Preventing Veteran Suicide

A Landscape Analysis of Existing Programs, Their Evidence, and What the Next Generation of Programs May Look Like

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About This Report

Preventing veteran suicide is a national priority for government, veteran advocacy groups, and the private sector. This attention has led many individuals and organizations to leverage their expertise to create, expand, or promote activities that they hope will prevent future deaths. While the number and array of diverse approaches reflect a nation committed to a common goal, they also can create confusion. Advances in technology, including new medical devices and technologies fueled by artificial intelligence, and novel (or newfound evidence for existing) pharmacological approaches also generate questions about the future of veteran suicide prevention. In this report, we provide an analysis of current and emerging approaches to prevent veteran suicide. We provide a framework that organizes current approaches, how they complement each other, how they might change, their evidence for preventing veteran suicide, and why they might (or might not) work. Individuals and organizations who are committed to preventing veteran suicide and seeking to design evidence-informed, comprehensive suicide prevention strategies will benefit from the framework and evidence reviewed in this report, in addition to the recommendations we developed from these data.

RAND Epstein Family Veterans Policy Research Institute

This work was conducted within the RAND Epstein Family Veterans Policy Research Institute, which is dedicated to conducting innovative, evidence-based research and analysis to improve the lives of those who have served in the U.S. military. Building on decades of interdisciplinary expertise at RAND, the institute prioritizes creative, equitable, and inclusive solutions and interventions that meet the needs of diverse veteran populations while engaging and empowering those who support them. For more information, visit veterans.rand.org or email veteranspolicy@rand.org.

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Summary

Veteran Suicide and the National Response

Since 2001, more than 6,000 U.S. veterans have died by suicide each year. The country has responded with a diverse set of prevention activities funded and implemented by government, nonprofit, and private actors. These efforts reflect a nation committed to a common goal and the potential for creative solutions, but they also can create confusion. Advances in technology and novel (or newfound evidence for existing) pharmacological approaches also generate questions about the future of veteran suicide prevention.

In 2023, members of private industry coalesced to join the movement to prevent veteran suicide with the establishment of Face the Fight, a coalition of corporations, foundations, nonprofits, and veteran-focused organizations that are raising awareness and supporting efforts to prevent suicide. Face the Fight commissioned this study by RAND researchers to provide an analysis of current and emerging approaches to prevent veteran suicide. In this report, we provide a framework that organizes current approaches and describes how they complement each other. We also postulate how existing approaches are changing, their evidence for preventing veteran suicide, and why they might (or might not) work.

Approach

We conducted an analysis of 307 suicide prevention programs, 156 of which were currently operating and 226 that were proposed to two funders to expand existing services or initiate or create new programs. (Many programs currently offering a suicide prevention activity also proposed to expand or create new activities, which is why the number of current and proposed programs is 307 and not 382 [i.e., 156 + 226]). The list of current programs came from a web-scraping exercise in which Boolean keyword search strings were applied to Google searches; proposed programs were identified from lists of applicants to the U.S. Department of Veterans Affairs (VA) Mission Daybreak competition and from Face the Fight grantees. These organizations' suicide prevention activities were categorized across 26 suicide prevention activity categories, including pharmacotherapy, noncrisis psychological counseling, wellness retreats, expressive arts programs, religious or spiritual programming, and support with social determinants of health. These 26 categories were defined iteratively: First, we analyzed a subset of programs to create a preliminary list of activities, then we expanded the list using feedback from experts—notably, members of the Face the Fight Scientific Advisory Committee. We then developed a framework to help organize veteran suicide prevention activities, placed activities within this framework, and further described the current landscape of suicide prevention programs. We then conducted narrative reviews to describe the evidence supporting the 26 categories of suicide prevention activities.

The RAND Suicide Prevention Activity Matrix

Suicide prevention activities, whether currently operating or proposed, fit into the cells of a matrix that we call the RAND Suicide Prevention Activity Matrix (Figure S.1). The columns derive from the socio-ecological model (Bronfenbrenner, 1979) and represent whom the activity serves: the veteran directly, those in the community who regularly interact with the veteran (i.e., family, friends, health care providers), or social influences within the veteran's life. Importantly, these columns are nested within each other to represent how social influences at one level affect the activities contained within other levels.

The rows derive from the disease prevention model and describe what the activity aims to accomplish:

- *Primordial prevention* addresses social or environmental conditions that affect disease outcomes.
- *Well-being activities* prevent people from developing mental health conditions or suicidal thoughts, promote wellness, or raise awareness about available resources.
- *Mental health activities* reduce mental health symptoms, prevent people with mental health symptoms from developing suicidal thoughts, or help those who have suicidal thoughts manage these thoughts.
- *Mental health supports* are activities that do not directly reduce mental health symptoms but create the conditions for improved mental health treatment outcomes.
- *Crisis response* consists of interventions that prevent people with suicidal thoughts from attempting to take their lives. There is overlap between crisis response and mental health that is represented by a row with dashed lines—these are activities that largely focus on identifying individuals with suicide risk.

With the cells in this matrix defined, we placed each of the 26 suicide prevention activities within these cells. Activity categories could be contained in multiple cells, and the cells in the column labeled *society* are mostly empty, as societal activities (for example, laws and other policies) were not part of our environmental scan.

The Current Landscape of Veteran Suicide Prevention

In our landscape analysis, we identified 156 programs currently in operation and aiming to prevent veteran suicide. This is an undercount of programs, as our data were generated through examining lists of applicants to the VA Mission Daybreak competition, Face the Fight grantees, and a web-scraping process. We cannot discern any systematic bias that might arise from these approaches; programs not included in our analysis likely fall within one or more of the 26 categories of suicide prevention activities.

Among current programs, there is a strong focus on those that aim to build social connections and those that offer case management or noncrisis psychological counseling. Many

programs offer activities that can be classified under more than one category, and, in fact, programs that offer the suite of activities that include social connections, case management, and noncrisis psychological counseling are common. Veterans are the primary focus of most current programs, but many programs are also offered to family members and friends, often in addition to serving veterans directly. Nonprofit organizations operate most current programs, and just under half of the programs are accessed virtually or via a combination of in-person and virtual access.

The Emerging Landscape of Veteran Suicide Prevention

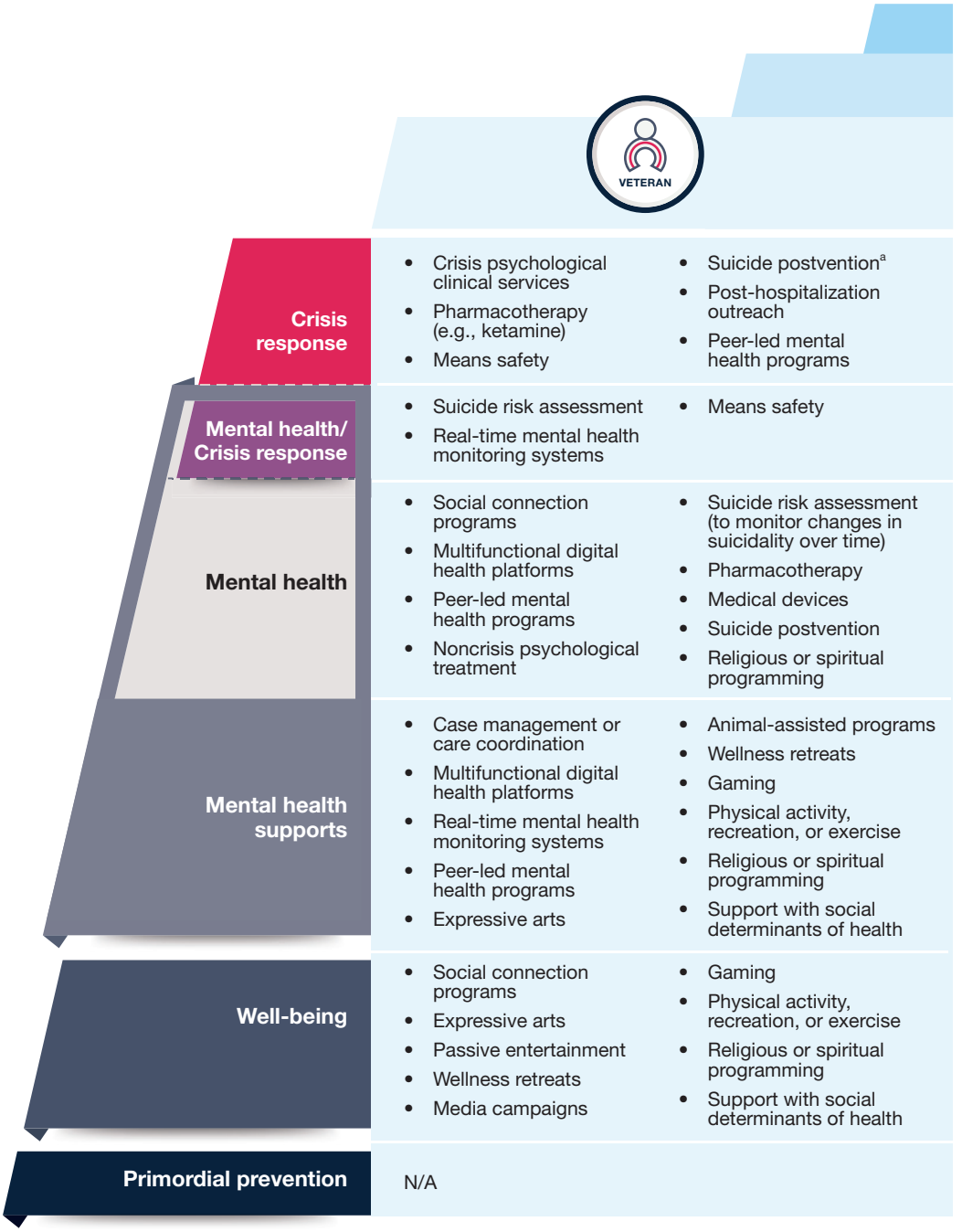
We identified 226 programs that have been proposed to prevent veteran suicide, some of which seek to expand existing services and others that would be brand new. The most common types of *proposed* programs are multifunctional digital health platforms (mobile health [mHealth] applications), suicide risk assessment tools, and real-time monitoring. These also commonly occur in tandem with each other—for example, an mHealth application that monitors (actively or passively) mental health symptoms and attempts to detect suicide risk. Veterans and their family members remain the focus of many programs, but fewer proposed activities target services to both veterans and their families. Proposed activities are more frequently being led by for-profit corporations and are more likely to use technological approaches, including virtual services and artificial intelligence.

The Evidence for Veteran Suicide Prevention Activities

Table S.1 provides a list of the 26 suicide prevention activities, how we defined these activities, and the evidence supporting each as it relates to key outcomes, which may be suicide outcomes, mental health outcomes, or changes in attitudes or behaviors that are theoretically linked with reducing suicide.

FIGURE S.1

Cataloging Veteran Suicide Prevention Activities Within the RAND Suicide Prevention Activity Matrix



NOTE: This figure is displayed across two pages. N/A = not applicable.

[a] *Suicide postvention* is a set of activities that attempt to mitigate the risk of suicide and other adverse health outcomes through the provision of supports to those affected by a suicide death (Cerel, Frey, and Maple, 2014).

Figure S.1—Continued

• Gatekeeper training • Clinician training • Means safety • Clinical practice guidelines	• Means safety
• Suicide risk assessment • Clinician training • Clinical practice guidelines • Gatekeeper training • Real-time mental health monitoring systems	
• Clinician training • Suicide postvention • Clinical practice guidelines • Suicide risk assessment (to monitor changes in suicidality over time)	
• Activities that support community members so that they can deliver mental health activities (e.g., tools that make tracking and monitoring mental health symptoms easier)	
• Peer-led mental health programs (e.g., support group) • Media campaigns	
N/A	• Community-based suicide prevention initiatives • Means safety • Support with social determinants of health

TABLE S.1

Suicide Prevention Activities, Definitions, and Summary of Evidence

Type of Suicide Prevention Program	Description	Evidence
Community-based suicide prevention initiatives	Engaging local communities to provide support and resources for individuals at risk of suicide	Evaluations of community-based suicide prevention initiatives funded as part of the Garrett Lee Smith Act found reductions in suicide deaths.
Social connection programs	Bringing veterans together, in person or virtually, for shared experiences, bonding, and camaraderie	Social connection programs have not been examined in detail in terms of their effectiveness.
Gatekeeper training	Training non-clinicians to recognize and respond to signs of suicide risk	There is some evidence that gatekeeper trainings change individuals' suicide prevention knowledge and willingness to intervene but modest evidence that these programs change gatekeepers' behaviors or increase relevant referrals.
Case management or care coordination	Connecting veterans with various support services, including mental health resources and peer support networks	There are not many high-quality studies that support case management or care coordination on its own for preventing suicide. The exception is when case management or care coordination is embedded as a part of holistic interventions. For example, collaborative care models for depression treatment have demonstrated some impact on suicide outcomes and include care coordination as a main element in their team-based approach. Case coordination is also an element in the Henry Ford Perfect Depression Care initiative, for which studies have shown a reduction in suicides after a systemwide enhancement to depression treatment.
Multifunctional digital health platforms (mHealth applications)	Offering screening tools via a website or application and connecting users with trained clinicians, peers, or chatbots for support and guidance; also providing a variety of services, including enhanced safety features, virtual support networks, educational resources, and crisis intervention tools	There is variability in the types of mHealth applications that may be used to prevent veteran suicide, but only a few have been evaluated, none of which currently have studies finding evidence of an effect on suicide outcomes. There is evidence that some mHealth applications may reduce mental health symptoms or other symptoms associated with suicidality, including evidence specifically among veterans.
Suicide risk screening and assessment	Using tools to identify people at different levels of suicide risk	Some suicide risk screeners are effective at identifying individuals at risk of suicide; however, they are poor at predicting future suicide risk.

Table S.1—Continued

Type of Suicide Prevention Program	Description	Evidence
Real-time mental health monitoring systems	Using biometric or other technology (e.g., cell phones, watches, rings, medical records) to monitor potential markers of individuals' mental health status and possibly provide alerts to users or their care teams for intervention when necessary	Some technologies demonstrate a modest ability to detect suicide risk in real time, but no research has yet tied the use of these devices to a reduction in suicide outcomes.
Peer-led mental health programs	Providing crisis and mental health support from peers that aims to link individuals with interventions, as well as to instill hope, inspire recovery, and boost empowerment	There is variety in what constitutes peer support, and findings are mixed on whether peer support programs prevent suicide. There is more information that certain types of peer support can improve certain mental health outcomes but a paucity of information on which specific aspects of peer support succeed, for whom, and in what contexts.
Noncrisis psychological treatment	Providing noncrisis counseling services	Certain types of treatments (collaborative safety planning, cognitive behavioral therapy, and dialectical behavior therapy) show small but positive effects on reducing suicidal thoughts and behaviors, including in studies of veterans. This general group of interventions has also been shown to improve mental health symptoms compared with control groups.
Crisis psychological clinical services	Providing crisis counseling services in person, virtually, and by phone, text, or chat (e.g., suicide hotline); this also includes brief crisis interventions in emergency department or hospital settings and psychological support during police response to suicide risk incidents	Many individuals who used crisis services, such as the Veterans Crisis Line, and agreed to participate in follow-up research interviews indicated that the service aided them in not killing themselves and helped connect them with health and mental health care in the month following contact.
Pharmacotherapy	Administering a drug	Certain medications (e.g., clozapine, lithium) reduce suicidal ideation and behaviors for people living with mental health disorders (including depression, anxiety, insomnia, schizophrenia, and bipolar disorder).
Expressive arts	Actively participating in music, fine arts, visual arts, performance, or other art-based activity	There is insufficient evidence to determine whether expressive arts therapies reduce suicidal thoughts and behaviors. There is some evidence showing a positive impact of expressive arts therapies on mental health outcomes in veteran populations, including posttraumatic stress disorder (PTSD) symptoms, depression symptoms, and quality of life.

