Moreover, these findings are independent of rates for past suicidal thoughts or depression. Hemenway and Miller found that, when analyzing suicide rates across the nine US census regions, gun ownership is positively correlated with the suicide rate, even after controlling for lifetime rates of either major depression or suicidal thoughts.²⁷

Many studies have demonstrated that having a firearm in the home is associated with an increased risk of suicide using a firearm.²⁸⁻³¹ In their telephone survey of US households, Betz, Barber, and Miller found that while no statistically significant difference exists between reported suicidal thoughts and plans in homes with or without a firearm, in those who reported a past suicidal plan, a firearm was seven times more likely to be a part of the plan if there was one in the home, compared to those who did not have one in the home.³²

Third, the relationship between guns and military personnel and suicide means that focusing on firearms means restriction as a suicide prevention strategy should be a priority. Those in the military are more likely to own a firearm when compared to veterans or those with no military service.³³ Firearms are the most lethal of the eight most common methods of suicide, causing death in 91% of cases, as

determined by Miller and colleagues in their study of method-specific case-fatality rates for suicide in the northeastern United States.³⁴ As the DoDSER and other service-specific data have demonstrated, firearms are the most common cause of death in military suicides, and the majority of those weapons are personally owned.

Fourth, the lack of method substitution, or choosing another method when one's "preferred" method of suicide is unavailable, is another principal finding contributing to the success of means restriction. If method substitution were commonplace, then restricting one means of suicide would not be expected to result in an overall decrease in the suicide rate, merely a reduction in the proportion of suicides in which a particular method was used, as suicidal persons would merely choose another method. However, this is not borne out by the data. Daigle concluded that when a certain suicide method is restricted, displacement toward other methods appears small.³⁵ In their longitudinal study, Miller and colleagues not only identified a positive correlation between firearm ownership and suicide rates, but also that declines in firearm ownership were related to a decrease in both overall suicide rates and suicide using firearms among men, women, and children.³⁶ These findings are further supported by a study of suicide in the United Kingdom following the replacement of coal gas with natural gas. Before this time, asphyxiation by carbon monoxide poisoning was the most common suicide method in the United Kingdom.³⁷ After toxic coal gas (with a high carbon monoxide content) was substituted with natural gas, the overall suicide rate decreased dramatically; there was only a small increase in the use of other suicide methods, but this modest increase did not overtake the reduction in the overall suicide rate because of the gas substitution.³⁷

More recently, Bridge and colleagues studied changes in the method of suicides among US adolescents aged 15 to 24 years of age between 1992 and 2006.³⁸ During this time, the overall suicide rate in this age group decreased from 9.14 per 100,000 to 7.01 per 100,000. Much of this decrease resulted from the decrease in firearm use (-2.68/100,000) as a suicide method, which Bridge attributed to means restriction practices. Although he noted a significant increase in suicide by hanging or suffocation (+0.84/100,000), this substitution of hanging for other lethal means of suicide, as with the British experience following the introduction of natural gas, was not sufficient to overtake the marked reduction in suicide by use of a firearm, thereby resulting in an overall lowering of the suicide rate in this age group.³⁸

The Potential for Means Restriction to Decrease Suicide

It is for all the reasons listed above that means restriction, especially for firearms, can be an important component of any suicide prevention strategy including those for the US Armed Forces. Since many—if not most—suicides are impulsive, limiting immediate access to lethal methods of suicide (such as firearms) not only reduces the number of deaths caused by this method, but also allows time to intervene during a suicidal crisis. Suicidal crises are typically short-lived, and the period of risk is usually not more than a few days.³⁹ As firearms are the most lethal of the most commonly used suicide methods, even if one were to substitute another method in a suicide attempt, the method used is likely to be less immediately lethal. As more than 90% of persons who survive a suicide attempt do not subsequently commit suicide, restricting access to suicide methods with immediate lethality, such as firearms, would be expected to both decrease the total number of suicides as well as decrease the number of suicides using this method.³⁰

In the Israeli Defense Force, a policy change in 2006 requiring soldiers to leave their firearms on base, rather than taking the weapon home with them on weekend leave, resulted in a 40% decrease in the total suicide rate in 2007–2008.³⁹ Interestingly, most of this reduction resulted from a decrease in suicides over the weekend; the rates of suicide occurring during the week did not change significantly.³⁹

Currently, no specific policies exist in any of the military services addressing means reduction, specifically access to firearms. The report of the DoD task force does address the subject, recommending the establishment of “clear DoD, Joint and Service guidance for removal and subsequent reissue of military weapon and ammunition for service members recognized to be at risk for suicide.”⁴¹ Although it is likely that these measures will help prevent some of the suicides in which a service weapon is used, the temporary restriction of access to personal firearms during a suicidal crisis should also be addressed.