Table S.1—Continued

Type of Suicide Prevention Program	Description	Evidence
Animal-assisted programs	Engaging in activities to care for animals (e.g., training, feeding), time with assistance or support animals, or pet ownership	There is insufficient evidence to determine whether animal-assisted programs reduce suicidal thoughts and behaviors. Canine- and equine-assisted interventions improve PTSD symptoms for veterans, although the studies lack precision on the specific types of interventions or programs that are most promising.
Medical devices	Using an instrument to monitor, treat, or alleviate symptoms of a disorder or disease	Brain stimulation devices or treatments have shown promise in treating various mental health conditions, mostly in patients who are or have grown to be resistant to pharmacological interventions for these types of disorders. More recently, some treatments (i.e., electroconvulsive therapy, repetitive transcranial magnetic stimulation, and vagus nerve stimulation) have been used to reduce suicidality in various populations.
Clinician training	Providing training to clinicians in empirically based methods for suicide prevention, intervention, or general best practices	Suicide prevention trainings for clinicians often increase clinician knowledge, confidence, and intentions to engage in best practices, but few studies have documented a change in clinician therapy practices or corresponding patient outcomes.
Support with social determinants of health	Providing direct support with housing, finances, employment, etc.	Suicide rates are associated with many environmental conditions; thus, addressing these conditions may reduce suicide rates. There is some evidence that anti-poverty programs (such as state-level earned income tax credit programs or increases in the minimum wage) reduce suicides. Direct provision of housing supports may be effective at creating contexts in which suicide-specific counseling may be more effective, but a large experimental study failed to find evidence that Housing First, which provides permanent housing without preconditions and offers choices in the wraparound support services that program participants receive, reduced suicidality.
Means safety	Putting time and space between a person at risk of suicide and the means used to take one's own life (e.g., firearm storage, prescription drug disposal, bridge barrier)	There is little evidence to suggest that existing means restriction efforts have successfully changed the ways in which firearm owners store their firearms or how individuals store potentially lethal medications.
Wellness retreats	Attending an in-person gathering of individuals for a shared experience away	There is limited evidence on the efficacy of wellness retreats as a stand-alone intervention in suicide prevention. However, there is evidence illustrating a reduction in symptoms related to PTSD, depression, and anxiety in veterans who attend wellness retreats. Additionally, positive protective factors, such as resilience and social connection, are cited as positive outcomes of wellness retreats.

Table S.1—Continued

Type of Suicide Prevention Program	Description	Evidence
Passive entertainment	Passively participating (e.g., being in the audience) in sporting events, concerts, plays, movies, or other forms of entertainment	There is no empirical literature that examines passive entertainment as a suicide prevention strategy.
Post-hospitalization outreach	Contacting individuals following discharge from hospitalization due to suicide risk for the purpose of connecting them to mental health support and other resources they may benefit from	Research on interventions that contact individuals following inpatient psychiatric hospitalization generally suggests that outreach is effective in reducing suicide risk; however, there are other studies that report mixed findings. Models that combine safety planning during an emergency department visit or hospitalization for suicide risk with follow-up outreach have preliminary evidence showing that these programs effectively reduce suicide risk relative to not receiving this intervention.
Suicide postvention	Offering structured support through different phases of suicide loss, including stabilization, grief work, and promoting posttraumatic growth	Suicide postvention appears to be somewhat helpful for facilitating the grief process in the short term and may indirectly reduce suicide risk among bereaved individuals. However, it is not clear whether suicide postvention activities reduce suicidal thoughts and behaviors in the long term.
Media campaigns	Using public messaging (e.g., television, online, radio, flyers, newsprint) to provide information to the general public or target audience with the goal of disseminating knowledge, changing attitudes, or modifying behavior	Media campaigns have demonstrated success primarily in increasing general awareness and knowledge of suicide, more-limited success in changing attitudes, and the least amount of demonstrated success in changing behavior. There is specific evidence that veterans who were exposed to some media campaigns indicated a willingness to use a crisis line and associated behavioral changes.
Gaming	Participating in solitary or collaborative recreational video games	There is evidence identifying associations between collaborative video game play and positive psychological characteristics (e.g., social engagement, belonging), as well as between problematic gaming and suicide risk.
Clinical practice guidelines	Following evidence-based recommendations for diagnosing and treating health conditions that are often developed by health care systems (e.g., VA)	Research examining whether clinical practice guidelines improve care is limited.
Religious or spiritual programming	Engaging with religious beliefs, rituals, or practices or spirituality (search for meaning, purpose, and a sense of connectedness)	Very little research to date moves beyond risk or resilience factors to studies of the actual impact of spiritual or religious components in suicide prevention programs on suicide outcomes.
Physical activity, recreation, or exercise	Participating in exercise or a wellness activity associated with physical movement	There is some evidence that prescribed physical activity may reduce suicide attempts but not suicidal ideation.

Recommendations

Our framing of suicide prevention activities across the nested categories describing *whom* the activity serves and across the rows describing *what* the activity aims to accomplish, combined with our examination of the existing and emerging landscape of suicide prevention activities and our review of the evidence, led us to make the following five recommendations.

Recommendation 1. Prioritize Implementation of Evidence-Based Prevention Activities

There are suicide prevention activities with evidence for reducing suicidality that are primed for implementation. These are community-based suicide prevention initiatives, suicide risk assessment, noncrisis psychological treatment, crisis psychological clinical services, and pharmacotherapy (for those with mental health conditions). Successful implementation of evidence-based strategies needs to be strategic in a way that prioritizes sustainability, targeting evidence-based activities to specific settings (e.g., assessing risk in emergency departments) or to specific individuals (e.g., veterans with mental health conditions).

Recommendation 2. When Implementing a Suicide Prevention Activity, Consider the Context in Which the Activity Is Intended to Be Delivered

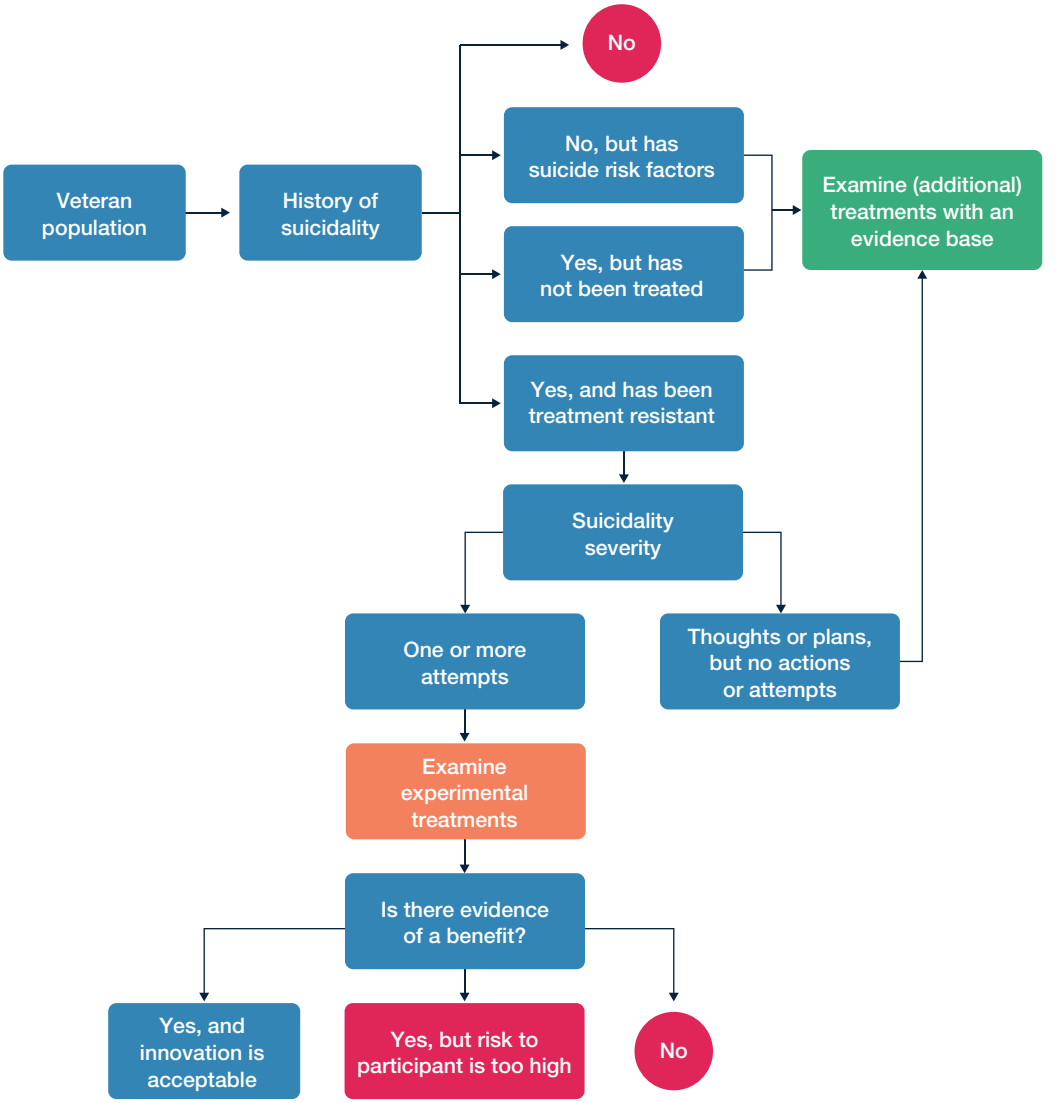
When investing in a specific suicide prevention activity, organizations should consider the nested contexts in which the activity is intended to occur. For example, screening should be conducted only if there are resources readily available for those who screen positive; mHealth applications need to be released with an implementation plan that ensures that veterans will avail themselves of the platform (a known limitation of current products), and clinician training in evidence-based treatments can be effective only if the systems in which they work can accommodate delivery of these treatments and veterans have access to these trained providers.

Recommendation 3. Conduct a Needs Assessment to Identify Gaps in Suicide Prevention Activities

Comprehensive veteran suicide prevention strategies should be implemented in communities defined by geography (e.g., veterans in San Antonio, Texas) or population (e.g., women veterans). Community-specific needs assessments can help identify where, within communities, there are needs, resources, and gaps. There may be some overlapping strategies for suicide prevention, but different subpopulations of veterans at increased risk of suicide may all have different needs for preventing suicide.

FIGURE S.2

Illustrative Decision Tree for Funding Suicidality Treatment Based on Group of Interest



Recommendation 4. Apply Different Thresholds of Evidence When Considering Different Suicide Prevention Activities

Individuals and organizations implementing suicide prevention strategies may see value in investing in novel programs or treatments that lack a robust evidence base. In these instances, they should adopt frameworks for evaluating the balance of potential risks (adverse events) and rewards (lives saved). Figure S.2 is an illustrative example of such a framework. In this example, experimental treatments are reserved for those with severe suicidality, and the types of experimental programs are those deemed *acceptable*: They must have some evidence of a benefit and a low risk of adverse events.

Recommendation 5. Invest Strategically in Research That Can Fill Notable Gaps in Knowledge

Strategic research investments can help fund potentially promising programs while ensuring that proposed research addresses common limitations and thus advances science. We highlight seven priorities:

1. performing adequately powered randomized controlled trials with long-term follow-up
2. using designs that link interventions that change knowledge, attitudes, and behaviors to suicide-related outcomes
3. specifying operational definitions and mechanisms of change (particularly for non-clinical programs)
4. investing in precision medicine research
5. disentangling multifaceted interventions
6. promoting sustainability of primordial prevention and general well-being
7. prioritizing ethical considerations for promising avenues of research.

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CHAPTER 1

Veteran Suicide Prevention Programs: A Framework

Veteran Suicide: A National Problem and the National Response

For the past 20 years, the number of veterans dying by suicide has been a scourge on the United States. Since 2001, more than 6,000 veterans have died by suicide each year; in 2022 (the most recent year for which data are available), 6,407 veterans died by suicide. The rate of suicide among veterans has also been higher than among nonveteran adults since 2001, with the gap increasing over time (Office of Suicide Prevention, 2024). More details on the epidemiology of veteran suicide in the United States are presented in the box on the next page.

As suicide prevention is a top clinical priority of the U.S. Department of Veterans Affairs (VA), many current prevention efforts are housed within VA (VA, 2024). VA runs the Veterans Crisis Line (VCL), a 24-hours-a-day, seven-days-a-week (24/7) crisis line devoted specifically to veterans that is accessed via the recently launched 988 number. The VCL also offers crisis care via chat and text. The Substance Abuse and Mental Health Services Administration (SAMHSA) partnered with VA to launch the Governor's and Mayors' Challenges to create, implement, or expand state- or community-level suicide prevention strategies. The Staff Sergeant Parker Gordon Fox Suicide Prevention Grant Program, run by VA, administers grants to community organizations that work with veterans and their families who are focused on preventing suicide. In 2022, VA launched Mission Daybreak, which awarded ten organizations a total of $11.5 million to develop innovative solutions to prevent suicides across the diverse needs of veterans (VA, 2023b). VA also has a robust research portfolio that it sponsors to develop new evidence on different strategies for preventing veteran suicide (Office of Research and Development, undated).

In 2023, members of private industry coalesced to join the movement to prevent veteran suicide with the establishment of Face the Fight. Founded by USAA, Humana Foundation, and Reach Resilience—An Endeavors Foundation, "Face the Fight is a coalition of corporations, foundations, non-profit and veteran-focused organizations joined together to raise awareness and support for veteran suicide prevention" (Face the Fight, undated). The goal of Face the Fight is to reduce the veteran suicide rate by half by 2030, and, in 2023, it launched a public awareness campaign and engaged in philanthropic grantmaking to community organizations working to prevent veteran suicide (Face the Fight, 2023).

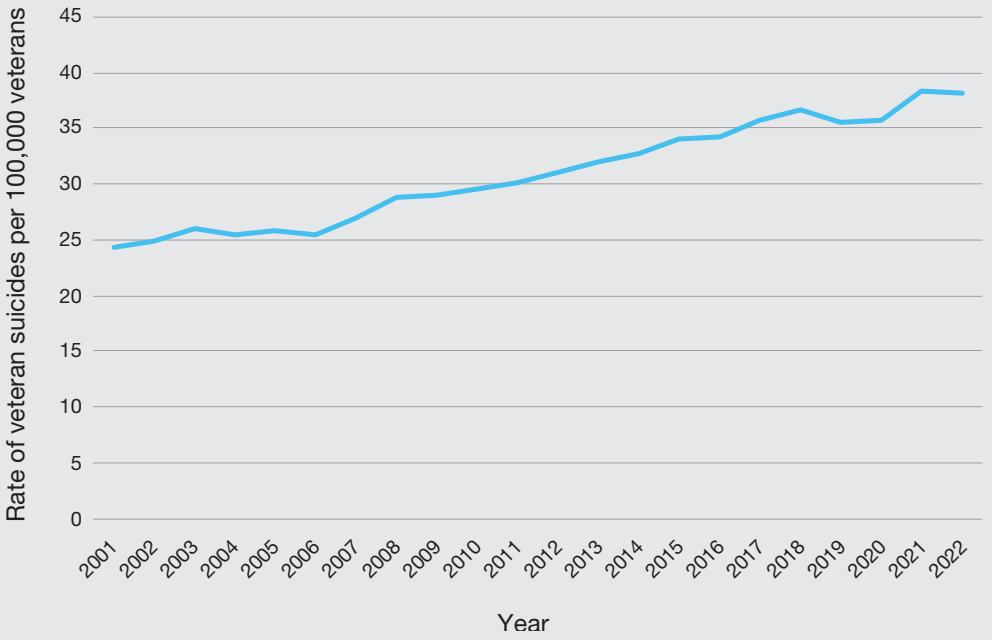
Epidemiology of Veteran Suicide in the United States

The following provides an overview of the epidemiology of veteran suicide in the United States. All data are taken from the *2023 VA National Veteran Suicide Prevention Annual Report* and the *2024 National Veteran Suicide Prevention Annual Report*, which report on data from 2001 to 2022 (Office of Mental Health and Suicide Prevention, 2023; Office of Suicide Prevention, 2024). Across these datapoints, two things are clear: (1) While significant efforts have focused on preventing veteran suicide for at least the past two decades, the suicide rate has continued to rise, and (2) the nation aims to prevent suicide risk among subpopulations with high rates of suicide, such as American Indian or Alaska Native veterans, but strategies for these groups may not generalize to the entire veteran population because these groups may account for only a small share of veterans who die by suicide. Both of these observations highlight the need for new, and diverse, prevention strategies.

Demographic Characteristics of Veterans Who Die by Suicide

In 2022, 6,407 veterans died by suicide, a rate of 34.7 per 100,000 veterans. As shown in the figure below, the rate of veteran suicide has increased over the past two decades.

Veteran Age-Adjusted Suicide Rate, 2001–2022



- **Sex differences:** Most veterans who die by suicide are men: In 2022, 6,136 male veterans and 271 female veterans died by suicide. Compared with the risk in civilians, suicide risk is elevated for veterans among both men and women, but the gap between

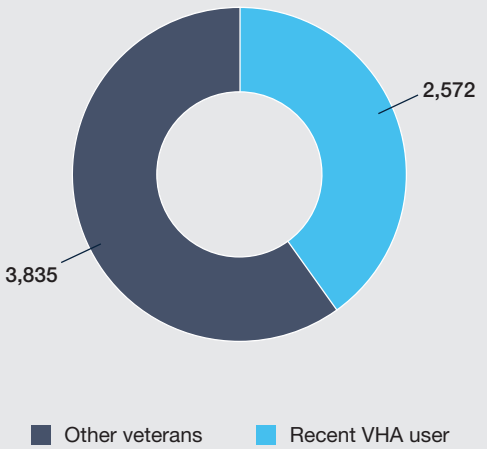
veteran and civilian suicide rates has historically been greater among women (in 2021: 17.6 versus 6.9 per 100,000) than it is for men (35.9 versus 28.1 per 100,000).

- **Age differences:** Sixty percent of veterans who died by suicide in 2022 were older than age 55. However, the suicide rate is higher among 18- to 34-year-old veterans (47.6 per 100,000) than among those aged 55 to 74 (31.2 per 100,000) and those aged 75 or older (33.8 per 100,000).
- **Race differences:** Eighty-six percent of veterans who died by suicide in 2021 were White; 1 percent (n = 68) were American Indian or Alaska Native. However, the suicide rate is much higher among American Indian or Alaska Native veterans (46.3 per 100,000) than among White veterans (36.3 per 100,000).
- **State differences:** The veteran suicide rates vary across states. In 2021, they ranged from 16.3 per 100,000 (n = 53) in New Jersey to 80 per 100,000 (n = 32) in Wyoming in 2021. It is no surprise that the three states with the largest numbers of veteran suicide deaths are three of the most populated states: California (rate: 28.9, n = 461), Florida (rate: 36.9, n = 546), and Texas (rate: 37.4, n = 583).
- **Method:** In 2021, 73.5 percent of veterans who died by suicide died of a self-inflicted firearm injury. Thirteen percent died by suffocation, 8.2 percent by poisoning, and the remainder by other means.

Patterns of Health Service Use Among Veterans Who Die by Suicide

In 2022, more than one-half (60 percent; n = 3,835) of veterans who died by suicide had *not* had a health care encounter with the Veterans Health Administration (VHA) in the past year (see the figure below). The suicide rate among recent VHA users was 41.3 per 100,000; among non-VHA users, it was 31.5 per 100,000. This is somewhat expected, as veterans who engage with VHA tend to have greater mental, physical, and economic challenges than veterans who do not.

Veteran Suicide Decedents With and Without Contact With the Veterans Health Administration in the Past Year, 2022



Those individuals who did not use VHA services in the past year may have used health services outside VA in the community. A portion of these individuals may have accessed these services as part of VA Community Care, which is care purchased by VA but not provided by VHA providers (care provided by VHA providers is referred to as *VHA direct care*). In 2022, the suicide rate among veterans using community care exclusively or both VHA direct care and community care was approximately 50 per 100,000; for those using VHA care only, it was around 35 per 100,000; and, as mentioned previously, for non-users of VHA direct or community care, it was around 30 per 100,000 (precise numbers are not available—estimates derive from Figure 31 of the *2023 National Veteran Suicide Prevention Annual Suicide Report* [Office of Mental Health and Suicide Prevention, 2023]).

Not all veterans are eligible for VA health care, and many who are eligible choose not to receive care at VA. Estimates of suicide risk among veterans who sought health care services outside the VA system (i.e., in the community but not purchased by VA) are not currently available.

Subpopulations of Veterans at Increased Risk of Dying by Suicide

- **Veterans with limited income:** Veterans deemed eligible for VA care are assigned to one of eight priority groups. The suicide rate is highest (in 2022, 56.7 per 100,000) among those assigned to Priority Group 5, which includes those *without* a service-connected disability but who are eligible based on income. This group is discussed more in Chapter 4.
- **Veterans with mental health and substance use disorder diagnoses:** In 2022, the suicide rate was greater than 100 per 100,000 for veterans in VHA care with the following diagnoses (listed from highest to lowest rate): sedative use disorder (rate: 236.7, $n = 37$), stimulant use disorder (rate: 153.6, $n = 87$), personality disorder (rate: 153.3, $n = 112$), bipolar disorder (rate: 125.4, $n = 209$), opioid use disorder (rate: 114.3, $n = 99$), and cannabis use disorder (rate: 114.8, $n = 227$). However, the diagnostic categories accounting for 400 or more veteran suicide deaths in 2021 were (listed from highest to lowest): depression (rate: 65.1, $n = 992$), anxiety (rate: 60.3, $n = 671$), post-traumatic stress disorder (PTSD) (rate: 51.3, $n = 640$), and alcohol use disorder (rate: 92.1, $n = 503$).
- **Veterans in rural areas:** In 2021, veterans accessing VHA care who lived in rural regions had slightly elevated suicide rates (48.9 per 100,000) relative to those residing in more-urban areas (38.1 per 100,000).
- **Veterans with gender identity diagnoses:** In 2021, the suicide rate among VHA users with diagnoses related to gender identity was 88.8 per 100,000, representing 18 veteran suicide deaths.

National attention devoted to preventing veteran suicide, along with multiple funding opportunities devoted to this cause, has led to many individuals and organizations seeking to leverage their expertise. For example, Mission Daybreak had 1,371 applications from veterans, veteran service organizations, start-ups, and universities to its initial call for ideas. Moreover, these entities come to the issue from multiple vantage points, each with a theory, idea, and (sometimes) evidence that the approach they are advocating can help prevent further deaths.

Why a Landscape Analysis Is Important

The activities and approaches being promoted to prevent veteran suicide are both voluminous and diverse. The volume and diversity are strengths that reflect a nation committed to a common goal and the potential for creative solutions. But they also can create confusion. For example, consider the following questions:

- What approaches, or combinations of approaches, are most effective at reducing veteran suicide?
- Are veteran suicide prevention efforts coordinated or duplicative?
- Are all veterans being reached equitably, or are there veteran subpopulations not being adequately served?

Advances in technology, including new medical devices and technologies fueled by artificial intelligence (AI), and novel (or newfound evidence for existing) pharmacological approaches also generate questions, including the following:

- How will current suicide prevention activities change?
- What new suicide prevention approaches will emerge?
- What populations will new technologies serve, and how freely available will they be?
- How can we evaluate evidence for newer technologies and treatments?

These questions call for a landscape analysis of current and emerging approaches to prevent veteran suicide. This report provides such an analysis. In this chapter, we provide a framework for categorizing suicide prevention activities. We identify 26 categories of suicide prevention activities and arrange these in a matrix according to the activity's target audience and the activity's goals.

In Chapter 2, we provide an analysis of 307 veteran suicide prevention programs that we identified as currently operating or that have been proposed as potential solutions. We analyze, specifically, how suicide prevention activities are typically bundled, how their consumers access them (e.g., in person or online), whom (and which subpopulations) these activities typically serve, and the entities that are offering these activities (e.g., nonprofit organizations,

for-profit organizations, health care systems). We also examine how we might expect the current landscape to change.

In Chapter 3, we review the evidence for each of the 26 types of veteran suicide prevention activities.

Chapter 4 provides a summary of our findings, and we offer recommendations geared specifically toward organizations, such as Face the Fight and VA, that are seeking to create or sustain a comprehensive strategy for preventing veteran suicide. These include a detailed recommendation focused on research with a goal to enhance the evidence base of existing suicide prevention practices.

Finally, the appendixes provide more details on our methodology and our approach to evaluating the evidence for veteran suicide prevention activities.

Organizing Veteran Suicide Prevention Activities

The landscape analysis called for a framework that orients suicide prevention activities across two domains. The first domain is the target population: *whom* the activity directly serves. The second is the activity's goals: *what* the activity aims to accomplish. When combined, these create a matrix. In the following sections, we discuss how we created the categories across these domains and how we combined them.

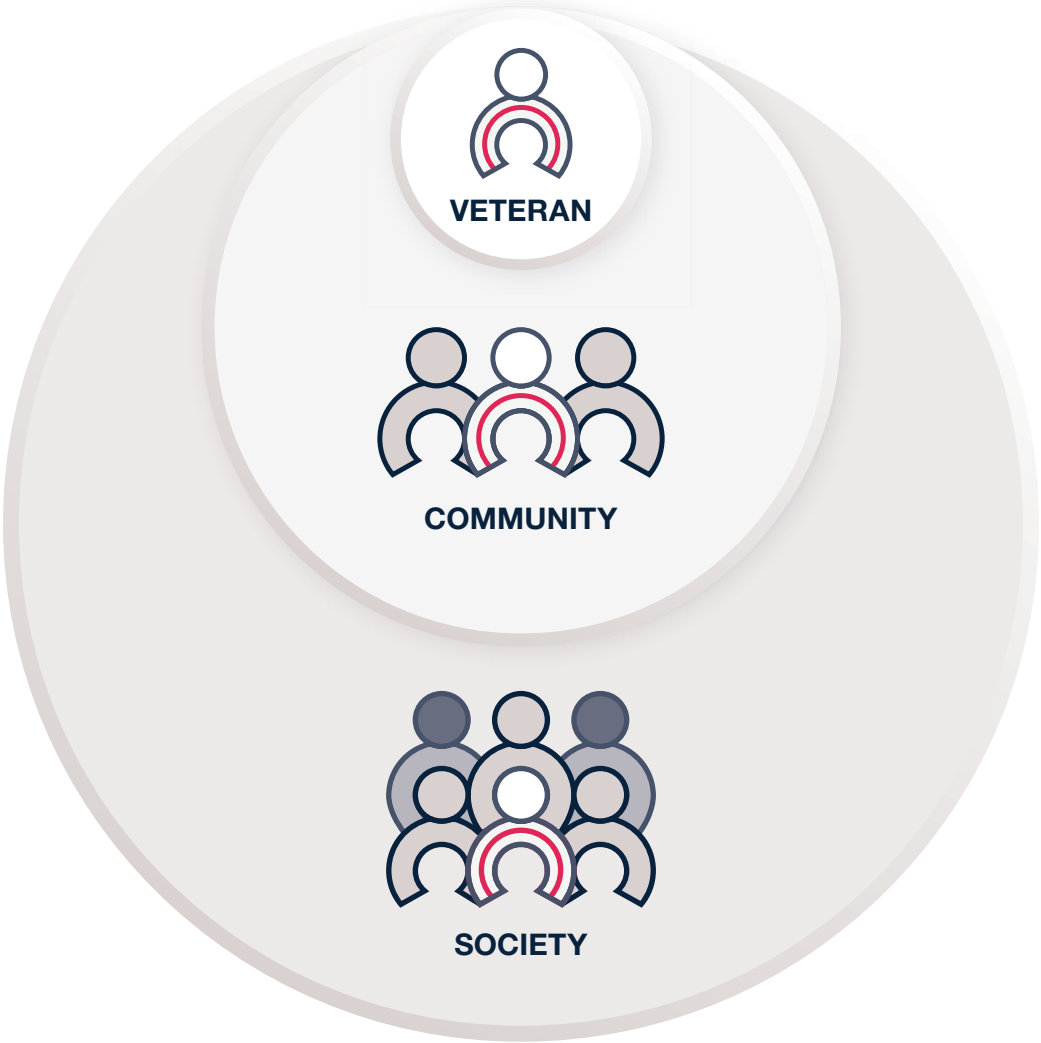
Categorizing Who the Activity Serves (The Matrix Columns)

We used the socio-ecological model, originally proposed by Bronfenbrenner in the 1970s, to categorize who the activity serves (Bronfenbrenner, 1979). We use the socio-ecological model to organize suicide prevention activities based on activities' target populations, presented graphically in Figure 1.1.

At the center are interventions directed toward veterans who may be at risk for suicide themselves—for example, psychological counseling that intends to reduce suicidality. The second level of influence contains interventions targeting local members of the community who interact with veterans: family members, friends, caregivers, health care providers, or others with whom veterans at risk of suicide may interact. Activities at this level could include interventions that train mental health care providers on specific types of psychological counseling considered to be effective at reducing suicide. The third level of influence contains interventions that target society as a whole. We include in this level both social influences (e.g., public policies, local environment, cultural and social values) and commercial influences (e.g., alcohol, gambling, or firearm industries), a distinction recently made by Pirkis et al. (2024). These may also include policies that promote better access to mental health care.

The nesting of these influences is intentional and important: It indicates that social influences at one level affect the activities contained within other layers. For example, a veteran's receipt of psychological counseling intended to reduce suicide risk is contingent on mental health providers within the community knowing how to deliver this treatment. The provid-

FIGURE 1.1
The Socio-Ecological Model of Veteran Suicide Prevention Activities



ers' knowledge is, in turn, based on social influences, ranging from whether they are trained to administer the treatment to whether the context in which they provide care facilitates the delivery of the service. For example, if an evidence-based approach requires 12 to 16 weekly sessions,[1] but a health care payer does not pay for this number or this frequency of services, or a health care system does not accommodate this scheduling, mental health care providers are unable to offer the treatment as intended. Suicide prevention activities are needed across all

[1] As described in Chapter 3, some evidence-based treatments for reducing suicide, such as cognitive behavioral therapy for suicide prevention, require 12 to 16 weekly sessions (see Stanley et al., 2009).

levels of influence, and activities within each level should be implemented with consideration of the environments in which they are nested.

We are not the first to propose the socio-ecological model for categorizing suicide prevention activities. It has guided many violence prevention frameworks in the past (see, for example, Butchart et al., 2004, and Caine, 2013). Most recently, it provided a foundation for the comprehensive approach laid out in the 2024 *National Strategy for Suicide Prevention* (U.S. Department of Health and Human Services, 2024).

Categorizing What the Activity Aims to Accomplish (The Matrix Rows)

Numerous groups and organizations have used a disease prevention model for describing suicide prevention approaches (see, for example, Pirkis et al., 2024). The classic model entails three tiers: *universal* approaches, which are offered to the entire population; *selective* approaches, which are geared toward subpopulations at increased risk; and *indicated* or *targeted* approaches, which are for individuals screened or determined to be at increased risk (Gordon, 1983; O'Connell, Boat, and Warner, 2009). Recently, a fourth tier has been proposed: *primordial* approaches, which address social or environmental conditions that affect disease outcomes (Kisling, 2023).