However, section 1062 of the 2011 NDAA included language that states that the Secretary of Defense “. . . shall not prohibit, issue any requirement relating to, or collect or record any information relating to the otherwise lawful acquisition, possession, ownership, carrying, or other use of a privately owned firearm, privately owned ammunition, or another privately owned

weapon by a member of the Armed Forces or civilian employee of the Department of Defense on property that is not (1) a military installation; or (2) any other property that is owned or operated by the Department of Defense;” one exception to this rule is in cases where “a member of the Armed Forces constitutes a threat to the member or others.”⁴⁰ The introduction of this language into the 2011 NDAA was in response to—among other things—regulations at certain military bases that required service members to register their privately owned firearms kept off base.⁴¹ Whether it was the intent of the legislation to limit the ability of military behavioral health providers or military commanders from inquiring about privately owned weapons in situations where a service member may be at risk of harming himself or others, some believed the language of the legislation did just that, unless the service member specifically stated that he or she was contemplating hurting himself or herself or others.⁴² Language in the 2012 NDAA amended section 1062(c) of the 2011 Act by inserting language that would “. . . authorize a health professional that is a member of the Armed Forces or a civilian employee of the Department of Defense or a commanding officer to inquire if a member of the Armed Forces plans to acquire, or already possesses or owns, a privately-owned firearm, ammunition, or other weapon, if such health professional or such commanding officer has reasonable grounds to believe such member is at risk for suicide or causing harm to others.”⁴³

Other attempts have been made to restrict health-care providers—specifically physicians—from discussing privately owned weapons with patients. In 2006 both the Virginia and West Virginia legislatures introduced bills that would have restricted a physician’s ability to ask patients if they owned firearms in order to advise on methods to reduce the risk of injury from firearms.⁴⁴ Although neither of these bills became law, these proposals, along with section 1062 of the 2011 NDAA, are examples of the challenges faced in balancing Second Amendment rights with the taking of prudent measures to restrict patients’ access to firearms in times of emotional crisis.

Clinicians’ efforts to convince caregivers of the importance of removing firearms from the home are not always successful. In a study involving the parents of adolescents with major depression, of those parents who reported having a firearm in the home, only 26.9% reported having removed the weapon by the end of the acute trial of treatment.⁴⁵

CONCLUSION

It is clear that efforts to reduce the number of suicides in the US Armed Forces require a multipronged approach. Promptly identifying service members with

behavioral health conditions that increase the risk of suicide, educating providers to recognize the signs of these conditions early, decreasing the stigma of seeking

mental healthcare, and making behavioral healthcare readily available—all of these are important strategies in reducing the tragedy of suicide in the US Armed Forces. Means restriction, especially with respect to both service and privately owned firearms, can be an important complement to these strategies. The Canadian Forces Expert Panel on Suicide Prevention,⁴⁶ the DoD Task Force report, and the Rand Corporation report on suicide in the US military⁴⁷ all list means reduction as one of several priorities for intervention. David Hemenway, Director of the Injury Control Research Center at the Harvard School of Public Health, states, “Too many clinicians seem to believe that

anyone who uses a gun to attempt suicide must be serious enough that if a gun were not available, they would find an equally lethal way to kill themselves. This belief is invalid. Physicians need to embrace all effective measures that can prevent completed suicide, including means restriction.”⁴⁸

Those who are intent on killing themselves are ultimately likely to succeed. As such, means restriction may not deter the determined suicide. But given the impulsive nature of many suicides and the lethality of firearms as a suicide method, means restriction may be an effective component in an overall strategy to reduce the risk of suicide in the military population.

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