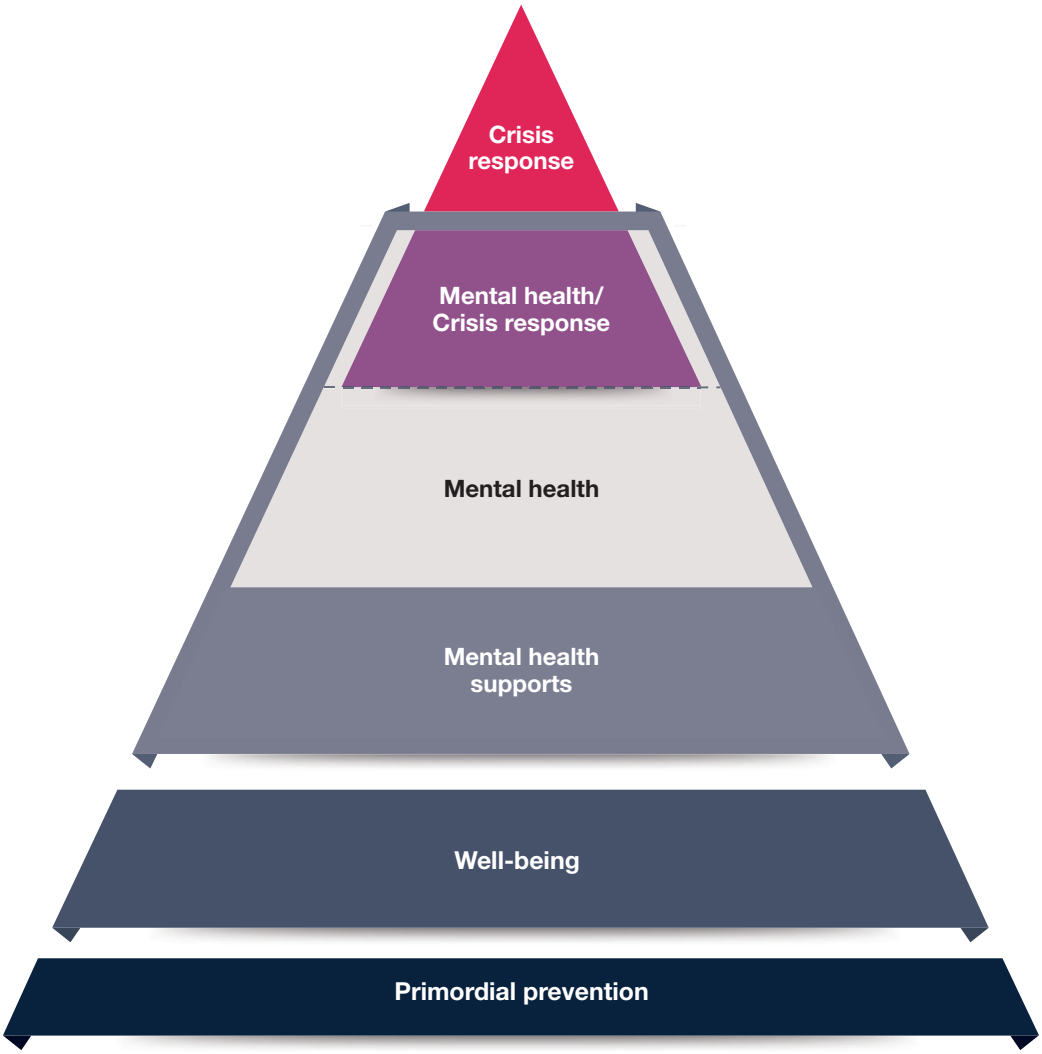
As just described, the disease prevention model is based on target populations: the entire population, subpopulations, or individuals at specific risk. We adapt this framework to create the RAND Suicide Prevention Activity Pyramid, but rather than focus on populations, we align each level of the pyramid with intended outcomes. Of note, there is a strong orientation toward mental health outcomes. This is because many suicide prevention activities are focused on preventing or improving mental health symptoms. As discussed in Appendix A, having a mental health disorder elevates risk for suicide and suicidal behavior.

As depicted in Figure 1.2, at the base of the pyramid is *primordial* prevention. This may include, for example, increasing resources in low-income or impoverished communities or passing laws that require all firearm owners to store their firearms a certain way. Aligning with universal prevention approaches is the next level, which we define as *well-being*—activities that promote general well-being and, by doing so, can prevent people from developing mental health conditions or suicidal thoughts, or activities that raise awareness about available resources.[2]

We refer to the next level as *mental health*—activities that reduce mental health symptoms, prevent people with mental health symptoms from developing suicidal thoughts, or help those

[2] The primordial and well-being levels of the pyramid align with Frieden's (2010) *health impact pyramid*, which has as its first two layers "socioeconomic factors" and "changing the context to make individuals' default decisions healthy." The well-being level also aligns with Harrell's (2023) description of "suicide protection."

FIGURE 1.2
RAND Suicide Prevention Activity Pyramid



who have suicidal thoughts to manage these thoughts.[3] Although termed *mental health*, we do not mean to convey that activities within this level can be administered by only licensed mental health providers. Also, this level of activities has a thick border in the figure that represents even more activities. Contained within this border are activities that do not directly reduce mental health symptoms but create the conditions for improved mental health treatment outcomes. This may include activities that promote better treatment adherence or monitoring of mental health symptoms.

The final level includes interventions that prevent people with suicidal thoughts from attempting to take their lives, which we term *crisis response*. However, notice that the crisis response level overlaps with the mental health level. Contained in this overlap are activities that take place at both the mental health level (e.g., used for prevention of suicide) and the crisis response level (e.g., used in response to acute risk). For example, as discussed in further detail in Chapter 3, a clinician should administer safety planning (a list of coping strategies for veterans who may experience a suicidal crisis) to a veteran who reports moderate suicide risk and develop a plan to prevent suicide (Sarkhel, Vijayakumar, and Vijayakumar, 2023). Safety planning also may be used during a crisis when a veteran follows their plan (e.g., calling the VCL) or adjusts their plan based on the situation.

The pyramid model we propose is helpful because it, like the original disease prevention model and others based on it, recognizes a balance among populations affected, efforts, and resources. Typically, the upper tiers (mental health, crisis response) require more resources to deliver, which constrains their availability, and are often reserved for smaller subpopulations of veterans.[4] This is why well-being and primordial activities are necessary. The goals of primordial and well-being activities are also noteworthy because they aim to, among other things, prevent veterans from developing suicidal thoughts. There is significant anguish associated with having suicidal thoughts even if not acted on, and interventions at this level aim to promote protective factors and thus alleviate some of this emotional toll for veterans and their families (Jobes and Joiner, 2019).

RAND Matrix of Suicide Prevention Activities

Combining whom the activity serves (columns) and what the activity does (rows) creates a matrix, represented in Figure 1.3. Note how we have retained the nesting of column headers and that a dashed line between the mental health and crisis response levels represents the overlap of these categories. We describe the types of activities that would fit within each cell

[3] There is also evidence that, among veterans, some diagnosed substance use disorders (e.g., alcohol and opioid use disorders) may independently confer risk for suicide (Bohnert et al., 2017). Therefore, activities that reduce substance misuse, prevent the development of substance use disorders, or reduce disorder symptoms would also be included here.

[4] As described in Chapter 2, innovations in the veteran suicide prevention space may make some activities in these tiers more available or accessible to veterans at risk of suicide.

of the matrix, noting that activities directed toward veterans and community members are, by definition, not applicable to primordial prevention.

Mapping Veteran Suicide Prevention Programs

A variety of approaches are used to prevent veteran suicide. In Chapter 2, we describe the results from our analysis of 307 current or proposed veteran suicide prevention activities. We organized these activities into 26 categories, and these categories can be organized within the RAND Matrix of Suicide Prevention Activities. This is presented in Figure 1.4; operational definitions of these 26 activities are presented in Table 1.1.

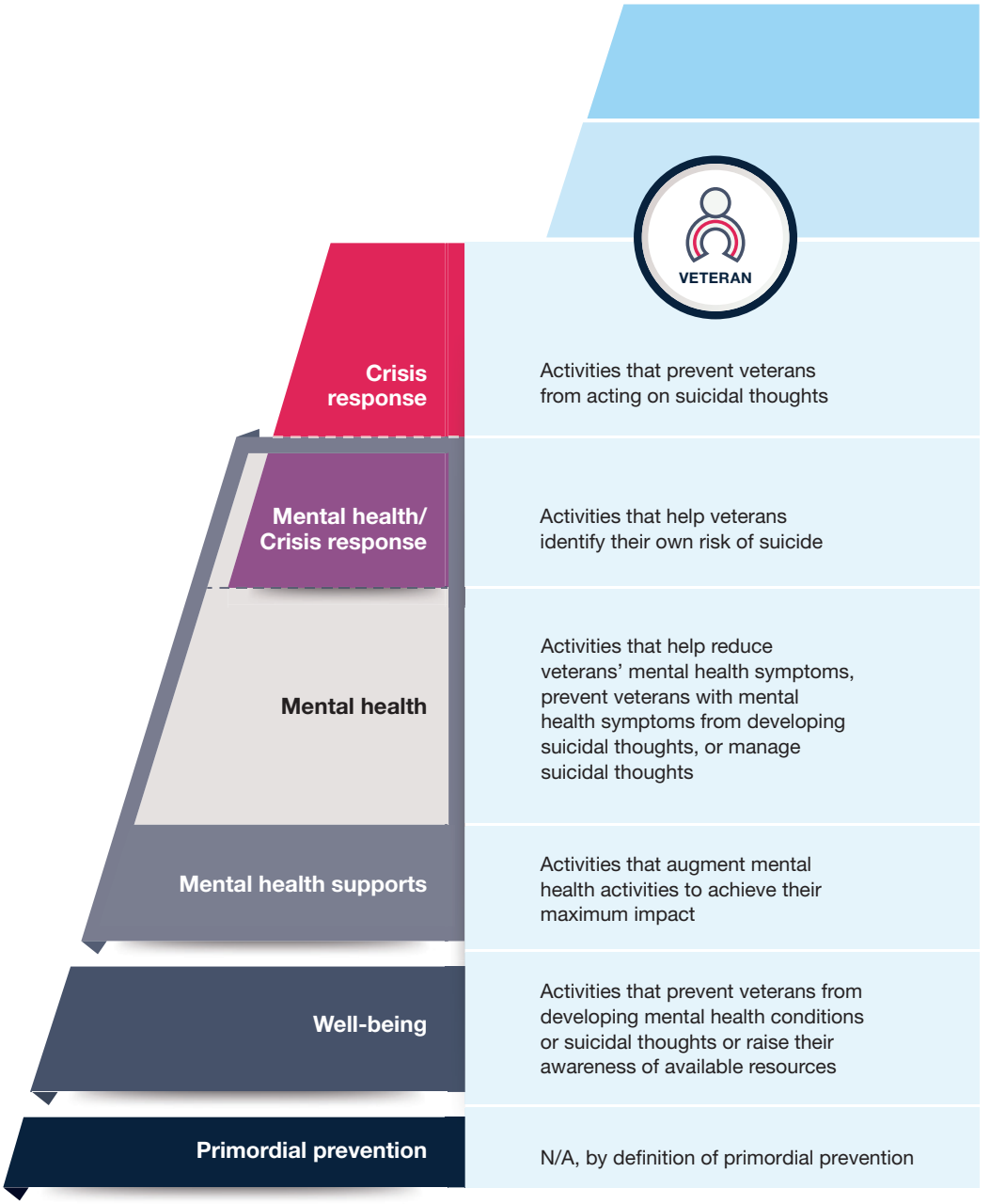
One important insight from organizing suicide prevention activities in this way is that certain activity categories can be contained in multiple cells. Means safety is one example. *Means safety activities* are defined as those activities that put time and space between a person at risk of suicide and the means used to take one's own life (for example, storing firearms unloaded and locked). We categorize means safety as part of the crisis response level, but, within this level, there are activities across all socio-ecological levels, including efforts that provide firearm storage devices to veterans with firearms (veteran level), educate health care providers to have discussions about firearm safety with veterans (community level), or provide safe, permanent or temporary firearm storage options for veterans in crisis (society level) or designs (e.g., barriers on bridges) that make suicide attempts less available or less fatal (society level). However, we also include means safety as primordial prevention because there are laws (for example, Child Access Prevention laws), programs (e.g., safe disposal of potentially fatal medications), and campaigns (e.g., safe storage campaigns) that aim to change the legal or cultural environment in ways that might prevent suicide.

Another issue related to categorizing activities within the matrix is whether those activities that target veterans directly constitute mental health, mental health supports, or general well-being. We have placed these activities in categories that align with the evidence for each, reviewed in Chapter 3. However, as evidence builds within each of these areas, the categorizations can certainly shift. Most notably, activities in mental health supports or well-being activities may be categorized as mental health if evidence determines that these activities can independently reduce mental health symptoms, prevent veterans with mental health conditions from developing suicidal thoughts, or help veterans manage suicidal thoughts.

Finally, many of the cells in the "society" column are empty. This does not mean that there are no activities relevant to preventing suicide within them. Rather, they can be filled with any number of policies, programs, or institutions—some of which may not be specific to preventing veteran suicide—that achieve the descriptions provided in Figure 1.3. However, these societal activities were not part of our environmental scan of suicide prevention activities described in Chapter 2 because we focused on programs and interventions directly targeting veterans and their family members or others with whom they directly interact, not policies more appropriate for this column.

FIGURE 1.3

RAND Matrix of Suicide Prevention Activities



NOTE: This figure is displayed across two pages. N/A = not applicable.

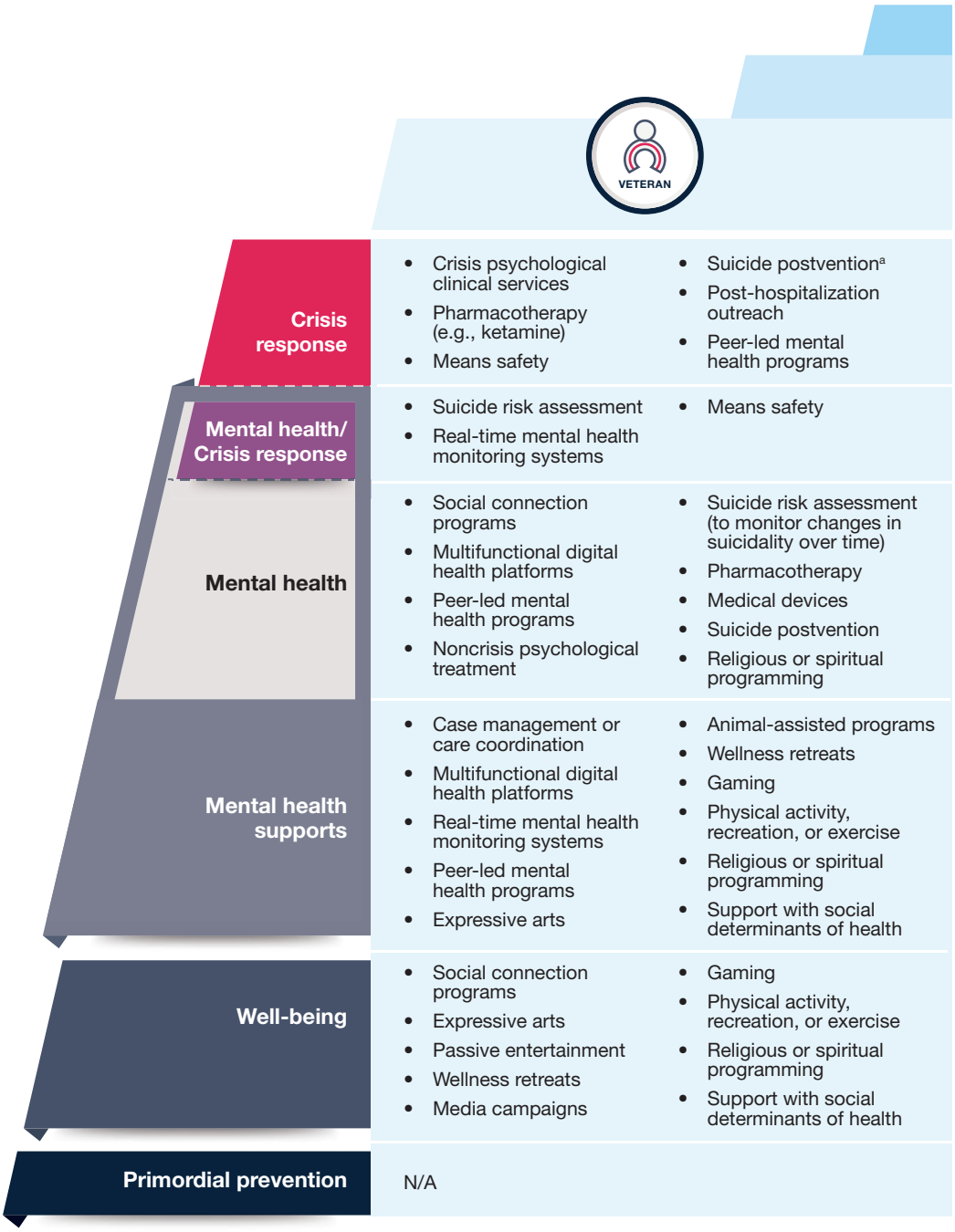
Figure 1.3—Continued

Activities that equip community members to respond to a suicidal crisis. *Typically geared to health care providers, emergency responders, or crisis workers, but can include social service providers, family members, caregivers, and friends*	Policies or activities that provide an adequate community crisis response infrastructure, including • Crisis lines • Crisis response (e.g., mobile crisis) • Emergency responders • Safe places for help (e.g., walk-in centers, crisis stabilization) (U.S. Department of Health and Human Services, 2024) Also, modifications or designs that create safe environmental conditions (e.g., barriers on bridges)
Activities that equip community members to identify individuals at acute risk of suicide	Policies or activities that provide contextual or institutional supports for screening and identifying people at risk of suicide (e.g., reimbursement in health care settings, established care pathways, nonpunitive cultures)
Activities that equip community members to reduce veterans' mental health symptoms, prevent veterans with mental health symptoms from developing suicidal thoughts, or help veterans manage suicidal thoughts *Typically geared to health care providers but can include social service providers, family members, caregivers, and friends*	Policies or activities that provide contextual or institutional supports for the delivery of mental health activities (e.g., reimbursement in health care settings, adequate resources) and adequate access to these programs and activities
Activities that support community members so that they can deliver mental health activities (e.g., tools that make tracking and monitoring mental health symptoms easier)	Policies or activities that provide adequate access to programs and activities
Activities that provide support to community members who provide care for, are friends with, or are family of veterans who may be at risk of suicide (e.g., support services for caregivers and family members or that prevent provider burnout)	Policies, activities, or modifications that promote mental health, safety, and well-being regardless of education or income[a]
N/A, by definition of primordial prevention	Policies or activities that directly change social and commercial environmental conditions

[a] This cell aligns with Frieden's (2010) health impact pyramid's second level: "changing the context to make individuals' default decisions healthy."

FIGURE 1.4

Cataloging Veteran Suicide Prevention Activities Within the RAND Suicide Prevention Activity Matrix



NOTE: This figure is displayed across two pages.

[a] *Suicide postvention* is a set of activities that attempt to mitigate the risk of suicide and other adverse health outcomes through the provision of supports to those affected by a suicide death (Cerel, Frey, and Maple, 2014).

Figure 1.4—Continued

• Gatekeeper training • Clinician training • Means safety • Clinical practice guidelines	• Means safety
• Suicide risk assessment • Clinician training • Clinical practice guidelines • Gatekeeper training • Real-time mental health monitoring systems	
• Clinician training • Suicide postvention • Clinical practice guidelines • Suicide risk assessment (to monitor changes in suicidality over time)	
• Activities that support community members so that they can deliver mental health activities (e.g., tools that make tracking and monitoring mental health symptoms easier)	
• Peer-led mental health programs (e.g., support group) • Media campaigns	
N/A	• Community-based suicide prevention initiatives • Means safety • Support with social determinants of health

TABLE 1.1

Operational Definitions of Veteran Suicide Prevention Activities

Type of Suicide Prevention Program	Description
Community-based suicide prevention initiatives	Engaging local communities to provide support and resources for individuals at risk of suicide
Social connection programs	Bringing veterans together, in person or virtually, for shared experiences, bonding, and camaraderie
Gatekeeper training	Training non-clinicians to recognize and respond to signs of suicide risk
Case management or care coordination	Connecting veterans with various support services, including mental health resources and peer support networks
Multifunctional digital health platforms (mobile health [mHealth] applications)	Using a website or application to offer screening tools and connect users with trained clinicians, peers, or chatbots for support and guidance; these provide a variety of services, including enhanced safety features, virtual support networks, educational resources, and crisis intervention tools
Suicide risk assessment	Using a tool to identify people at different levels of suicide risk
Real-time mental health monitoring systems	Using biometric or other technology (e.g., cell phones, watches, rings, medical records) to monitor potential markers of individuals' mental health status and possibly provide alerts to users or their care teams for intervention when necessary
Peer-led mental health programs	Offering crisis and mental health support from peers that aims to link individuals with interventions, as well as to instill hope, inspire recovery, and boost empowerment
Noncrisis psychological treatment	Providing noncrisis counseling services
Crisis psychological clinical services	Providing crisis counseling services in person, virtually, and by telephone, text, or chat (e.g., suicide hotline); this also includes brief crisis interventions in emergency department (ED) or hospital settings or psychological support during police response to suicide risk incident
Pharmacotherapy	Administering a drug
Expressive arts	Actively participating in music, fine arts, visual arts, performance, or other art-based activity
Animal-assisted programs	Engaging in activities to care for animals (training, feeding), time with assistance or support animals, or pet ownership
Medical devices	Using an instrument to monitor, treat, or alleviate symptoms of a disorder or disease
Clinician training	Training clinicians in empirically based methods for suicide prevention, intervention, or general best practices
Support with social determinants of health	Providing direct support with housing, finances, employment, etc.
Means safety	Putting time and space between a person at risk of suicide and the means used to take one's own life (e.g., firearm storage, prescription drug disposal, bridge barrier)

Table 1.1—Continued

Type of Suicide Prevention Program	Description
Wellness retreats	Conducting an in-person gathering of individuals for a shared experience away
Passive entertainment	Passively participating (e.g., being in the audience) in sporting events, concerts, plays, movies, or other forms of entertainment
Post-hospitalization outreach	Contacting individuals following discharge from hospitalization due to suicide risk for the purpose of connecting them to mental health support and other resources they may benefit from
Suicide postvention	Offering structured support through different phases of suicide loss, including stabilization, grief work, and promoting posttraumatic growth (PTG)
Media campaigns	Using public messaging (television, online, radio, flyers, newsprint) to provide information to the general public or target audience with the goal of disseminating knowledge, changing attitudes, or modifying behavior
Gaming	Participating in solitary or collaborative recreational video games
Clinical practice guidelines	Evidence-based recommendations for diagnosing and treating health conditions that are often developed by health care systems (e.g., VA)
Religious or spiritual programming	Engaging with religious beliefs, rituals, or practices or spirituality (search for meaning, purpose, and a sense of connectedness)
Physical activity, recreation, or exercise	Participating in exercise or a wellness activity associated with physical movement

Conclusion

By categorizing the different types of suicide prevention activities and organizing them within a matrix, we have developed a framework to consider what a comprehensive approach to suicide might look like. Importantly, these activities range from those that aim to prevent veterans from developing suicidal thoughts to those that aim to prevent individuals with such thoughts from acting on them. They are also nested: Those that target veterans directly are influenced by the communities in which veterans live, as well as their societies, and the effectiveness of interventions will depend on these contexts.

CHAPTER 2

Veteran Suicide Prevention Programs: What Is Offered, Who Is Served, and How Might These Change

As highlighted in Chapter 1, many approaches are used to prevent veteran suicide. To further understand how veteran suicide prevention programs operate, whom they aim to serve, and how they have evolved, we turned to the web to identify a diverse and broad group of programs that marketed their activities as ones that seek to prevent veteran suicide, whether they are represented in the academic or gray literature or not. We also sought to identify the next generation of suicide prevention activities—activities that individuals and organizations are proposing but that may not yet be widely offered. To identify these, we relied on applicants to two recent initiatives that funded nonresearch veteran suicide prevention activities.

We reviewed 307 programs that offer, or proposed to offer, one or more veteran suicide prevention activities (please note, we use the term *program* to describe an organization or initiative that may entail one or more suicide prevention *activities*). We identified these 307 programs through a condensed list of Mission Daybreak applicants and Face the Fight grantees and from a web-scraping process that occurred in February and March 2024.[1] The web-scraping process included using Boolean keyword searches in the Google search engine to identify potential website domains for a veteran suicide prevention program. For further details on the web-scraping process and our process for abstracting program details, see Appendix A.

Of these 307 programs, 156 currently offer at least one veteran suicide prevention activity, and 226 proposed one or more activities to Mission Daybreak or Face the Fight. Many programs currently offering a suicide prevention activity also proposed to expand or to create new activities, which is why the numbers of current and proposed programs is 307 and not 382 (i.e., 156 + 226). Of these 226 proposed programs, 37 (16 percent) were funded. We captured both current and proposed veteran suicide prevention programs and did not prioritize

[1] The list of Mission Daybreak finalists was provided to us for this report's purposes. In this report, we identify by name only those applicant organizations named and described on the public-facing Mission Daybreak website or those identified by Mission Daybreak and, as identified through our own web-searching, that currently offer suicide prevention activities serving veterans.

only those funded to facilitate an understanding of the scope and future of such programs: how they may change in terms of their activities, target populations, leveraged technologies, and providers, among other areas of interest. All activities were included regardless of evidence or feasibility. Where appropriate, we discuss the differences in current and proposed veteran suicide prevention programs throughout this chapter.

Current and Proposed Veteran Suicide Prevention Activities

Organizations' suicide prevention activities were categorized across 26 suicide prevention activity categories (presented and defined in Table 1.3). The process for generating this list was as follows: First, members of our team developed a preliminary list, based on their subject-matter expertise. Next, the study team abstracted a subset of activities from the web-scraping, Mission Daybreak, and Face the Fight grantees. The team met to describe how they coded program activities and proposed new categories. Face the Fight has a 34-member Scientific Advisory Committee that is called on to provide input to help guide the overarching Face the Fight strategy. We presented the categories to this Scientific Advisory Committee for validation, and members of the committee proposed additional categories. This process resulted in a typology of 26 suicide prevention program activities and associated definitions.

Lists of the current and proposed programs by their activity type are presented in Tables 2.1 and 2.2, respectively. There is a heterogeneous and extensive typology of activities among veteran suicide prevention programs. Of the current programs (Table 2.1), a significant proportion—one-quarter—offer activities focused on building veterans' social connections. Case management and noncrisis psychological counseling are also common activities. Case management programs frequently place an emphasis on being community based and peer led and focus on factors concerning social determinants of health, such as housing and employment. For example, the nonprofit organization Black Veterans for Social Justice, as part of its Staff Sergeant Parker Gordon Fox Suicide Prevention Grant Program funding, offers veterans and their families multiple forms of assistance and community resource connections, including supporting veterans with assistance in applying for VA benefits, financial planning and income support, transportation services, and legal aid. It also offers education on suicide prevention, peer support, and counseling.

In contrast, the most common types of *proposed* activities frequently offered are multifunctional digital health platforms (25 percent), suicide risk assessment tools (21 percent), real-time monitoring (21 percent), and case management (21 percent) and noncrisis psychological clinical services (19 percent). For example, applicants proposed real-time monitoring tools that use body-worn sensors to identify biomarkers that may indicate emotional states that could increase risk of suicidality, including anger, depression, stress, and symptoms of PTSD. Although social connection programs were still present among proposed programs (14 percent), they were significantly less common compared with current operating programs, in which they were the most common activity type.

TABLE 2.1

Current Veteran Suicide Prevention Activities

Type of Suicide Prevention Activity	Number	Percentage
Social connection programs	39	25.0
Case management or care coordination	37	23.7
Community-based suicide prevention initiatives	28	18.0
Noncrisis psychological treatment	27	17.3
Peer-led mental health programs	24	15.4
Support with social determinants of health	23	14.7
Multifunctional digital health platforms	20	12.8
Animal-assisted programs	19	12.2
Gatekeeper training	17	10.9
Suicide risk assessment	16	10.3
Physical activity, recreation, or exercise	15	9.6
Crisis psychological clinical services	13	8.3
Clinician training	11	7.1
Means safety	10	6.4
Real-time mental health monitoring systems	9	5.8
Wellness retreats	8	5.1
Medical devices	5	3.2
Media campaigns	3	1.9
Expressive arts	3	1.9
Pharmacotherapy	3	1.9
Religious or spiritual programming	3	1.9
Passive entertainment	2	1.3
Gaming	1	0.6
Post-hospitalization outreach	0	0.0
Suicide postvention	0	0.0
Total number of current programs	156	N/A

NOTE: Counts of activities will not add to the total number of programs, as programs could offer multiple activities.

TABLE 2.2

Proposed Veteran Suicide Prevention Activities

Type of Suicide Prevention Activity	Number	Percentage
Multifunctional digital health platforms	57	25.2
Real-time mental health monitoring systems	47	20.8
Case management or care coordination	47	20.8
Suicide risk assessment	46	20.4
Noncrisis psychological treatment	44	19.5
Social connection programs	32	14.2
Peer-led mental health programs	25	11.1
Support with social determinants of health	23	10.2
Crisis psychological clinical services	14	6.2
Community-based suicide prevention initiatives	14	6.2
Means safety	12	5.3
Gatekeeper training	10	4.4
Pharmacotherapy	10	4.4
Clinician training	8	3.5
Medical devices	6	2.7
Wellness retreats	5	2.2
Animal-assisted programs	5	2.2
Physical activity, recreation, or exercise	3	1.3
Religious or spiritual programming	2	0.9
Gaming	1	0.4
Expressive arts	1	0.4
Passive entertainment	1	0.4
Post-hospitalization outreach	1	0.4
Suicide postvention	1	0.4
Media campaigns	0	0.0
Total number of proposed programs	226	N/A

NOTE: Counts of activities will not add to the total number of programs, as programs could offer multiple activities.

Other activities occurred equally as frequently among both current and proposed programs. *Means safety* activities that involve putting time and space between veterans and the means by which they might take their lives (e.g., firearms) were offered by 6 percent of current programs and 5 percent of proposed programs. However, the current and proposed activities differed in their approaches. An example of a current project is the Overwatch Project, which uses a gatekeeper training approach to build the equivalent of the Friends Don't Let Friends Drive Drunk campaign for veterans but for firearms and suicide. Proposed approaches often feature technology—for example, those that allow a gun owner to set authorized users and lock others (including themselves during periods of heightened suicide risk) from the ability to fire the weapon.

We also note a prevalence of activities that placed an emphasis on outdoor experiences, although these were less common among proposed programs. These include programs generally categorized as mental health supports or wellness programs and include animal-assisted programs (dog meetups, horse riding), physical recreation, and wellness retreats. One example is the Boulder Crest Foundation, which focuses on PTG and offers retreats for service members, veterans, and their families (Boulder Crest Foundation, undated). *PTG* is a process by which individuals who have experienced a traumatic event find meaning, resilience, and other positive outcomes (Dell'Osso et al., 2022). Through the Boulder Crest program, families are invited on a two- to seven-day retreat that includes hiking, fishing, and other recreational activities in nature to help foster relaxation, reconnection, and positive familial experiences.

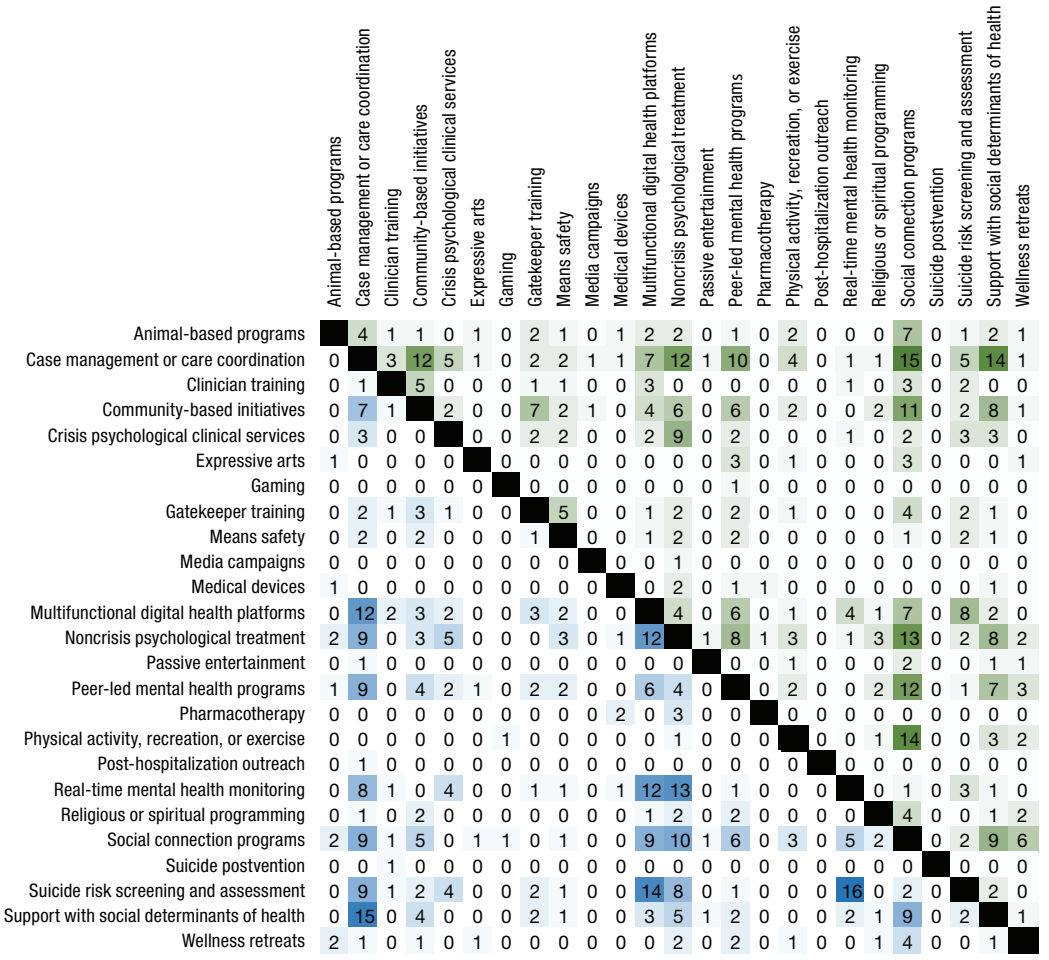
Bundled Activities

Activities are rarely offered in isolation. In fact, only 52 of 156 current programs and 82 of 226 proposed programs offered a single suicide prevention activity. We plotted a heat map of current and proposed program activities to explore how activities came bundled (Figure 2.1). Of the current programs, looking across rows, case management activities often co-occur with community-based initiatives (n = 12 programs), noncrisis psychological counseling (n = 12), peer-led mental health programs (n = 10), social connection programs (n = 15), and support with social determinants of health (n = 14). Among current programs, the same information can be seen for social connection activities vertically, which are often combined with the same types of activities: case management (n = 15), community-based initiatives (n = 11), noncrisis psychological clinical services (n = 13), peer-led mental health (n = 12), and physical recreation activities (n = 14).

Although there are similarities in how proposed activities are offered in tandem with others, there are notable differences. This is most pronounced for multifunctional digital health platforms. These applications are being proposed to frequently include case management (n = 12), noncrisis psychological counseling (n = 12), real-time monitoring (n = 12), and suicide risk assessment tools (n = 14).

FIGURE 2.1

Heat Map of Current and Proposed Programs, by Their Activity Category



NOTE: The upper right triangle (green) represents current programs; the lower left triangle (blue) represents proposed. The darkest cells represent those cells with higher counts of programs, with lighter shades representing lower counts. Note that counts of activities will not add to the total number of programs, as programs could offer multiple activities.

Program Characteristics

Population Served

We categorized veteran suicide prevention programs within the levels of the socio-ecological model described in Chapter 1, with a focus on whether the veteran, community (family and friends or health care providers), or wider society (businesses, government agencies, or the general public) was the focus of each program. Current programs are largely directed toward veterans or service members themselves (87 percent)—the center-most group of the socio-ecological model—or to the community around veterans, such as their family or friends

(53 percent). A far smaller percentage of current programs targeted other populations and organizations, such as veteran-specific health care providers (14 percent), government agencies (3 percent), and non-veteran-specific health care providers (2 percent). These numbers, coupled with the data on bundled activities discussed earlier, indicate that there are multiple programs offering many activities that serve both veterans and their families.

In contrast, proposed programs seem to be offered to only one target audience (i.e., veterans or family members, but not both), as across the board the percentages decrease. For example, only 39 percent are directed to veterans or service members (versus 87 percent of current programs) and 15 percent (versus 46 percent of current programs) to family or friends. In fact, when we compare proposed programs with current programs, we see a greater proportion only for activities targeting society writ large. One such proposed activity connects individuals and families who are experiencing food insecurity to prepaid meals provided by local vendors.

Veteran Subpopulations Served

Of the organizations included in the landscape analysis, 16 percent targeted services to specific subpopulations of veterans, most commonly women veterans (20 percent of those that offer targeted programs), racial and ethnic minority veterans (14 percent), lesbian, gay, bisexual, transgender, queer, and other (LGBTQ+) veterans (9 percent), and veterans who are disabled (11 percent) or homeless (11 percent). However, most programs (n = 263) did not name a particular community of focus.

Eight current programs focus on women veterans, and four focus on LGBTQ+ populations. Of the proposed programs, racial and ethnic minority groups had the highest number focused on them, with five programs. Many other subpopulations had counts of just one or two programs focused on them, including rural veterans, young veterans, veterans with substance use disorders, and veterans with low socioeconomic status.

One example of a program that targets subpopulations is the St. Vincent de Paul CARES program, which focuses on suicide prevention for veterans experiencing or at risk of homelessness throughout Florida. They have a rapid rehousing program, a suicide prevention effort, and housing assistance funding for low-income families (St. Vincent de Paul CARES, undated). Another current program, Veterans Healing Veterans from the Inside Out (VHV), focuses on suicide prevention through a peer mentorship program for veterans who are currently or were formerly incarcerated. Their program uses peer support, narrative therapy, and mind–body integration practices. Through these exercises, veterans develop tools for resilience and work to enhance their ability to withstand daily stressors and triggers (VHV, undated). Televeda's Hero's Story, a program that received funding from Mission Daybreak, focuses on American Indian or Alaska Native veterans. The program works to reduce loneliness and isolation and is community led, with a focus on accessible traditional healing practices for the American Indian or Alaska Native community. The program's approach includes a community-driven Indigenous platform, which intends to foster a reliable network of culturally sensitive interventions and resources to support mental health, which are developed in

collaboration with each American Indian or Alaska Native community (Televeda, undated). Another applicant offered to enhance crisis center cultural competency for LGBTQ+ veterans and expand crisis services to this group.

Of programs that stated they served particular communities, focus was additionally placed on serving veterans with mental health, substance use, and trauma-related concerns, including those with PTSD (9 percent), substance use disorder (7 percent), and overall severe mental illness (9 percent). One proposed program through the company Oxford VR focused on people living with severe mental illness. Their goal was to integrate virtual reality with virtual coaching and simulation opportunities to practice new ways of responding to stress (Oxford VR, undated). Another proposed program focused on identifying veterans with opioid use disorders and referring these individuals to a pain management or alleviation program.

Other Program Characteristics

One notable shift in the future generation of suicide prevention activities is the use of technology. Among current programs, nearly one-half (47 percent) offer activities exclusively virtually or a hybrid of both virtual and face-to-face. In contrast, more than one-half of proposed programs (62 percent) are proposing activities that are only virtual, and an additional 7 percent are proposing activities that are hybrid—both virtual and in person.

A similar technological change is the use of AI. Seventeen percent of current programs explicitly stated they use AI in their veteran suicide prevention activities, but among proposed programs, this percentage more than doubles to 37 percent. These results are unsurprising, given the notable shift from community-based social connection and case management efforts among currently offered programs—in which AI tools would likely be inappropriate or inapplicable—toward the multifunctional digital health platforms, which frequently feature suicide risk identification and real-time monitoring, among proposed programs (see Table 2.3).

Another notable difference is in the entity conducting the suicide prevention effort. The majority (62 percent) of current programs are run by nonprofit, non–health care organizations, and about one-quarter (24 percent) are provided by for-profit, non–health care companies. This is basically reversed among proposed efforts, with for-profit entities playing a more significant role: 58 percent of proposed activities are by for-profit, non–health care organizations, while 18 percent are proposed by nonprofit, non–health care companies (see Table 2.3).

TABLE 2.3
Characteristics of Current and Proposed Suicide Prevention Programs

	Current Programs		Proposed Programs	
Program Characteristic	Number	Percentage	Number	Percentage
Targeted population				
Service members or veterans	135	86.5	88	38.9
Community	83	53.2	53	23.5
Families, friends, and supporters	71	45.5	33	14.6
Health care providers	25	16.0	30	13.3
Society (businesses, government agencies, and the general public)	29	18.6	62	27.4
How activities are delivered				
Only in person	60	38.5	27	12.0
Only virtually	52	33.3	139	61.5
In person and virtually	22	14.1	15	6.6
Program uses AI	26	16.7	84	37.2
Organization type				
For-profit company, non–health care system	37	23.7	130	57.5
Nonprofit organization, non–health care system	96	61.5	40	17.7
Research	5	3.2	10	4.4
For-profit health care system	4	2.6	9	4.0
Nonprofit health care system	7	4.5	6	2.7
Government	0	0.0	1	0.4
Not stated	7	4.5	30	13.3

NOTE: Counts of the targeted population will not add to the total number of programs, as programs could target multiple populations.

Characteristics of Funded Activities

Another lens through which to better understand the most immediate future of veteran suicide prevention activities is to examine which proposed programs were funded. Table 2.4 presents an overview of these funded programs, drawn from the 226 programs we analyzed from the Mission Daybreak applicants, Face the Fight grantees, and web-scraping data. Of these 226 proposed programs, 37 were funded, providing a total of 80 suicide prevention activities.

TABLE 2.4

Funded Veteran Suicide Prevention Activities

	Was the Organization Funded?			
Suicide Prevention Activity	Yes	Row Percentage	No	Row Percentage
Suicide risk assessment	15	32.6	31	67.4
Multifunctional digital health platforms	8	14.0	49	86.0
Case management or care coordination	8	17.0	39	83.0
Noncrisis psychological treatment	8	18.2	36	81.8
Real-time mental health monitoring system	6	12.8	41	87.2
Community-based initiatives	5	35.7	9	64.3
Crisis psychological clinical services	4	28.6	10	71.4
Peer-led mental health programs	4	16.0	21	84.0
Gatekeeper training	4	40.0	6	60.0
Means safety	3	25.0	9	75.0
Support with social determinants of health	3	13.0	20	87.0
Social connection programs	2	6.3	30	93.8
Clinician training	2	25.0	6	75.0
Religious or spiritual programming	1	50.0	1	50.0
Pharmacotherapy	0	0.0	10	100.0
Medical devices	0	0.0	6	100.0
Animal-assisted programs	0	0.0	5	100.0
Wellness retreats	0	0.0	5	100.0
Physical activity, recreation, or exercise	0	0.0	3	100.0
Gaming	0	0.0	1	100.0
Suicide postvention	0	0.0	1	100.0
Passive entertainment	0	0.0	1	100.0
Post-hospitalization outreach	0	0.0	1	100.0
Expressive arts	0	0.0	1	100.0

NOTE: Counts of activities will not add to the total number of programs, as programs could offer multiple activities.

Funded Activities

Of the 226 proposed programs we reviewed, 37 received funding. By raw count, the most frequently funded type of veteran suicide prevention activity was suicide risk assessment tools: Of the 46 programs that included this activity in their proposal, 15 (33 percent) were funded, representing 41 percent of all funded programs. Programs that included multifunctional digital health platforms as an activity in their proposal were also funded fairly frequently (n = 8, 22 percent of funded activities), as were programs that offered noncrisis psychological treatment (n = 8, 22 percent), case management (n = 8, 22 percent), and real-time monitoring (n = 6, 16 percent; see Table 2.4). Earlier, we noted a considerable shift toward advanced analytic tools in proposed programs; these results suggest that these kinds of activities are frequently funded, as well as proposed. We also note that programs that proposed gatekeeper training activities were among the most likely to receive funding compared with other types of activities; although the overall number of programs proposing this type of activity was low (n = 10), 40 percent were funded (n = 4, 11 percent of funded activities).

Target Audiences

The bulk of proposed programs (n = 88 of 226) focused on delivering services directly to veterans or service members, of which 23 (26 percent) were funded. Although many fewer programs were proposed to serve health care providers that provided services specifically to service members, veterans, or families (n = 21), seven (33 percent) were funded (see Table 2.5). This suggests that funders are targeting health systems and health services to play a considerable role in the immediate future of veteran suicide prevention efforts. One such program is the STRONG STAR Training Initiative, which provides evidence-informed training to providers, veteran peers, and allies to learn more about PTSD and suicide prevention treatments. The program also provides daily technical assistance and postvention support for providers who lose patients to suicide (STRONG STAR Training Initiative, undated).

Funded Organizations

For-profit companies that were not health care systems accounted for 130 (58 percent) of the proposed programs; 15 percent (n = 20) were funded, representing just more than one-half of all funded programs. Many of these companies are proposing technological solutions, such as multifunctional digital health platforms or real-time monitoring. Nonprofit, non–health care systems were also funded fairly frequently; nine were funded out of the 40 that proposed a program. Although research organizations were low in their overall counts (n = 10), 40 percent were funded, making them the most likely to receive funding compared with other types of organizations (see Table 2.6). For example, Suicide and Trauma Reduction Initiative for Veterans (STRIVE) is a research institute at The Ohio State University that received funding and provides free psychological treatment for service members and veterans with PTSD and suicidal thoughts and behaviors and has an institutional focus on reducing risk for suicide, trauma, and gun-related violence.

TABLE 2.5

Proposed and Funded Suicide Prevention Programs, by Targeted Population

	Was the Organization Funded?			
Whom Does the Organization Claim to Serve?	Yes	Row Percentage	No	Row Percentage
Service members or veterans	23	26.1	65	73.9
Service members' or veterans' families, friends, or supporters	8	24.2	25	75.8
Service members, veterans, and families (SMVF) health provider	7	33.3	14	66.7
General public	5	10.0	45	90.0
Government agencies	2	25.0	6	75.0
Non-SMVF health provider	1	11.1	8	88.9
Businesses	1	16.7	5	83.3
Not stated	6	7.3	76	92.7

NOTE: Counts will not add to the total number of programs, as programs could aim to serve multiple populations.

TABLE 2.6

Proposed and Funded Suicide Prevention Programs, by Organization Type

	Was the Organization Funded?			
Organization Type	Yes	Row Percentage	No	Row Percentage
For-profit company, non–health care system	20	15.4	110	84.6
Nonprofit organization, non–health care system	9	22.5	31	77.5
Research	4	40.0	6	60.0
For-profit health care system	0	0.0	9	100.0
Nonprofit health care system	0	0.0	6	100.0
Government	0	0.0	1	100.0
Not stated	3	11.5	23	88.5

Claims of an Evidence Base

In Chapter 3, we provide the evidence base for all 26 types of suicide prevention activities. However, when abstracting program details, we were interested in whether programs claimed an evidence base on their websites. Combining both current and proposed programs, about two-thirds (68 percent) did not claim any evidence or evaluation underpinning their initiative, with similar proportions of current and proposed programs (data not shown). Just more than one-half of research organizations cited some form of evidence or evaluation regarding their program, and although only ten for-profit health care systems proposed suicide prevention programs, most (n = 8) provided some claims of evidence. In contrast, most other organizations did not claim any evidence supporting their activities. There were also differences by target population: More than two-thirds of the programs targeting service members or veterans did not mention any evidence (70 percent; Table 2.7).

Limitations

Chapter 2 has presented the results of our landscape analysis of 156 programs currently in operation and aiming to prevent veteran suicide, the majority of which were captured from the web-scraping process that is described in further detail in Appendix A. This web-scraping process will have provided an undercount of veteran suicide prevention programs in the United States. There will undoubtedly be additional relevant programs that were not captured by the web-scraping method for such reasons as computational limitations and the limited time and resources available to the research team. It also excludes many programs operated by VA, many of which are described in the introduction to this report.

Our approach has worked to mitigate as much human bias from a landscape analysis as possible by taking a structured, systematic, and replicable approach, and we cannot discern any systematic bias that might arise from our approach. But it is reasonable to assume that small-scale programs that work at the local level that have not put resources into establishing a website that would be captured in an internet-scraping process would be underrepresented in our study of currently active veteran suicide prevention programs. Similarly, it is further reasonable to assume that these underrepresented programs would probably involve certain types of activities or target certain populations, and, by not capturing such programs in our approach, our results will almost certainly be biased toward those programs that *have* invested in an internet presence. Such systematic biases in the data that resulted from our methodological approach must be considered apropos the extent to which our findings are truly representative of all veteran suicide prevention programs across the country.

This chapter has also presented the analysis of 226 proposed programs that were gathered using a subset of the VA Mission Daybreak competition application database and Face the Fight grantee lists. Many of the aforementioned concerns raised around the potential biases remain prevalent for this group of programs. The VA Mission Daybreak and Face the Fight grantees do not represent all proposed veteran suicide prevention programs that seek

TABLE 2.7

Claims of Evidence on Program Websites, by Program Characteristics

Program Characteristic	No Evidence Mentioned (Row Percentage)	Claims Evidence with No Details (Row Percentage)	Claims Evidence with General Models Cited (Row Percentage)	Claims Evidence with Specific Articles Cited (Row Percentage)
Total	209 (68.1)	34 (11.1)	22 (7.2)	42 (13.7)
Targeted population				
Service members or veterans	114 (69.5)	18 (11.0)	9 (5.5)	23 (14.0)
Service members' or veterans' families, friends, or supporters	53 (68.0)	10 (12.8)	5 (6.4)	10 (12.8)
SMVF health provider	18 (64.3)	3 (10.7)	1 (3.6)	6 (21.4)
General public	38 (63.3)	6 (10.0)	9 (15.0)	7 (11.7)
Not stated	59 (72.0)	9 (11.0)	5 (6.1)	9 (11.0)
Government agencies	7 (87.5)	0 (0.0)	0 (0.0)	1 (12.5)
Non-SMVF health provider	4 (44.4)	1 (11.1)	1 (11.1)	3 (33.3)
Businesses	6 (75.0)	0 (0.0)	1 (12.5)	1 (12.5)
Organization type				
For-profit company, non–health care system	89 (65.9)	17 (12.6)	12 (8.9)	17 (12.6)
Nonprofit organization, non–health care system	78 (71. 6)	11 (10.1)	5 (4.6)	15 (13.8)
Nonprofit health care system	9 (90.0)	1 (10.0)	0 (0.0)	0 (0.0)
Research	5 (45. 5)	1 (9.1)	1 (9.1)	4 (36.4)
For-profit health care system	2 (20.0)	1 (10.0)	2 (20.0)	5 (50.0)
Government	1 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)
Not stated	22 (81.5)	3 (11.1)	1 (3.7)	1 (3.7)

NOTE: *General models* were defined as those referencing evidence based on a specific modality, such as cognitive behavioral therapy (CBT), but not citing specific articles or evaluation. Counts of targeted population will not add to the total number of programs, as programs could target multiple populations.

to be funded and should not be generalized as such. Once again, we may expect that these proposed programs that targeted Mission Daybreak and Face the Fight as funders systematically differ from programs that were proposed to other funders across the country. Again, we therefore caution that this analysis is biased toward the types of programs and organizations that considered these two funders to be their appropriate potential source of investment.

Conclusion

The landscape of current and proposed suicide prevention programs is vast, diverse, and changing. Whereas the current landscape focuses on helping veterans build social connections, providing case management, and offering noncrisis psychological counseling, many proposed programs focus on technical solutions that combine real-time monitoring of indicators of emotional health and suicide risk assessments in multifunctional digital health platforms. Although funders appear to appreciate suicide risk assessments, they have not funded most of the proposed multifunctional digital platforms, with higher funding levels for training gatekeepers and community-based initiatives.

CHAPTER 3

Veteran Suicide Prevention Strategies: Rationale and Evidence

This chapter provides brief overviews of the rationales for different strategies for suicide prevention and the state of the science supporting their impact to date. Conducting systematic literature reviews for each was beyond the scope of this project. Rather, we scanned recent literature and included relevant meta-analyses and systematic reviews when they were available. We prioritized studies that evaluated strategies implemented to reduce suicide risk among veterans, but when these were not available, we included studies with civilians, particularly studies with stronger research designs. Although we highlighted evidence that linked activities to reductions in suicide deaths, we also included other outcomes because many of the initiatives have different proximal goals. Noncrisis counseling may seek to reduce a veteran's thoughts of suicide or depression symptoms, while a means safety initiative may seek to change how firearms are stored. In both examples, there is some evidence that achieving the proximal goal (reducing depression symptoms and changing firearm storage, respectively) may lead to reducing suicides. We tried to describe many of these proximal outcomes and briefly describe the logic and evidence (when it exists) linking changes in the proximal outcomes to reductions in suicide.

There is often a desire for programs and practices to be designed explicitly for, or tailored to, the specific culture and needs of veterans. However, veterans usually benefit from existing proven strategies to the same degree as nonveterans. Thus, strategies known to be effective in suicide prevention generally can and should be leveraged in suicide prevention programs for veterans, with new strategies being the most pressing to evaluate to determine safety and impact. For these reasons, we did not focus exclusively on studies of veterans but highlighted them when they were available.

Each section of this chapter was drafted by a team member with familiarity of the topic area and reviewed by at least two other scientists on the RAND research team with subject-matter expertise. Each topic area begins with the key takeaways of the literature scan. Specifically, we indicate evidence of an effect on key outcomes, which may be suicide outcomes, mental health outcomes, or changes in attitudes or behaviors that are theoretically linked with reducing suicide. We then describe other key findings that emerged from our narrative reviews that are important for interpreting the available evidence.

Following the section of key takeaways, we include a description of the rationale for the strategy, examples of programs in the literature and in our environmental scan that use the strategy, and a brief overview of the strength of the evidence for the strategy.

For those interested in a brief description of how evidence for suicide prevention activities is both generated and evaluated, please see Appendix B.

Community-Based Suicide Prevention Initiatives

Overall Assessment

Effects on key outcomes: Evaluations of community-based suicide prevention initiatives funded as part of the Garrett Lee Smith Memorial Act found reductions in suicide deaths.

Other key findings: Community-based efforts can take many forms and therefore differ in their components depending on the local context and how the community is defined. Sustainment of activities appears to be important for maintaining positive outcomes. Community-based programs are codified into the National Suicide Prevention Strategy and are components of VA's overall suicide prevention strategy.

Definition and Rationale

Community-based suicide prevention initiatives involve engaging local communities to provide support and resources for individuals at risk of suicide. The National Action Alliance for Suicide Prevention recommends that community-based approaches include the following key elements: shared vision; strategic planning; multiple integrated suicide prevention strategies; alignment of activities with the local context and culture; clear, open, and consistent communication; surveillance and evaluation to iteratively improve; and a focus on sustainability (Transforming Communities Priority Group, National Action Alliance for Suicide Prevention, 2017). Such community efforts often try to embed the voices of those with lived experience into their planning and implementation activities. Community-based efforts can be broad (e.g., statewide) or more specific (e.g., for a particular American Indian or Alaska Native community).

Examples

One example is suicide prevention efforts funded via the Garrett Lee Smith Memorial Act, which was funded by Congress in 2004 and allowed communities to select and implement their own approaches to suicide prevention (Goldston and Walrath, 2023) that align with the Surgeon General's Call to Action to Implement the National Strategy for Suicide Prevention (U.S. Department of Health and Human Services, 2024). Specific to veterans, the Governor's and Mayor's Challenges to Prevent Suicide Among Service Members, Veterans, and Their Families is funded by SAMHSA to develop local and state-level efforts using VA's Community-Based Interventions for Suicide Prevention model (National Community-Based

Interventions for Suicide Prevention Program, 2022; SAMHSA, 2024). VA has also been involved in efforts to expand its reach by collaborating with communities (e.g., DeBeer et al., 2023).

An example found in our scan is Arizona Coalition for Military Families' Be Connected program, which includes a variety of activities relevant to suicide prevention, such as a support line, care navigation, career navigation, community engagement, outreach, and capacity-building. Another example, One Tribe Foundation, focuses on Native children of fallen soldiers, police, and first responders and includes traditional and nontraditional strategies, such as gatekeeper training, tribal council, wind therapy, social connections, retreats, and recreational activities.

Evidence

Community-based efforts have received support from empirical studies and expert opinion that resulted in them being codified into the National Suicide Prevention Strategy (Strategic Direction 1: Community-Based Suicide Prevention) (U.S. Department of Health and Human Services, 2024), as well as VA suicide prevention efforts and federal funding mechanisms described earlier. Several studies have examined the effectiveness of the Garrett Lee Smith grants for community-based intervention. Communities implementing these suicide prevention programs showed fewer deaths by suicide and less mortality among young people, especially in areas with longer implementation and in less densely populated areas (Goldston and Walrath, 2023). Programs also showed a favorable cost analysis as a result of reduced health care costs in communities that implemented the prevention activities (Godoy Garraza et al., 2018). However, sustainability is an issue. It appears that the impact does not endure beyond the implementation period, making sustainment and institutionalization of activities critical to continued success (Godoy Garraza et al., 2019).

Social Connection Programs

Overall Assessment

Effects on key outcomes: Social connection programs have not been examined in detail in terms of their effectiveness.

Other key findings: There is compelling rationale and evidence for increasing meaningful social connections, fostering a sense of belonging, and decreasing social isolation for suicide prevention. Social connection programs are generally not teased out of larger programs or arrays of services in which they are embedded, making it difficult to determine whether specific instances are effective in reducing suicide risk.

Definition and Rationale

Social connection programs bring veterans together for shared experiences, bonding, and camaraderie. The rationale behind this approach is the well-supported finding that social support is a protective factor in suicide risk (e.g., Kleiman and Liu, 2013). Studies in veteran populations have shown that a feeling of connection to family, other veterans, friends, and coworkers is related to lower symptoms of PTSD (Zalta et al., 2021) and moral injury (Kelley et al., 2019), as well as increased help-seeking and reduced suicidal ideation and depressive and anxiety symptoms (Teo et al., 2018; Wilks et al., 2019). A related concept, sense of belonging, has also been demonstrated to have strong negative associations with suicide ideation, suicide attempts, and depression (Joiner et al., 2009).

Examples

Many social connectedness programs are part of a larger intervention or prevention program that includes other components, such as a focus on mental and physical health and education (Werber, Phillips, and Skrabala, 2023). The social connectedness emphasis itself most often occurs within physical or outdoor recreational activities but also within retreats, working with animals, visual and performance arts, volunteering, peer support models, and more (Werber, Phillips, and Skrabala, 2023). Thus, the concept of social connectedness overlaps with some of the other program elements in this review, and readers are encouraged to review those sections.

The concept of *social prescribing*, or referring individuals to nonmedical social settings and supports, to increase social connections has become a popular prevention tactic for a variety of medical and mental health problems in other countries (Morse et al., 2022). Internationally, social prescribing is increasingly being seen as a useful tool in suicide prevention (Dash et al., 2024).

Televeda's Hero's Story is an example of building social connection for American Indian or Alaska Native individuals using a virtual platform to reduce social isolation and promote community healing via traditional healing practices. Another example is VHV, a California-based program for incarcerated veterans that leverages peer support, along with narration therapy and mind–body integration practices.

Evidence

The way in which social connectedness interventions are embedded within other programs and activities makes them difficult to study, as do inconsistencies with how social connection is measured and operationalized.

To date, there have been few studies of the social connectedness aspect of programs for suicide prevention in veterans, with a few exceptions (Werber, Phillips, and Skrabala, 2023). One such exception is the WoVen program, which is designed to connect female veterans. Initial findings indicated that participants were satisfied with the program and reported that it had a positive impact on their functioning, such as social or work functioning (Galovski,

Street, McCaughey, et al., 2022). More recently, there was evidence in improvements in PTSD symptoms and, for some, improvements in belongingness, depression, and quality of life (Galovski et al., 2024). However, this study did not have a control group and did not examine suicide risk. More has been done in the active-duty military: Among airmen, the Wingman-Connect program leverages peers in a comprehensive upstream prevention program (that is, before any risk of suicidal behavior is detected) and has demonstrated impact on suicide risk (Wyman et al., 2020), as well as enhancements to social network metrics for all service members, including those most at risk (Wyman et al., 2022).

Gatekeeper Training

Overall Assessment

Effects on key outcomes: There is some evidence that gatekeeper trainings change individuals' suicide prevention knowledge and willingness to intervene but modest evidence that these programs change gatekeepers' behaviors or increase relevant referrals.

Other key findings: Most current evidence is based in school or university settings, limiting generalizability to nonstudent veterans. New models of gatekeeper trainings that build cohesion among trained groups may hold promise for reducing group members' suicide risk.

Definition and Rationale

Gatekeeper training programs train community members (which can include professionals, family members, caregivers, or others in a position to intervene) "how to identify individuals who may be at risk of suicide, provide immediate support, and refer" or transport them to an individual or service that is able to offer help (Burnette, Ramchand, and Ayer, 2015, p. 1). In 2015, RAND researchers developed a theoretical model to describe how gatekeeper trainings may encourage individuals to intervene with someone at risk of suicide by changing their knowledge about suicide, beliefs and attitudes about prevention, willingness or reluctance to intervene, or their self-efficacy on how to intervene (Burnette, Ramchand, and Ayer, 2015, p. 4). The model further describes individual attributes (e.g., professional role) and social contexts (e.g., work environment) that may influence the efficacy of such trainings.

Examples

Gatekeeper training programs are frequently used in efforts to prevent suicide (Spafford et al., 2024). In the military, the Army's ACE (Ask, Care, Escort) program is a gatekeeper training program required for all soldiers to complete annually (Trachik et al., forthcoming; U.S. Army, undated). VA has created VA S.A.V.E. (know the *signs* of suicidal thinking; *ask* questions; *validate* the veteran's experience; *encourage* treatment and *expedite* getting help), an in-person or online gatekeeper training program for VA employees (King et al., 2012). Outside VA, other gatekeeper training programs for preventing veteran suicide include

Pharm-SAVES, a gatekeeper training program designed for pharmacists who serve veterans (Stover et al., 2023), and the Overwatch Project, which encourages individuals with six gatekeeping steps, including asking specifically about access to firearms for those at risk of suicide (Overwatch Project, undated). Two other well-known gatekeeper training programs are Question, Persuade, and Refer, or QPR (Quinnett, 2023) and Applied Suicide Intervention Skills Training, or ASIST (Gould et al., 2013).

New models of gatekeeper training are emerging. As described in the section on social connection programs, one example is the Air Force's Wingman-Connect program, which consists of three two-hour training blocks. It is unique in that it is a network-based training designed to strengthen social connections among group members and build "each group's collective skills for managing career and personal challenges, to create a healthy group culture that leverages the influence of peers on members' behaviors including their help seeking and coping" (Wyman et al., 2022, p. 2).

Evidence

A recent meta-analysis provides some evidence that gatekeeper training programs change behaviors—i.e., increasing gatekeepers' behaviors identifying or intervening with someone at risk of suicide—but that these effects are small. Larger effects were found for behavioral intentions, i.e., gatekeepers' intentions to intervene (Spafford et al., 2024).[1] However, most of these studies were conducted in school or university settings, potentially limiting the generalizability of these findings to programs for nonstudent veterans.

In addition, most studies included in the meta-analysis were pre-experimental, meaning that there was no control group comparison condition. Among the 46 studies included in the meta-analysis (Spafford et al., 2024), only three randomized controlled trials (RCTs) have been conducted evaluating gatekeeper training programs. All three were in a school or university setting, with two (Jacobson et al., 2012; Wyman et al., 2008) demonstrating positive, though modest, changes in intervention behavior and one showing no change in behavioral intentions (Burket, 2017).

Although there is limited evidence demonstrating changes in behaviors following gatekeeper training programs, a 2015 review by Burnette, Ramchand, and Ayer found strong evidence that trainings can change gatekeepers' knowledge about suicide and reduce gatekeepers' reluctance to intervene. The review also highlights that trainings may not affect everyone similarly. Trainings may be more beneficial for those without prior mental health training and for those who have roles that put them in more frequent contact with those at risk of suicide (e.g., in school settings, teachers versus other staff). The social setting or context in which gatekeeper training occurs may also be important, although the 2024 meta-analysis by Spafford et al. found no difference based on setting (though it noted limited heterogeneity of studies across settings). Many gatekeeper training programs engage gatekeepers in role-plays

[1] Similar findings were reported in an earlier meta-analysis (Yonemoto et al., 2019).

throughout training to actively practice communicating with individuals at risk for suicide. Evidence from multiple RCTs has demonstrated the advantage of interactive role-playing and performance during gatekeeper training to increase knowledge acquisition and learning (Davico et al., 2022).

Finally, nontraditional gatekeeper training programs, such as Wingman-Connect described previously, were not included in the Spafford et al. (2024) or Burnette, Ramchand, and Ayer (2015) reviews but show promising results. Wingman-Connect has many components, including a gatekeeper aspect, making it difficult to discern what the most important elements are. Relative to a stress-management control group, individuals participating in Wingman-Connect reported lower suicide ideation severity and depression severity at one month, with evidence that this was facilitated by strengthening cohesion among the training groups (Wyman et al., 2020). Furthermore, those at highest risk of suicide prior to training reported greater network strength and social integration one month after the training (Wyman et al., 2022). Gatekeeper trainings like Wingman-Connect that seek to build social connections within groups, in addition to educating and motivating group members to intervene, provide a promising approach to not only identify those at risk and provide short-term assistance but prompt long-term support for those at risk for suicide.

Case Management or Care Coordination

Overall Assessment

Effects on key outcomes: There are not many high-quality studies that support case management or care coordination on its own for preventing suicide. The exception is when case management or care coordination is embedded as a part of holistic interventions. For example, collaborative care models for depression treatment have some demonstrated impact on suicide outcomes and include care coordination as a main element in their team-based approach. Case coordination is also an element in the Henry Ford Perfect Depression studies that showed reduction in suicides after as systemwide enhancement to depression treatment.

Other key findings: Case management or care coordination is a common element of programs that come after suicide risk screening and also discharge from inpatient or ED care following a suicide attempt. It is described as part of the Zero Suicide plan (the federally funded set of strategies and tools for reducing suicide in health care settings) called *pathway to care*, which recommends that organizations "maintain continuous engagement and ensure high-quality care" for individuals at risk (Zero Suicide, undated-b).

Definition and Rationale

Case management or care coordination consists of efforts to connect veterans with various support services, including mental health resources and peer support networks. The concept is that a dedicated professional can help alleviate some of the barriers that people face in

accessing quality care by identifying reputable services, making warm handoffs, and working through barriers to improve both access and uptake of care.

Many case management programs focus on connecting veterans to services that address social determinants of health, such as housing and food insecurity, in addition to physical and mental health care, making this strategy overlap somewhat with those that focus directly on improving social determinants of health. These strategies also overlap with post-hospitalization outreach efforts when they involve the transition between inpatient hospitalization and outpatient services.

Examples

Case management or care coordination is often used to follow up on suicide screening efforts for those who screen positive for suicide risk. One prominent example is the inclusion of case management within a primary care collaborative care model, as described in more detail in the next section. Other models use case management following discharge from an ED or inpatient hospitalization setting for those who have attempted suicide.

The VHA has a long-standing program of case management across its system for a variety of health conditions. Some recent examples include a collaborative care model (universal screening plus care management based in primary care) focused on suicide risk (Dobscha et al., 2023; Wittink et al., 2020) and efforts to integrate peer specialists into case management teams (Chinman et al., 2015).

One example is Massachusetts-based Home Base, a program that trains community-based clinicians and other community partners to identify veterans at risk for suicide and refer them into proven treatments (Home Base, undated). Another example is Community Hope, which is funded through VA's Staff Sergeant Parker Gordon Fox Suicide Prevention Grant Program and provides case management support to help veterans in select counties in New Jersey access medical care, mental health or substance treatment, child care, and job training (Community Hope, undated).

Evidence

Some studies have embedded case management into a collaborative care model in primary care settings, in which a multidisciplinary team screens and works with identified at-risk patients with a patient-centered approach. An early study of this model in older adults showed reductions of suicide ideation (Unützer et al., 2006), and this work led to implementation of a similar model in military treatment facilities (Engel et al., 2014). This study showed improvements in PTSD and depression, and exploratory analyses showed decreases in hopelessness and suicide ideation in the collaborative care group but not the usual care group (Engel et al., 2016).

Recent studies have shown mixed support and the need for additional research on case management for suicide risk. One study in South Korea provided evidence that case management has promise in reducing suicide risk among those who had attempted suicide and

completed the government-sponsored case management program (Shin et al., 2019). An open trial of a team-based care management program for youths in the 90 days after inpatient care also showed some promise in facilitating links with services (Gryglewicz et al., 2023). However, another study tested care management against usual care for adult outpatients with suicide ideation and found no difference in self-harm outcomes over an 18-month follow-up period (Simon et al., 2022). There are also some indications that case management might have shorter-term benefits rather than long-term ones (Kim et al., 2018).

Multifunctional Digital Health Platforms (mHealth Applications)

Overall Assessment

Effects on key outcomes: There is variability in the types of mHealth applications that may be used to prevent veteran suicide, but only a few have been evaluated and none have demonstrated evidence of an effect on suicide outcomes. There is evidence that some mHealth applications may reduce mental health symptoms or other symptoms associated with suicidality, including evidence specifically among veterans.

Other key findings: Although there are expanding mHealth applications geared toward veterans, few veterans are aware of them, making dissemination and marketing critical for effective implementation.

Definition and Rationale

For individuals with chronic mental health or substance use conditions or with chronic suicidal thoughts, self-management is a critical strategy for improved outcomes. mHealth applications employ "mobile and wireless technologies such as short messaging services (SMS), personal digital assistants (PDA), patient monitoring devices, mobile phones and tablet computers" to enable "patients to take an active role in the monitoring and management of their conditions" thereby improving "patient-oriented outcomes," maintaining or slowing "the worsening of progressive conditions" and reducing "costs by minimizing the need for hospital visits" (Reston et al., 2018, p. 3). They can further be categorized as providing the following functions, from Farzandipour et al. (2017):

- sending alerts or reminders
- providing information or instructions
- providing guidance based on user-entered information
- capturing user-entered data.

Farzandipour et al. (2017) also include as an mHealth function "[a]utomatic detection of patient behavior/activity or clinical measures by a monitoring device" (Reston et al., 2018, p. 6). We include these technologies in the section on real-time mental health monitoring.

In conducting the environmental scan and during our literature review, we identified two additional mHealth functions:

- facilitating easier communication with providers (Farzandipour, Sharif, and Anvari, 2024)
- connecting veterans with peers (covered in the section on social connections).

Examples

One example is HereNOW Help, which offers in its suite of applications a Veteran Mental Wellness Platform, which includes multiple applications (HereNOW Help, undated). One, directed to veterans, allows for self-care (journaling, daily wellness check-ins, transition support, and red-flag alerts to family and friends) and suicide prevention (smart alerts for early intervention, coping skill training, and 24/7, 365-days-of-the-year access to peer coaches and mental health professionals and resources). Another application for providers offers support tools (communicate with patients, send out surveys, and receive alerts for high-risk clients). Finally, there is an application for family and friends that provides community chat features and a way to monitor treatment progress.

Another example is Objective Zero, which is a mobile and peer support application for military service members, veterans, families, and U.S. Department of Defense (DoD) civilians (Objective Zero Foundation, undated). The application confidentially connects people with trained, peer support volunteers via chat, text, and voice messages. Users can also track their symptoms and journal in the application. The application also connects users to mental health resources, VA resources, and self-help resources (e.g., yoga, meditation).

Evidence

A recent systematic review examined the efficacy of mHealth applications designed specifically for current and former military personnel. They identified 14 RCTs or nonrandomized controlled trials investigating those who used (or were given access) to an mHealth application and a control comparison; two of these studies had suicide ideation as an outcome (Farzandipour, Sharif, and Anvari, 2024). Both examined a "virtual hope box," which is an mHealth application of the hope box tool commonly used in CBT, which provides reminders of a patient's reasons for living and facilitates self-soothing activities during periods of distress. Veterans who were given access to the virtual hope box had no difference in suicide ideation at three-, six-, and 12-month follow-up, although there was evidence of an effect on suicide ideation mediated by coping self-efficacy—i.e., the ability to "stop unpleasant emotions and thoughts" or "enlist support from friends and family" (Bush et al., 2017, p. 331; Denneson et al., 2019). A 2020 systematic review of mHealth technology for suicide prevention not restricted to military or veteran populations identified four trials, including the aforementioned Virtual Hope Box (Bush et al., 2017), and found that no studies found signifi-

cant effects on suicide ideation (Melia et al., 2020). A third review identified ten studies and reported similar findings (Sarubbi et al., 2022).

Although current evidence does not support the use of mHealth applications for reducing suicide, there is evidence that some of these applications reduce mental health or other symptoms that increase risk of suicide. For example, systematic reviews of current and former military personnel have found evidence that mHealth applications reduced symptoms of PTSD, depression, and insomnia (Farzandipour, Sharif, and Anvari, 2024; Voth et al., 2023). There is also evidence from meta-analyses not specifically focused on veterans that mHealth applications can reduce depression severity, although results are better when used in conjunction with face-to-face treatment (Duarte-Díaz et al., 2023). However, few veterans are aware of these applications, making dissemination and marketing an important consideration when deciding to implement these products (Reger et al., 2022).

Suicide Risk Screening and Assessment

Overall Assessment

Effects on key outcomes: Some suicide risk screeners are effective at identifying individuals at risk of suicide; however, they are poor at predicting future suicide risk.

Other key evidence: By identifying individuals at risk of suicide, suicide risk screening and assessment provide the foundation for evidence-based care to measure changes in severity of risk across time and inform clinical care in a timely manner. Tools based on self-report rely on the person being screened to disclose their suicidal thoughts or behaviors. However, a new generation of tools using machine learning applied to health record or social media data can also identify individuals at risk, although these approaches have limitations. Many professional associations advocate universal suicide screening across health care systems, including the American Academy of Pediatrics, which recommends universal screening for all youths aged 12 and older. However, the U.S. Preventive Services Task Force in 2023 found the evidence to be insufficient to recommend for or against universal screening of suicide risk among adults.

Definition and Rationale

Suicide risk screeners are often brief and generally consist of a set of questions to assess whether an individual is at heightened risk of suicide (Ryan and Oquendo, 2020). Typically used in health care settings, these screeners allow for quick identification of who would warrant further assessment by a provider (National Institute of Mental Health, undated). Suicide risk screeners can be administered through paper questionnaires or online, which may reduce barriers to an individual disclosing thoughts of suicide as some feel more comfortable using a written approach versus discussing it with a clinician (Lotito and Cook, 2015).

Suicide risk assessment provides a more thorough examination of current risk by a clinician applying their clinical judgment based on their knowledge of the literature and weighing

risk and protective factors to determine the level of risk (Ryan and Oquendo, 2020). Suicide risk assessments can be structured or unstructured.

New approaches to suicide risk screening may include efforts that do not directly ask about suicidality or those that predict suicide risk using other data (e.g., other health data or social media data—see the section on real-time mental health monitoring systems later in this chapter).

Examples

Suicide risk screeners include the Columbia–Suicide Severity Rating Scale (C-SSRS) (Posner et al., 2009), Ask Suicide-Screening Questions (ASQ) (Horowitz et al., 2021), Suicide Behaviors Questionnaire–Revised (SBQ; Osman et al., 2001), Beck Scale for Suicide Ideation (BSS; Beck, Kovacs, and Weissman, 1979) and Brief Suicide Cognitions Scale (B-SCS; Rudd and Bryan, 2021). These structured questionnaires provide a set of questions to measure affect, behaviors, previous events (e.g., suicide attempts), and other risk factors for suicide. These questionnaires ask multiple questions to better capture risk of suicide (Hom, Joiner, and Bernert, 2016).

Semi-structured suicide assessments include questions about suicide risk that measure severity of risk while approaching the topic in a more exploratory manner (John et al., 2022). This type of suicide risk assessment often refers directly to the context of the situation (e.g., "You mentioned you have been collecting the opioids you were prescribed after your surgery; do you ever have thoughts of dying or suicide?").

Modern technological advances in suicide risk assessment focus on predicting and assessing for suicide risk without directly screening the individual. For instance, in 2017, VHA rolled out Recovery Engagement and Coordination for Health—Veterans Enhanced Treatment (REACH VET) (VA, 2017). This predictive model, developed from machine learning analyses, identifies veterans at increased risk of suicide by analyzing the veterans' health records (Matarazzo et al., 2023). Providers that work most closely with veterans who fall in the 0.1-percent risk stratum are notified and required to reach out to the veteran within two weeks (Matarazzo et al., 2023).

Evidence

Self-Report Approaches

Suicide risk screeners and assessments are typically used in clinical settings (e.g., treatment clinics, inpatient clinic, hospitals) but can also be used in nonclinical settings, such as schools or social service agencies. Some suicide screening tools have evidence for adequately identifying those at risk for suicide and the severity of that risk; however, there are limitations of these measures, and additional research is needed to better predict those who will transition from suicidal thoughts to suicide attempts (Roos, Sareen, and Bolton, 2013).

Suicide risk screeners are a critical tool for identifying risk, particularly when they are used in tandem with a clinical interview (Lotito and Cook, 2015). A recent meta-analysis of validity

and reliability of suicide risk screeners and assessments indicated that measures are moderately to highly correlated, and multi-item measures were able to capture different components of suicide risk (Campos et al., 2023). Specifically, these multi-item measures can be helpful in identifying the level of risk by capturing such aspects as protective factors, the intent to die, current risk, and past events (e.g., history of suicide attempts) (Campos et al., 2023; Rudd and Bryan, 2021). Trained clinicians may also perform a clinical interview or assessment for suicide risk (Schatten et al., 2020). In these cases, they may use structured assessments (e.g., the C-SSRS) (Posner et al., 2011) or unstructured questions (John et al., 2022).

Research indicates that veterans generally find these clinical interviews appropriate and appreciate being asked about suicide risk (Denneson et al., 2023). Importantly, evaluating for suicide risk does not increase an individual's risk for suicide as research indicates that there is no difference across time in suicidal ideation among those assessed and not assessed for suicide risk (O'Connor et al., 2023). Rather, risk assessment is an important tool for screening and to inform and evaluate clinical practice consistent with evidence-based care and clinical practice guidelines (VA and DoD, 2024).

Although risk assessments will likely remain a common approach to suicide prevention and an avenue for research, this approach does have limitations. Traditional risk assessments are self-reported, so individuals can decide to disclose whether they are experiencing risk of suicide (Roos, Sareen, and Bolton, 2013). For instance, stigma is common among people experiencing suicide risk, and research indicates that veterans are less likely to self-disclose suicide risk when they report higher self-stigma (Ammerman et al., 2022). Not all measures have research demonstrating that they are valid or reliable, which could result in inaccurate identification or lack of identification of suicide risk. Thus, only measures that have research supporting their validity and reliability should be used to assess risk of suicide. Screening measures for other mental health symptoms that include an item for suicide risk, such as screening for depression, are insufficient for identifying those at risk of suicide (Horowitz et al., 2021).

Additional concerns include that current measures are unable to adequately predict future suicide risk (Roos, and Sareen, and Bolton, 2013). Research suggests that current measures are limited and do not fully assess for important psychopathological components that are important to predicting future risk of suicide (Andreotti et al., 2020).

Non-Self-Report Approaches

In recent years, clinical risk assessment has moved beyond clinician-delivered strategies to include algorithmically driven approaches informed by AI and machine learning. REACH VET, described earlier, has been effective at identifying veterans at risk of suicide. The REACH VET intervention was associated with significantly more completed outpatient appointments and safety plans and significantly fewer mental health admissions, ED visits, and suicide attempts (McCarthy et al., 2021). Other examples of risk assessment performed through algorithm-driven approaches include analytic tools that examined the electronic health records of the Indian Health Service, with results indicating that these analytic tools

better identified individuals in the American Indian patient population who were at heightened risk for suicide more accurately than enhanced screening (Adams et al., 2024). These approaches are unique in that they do not require the veterans or the clinicians to actively engage with an assessment in order to identify patients who are at greater risk of suicide. However, there is some evidence that these models can be less accurate when identifying risk for individuals of certain subpopulations. For instance, in a sample across multiple integrated health care systems including nearly 7 million patient encounters, suicide prediction models were less sensitive to identifying risk among Black patients, American Indian or Alaska Native patients, and patients without recorded race and ethnicity, relative to Asian, Hispanic, and White patients (Coley et al., 2021).

Another example is the use of social media to identify those at risk of suicide. A recent study demonstrated preliminary results that analysis of social media data (e.g., metadata, text on a post to social media) can identify service members and veterans at risk of suicide (Zuromski et al., 2024). While in-person suicide risk assessments remain a useful tool to gain insight into who may be at risk of suicide, the ability to identify those at risk of suicide without the veterans even attending mental health visits may be beneficial for preventing veteran suicide.

Universal Screening

Many of those committed to preventing suicide advocate for universal screening of suicide risk in health care settings (Grumet and Boudreaux, 2023). Health systems that have implemented universal screening have done so successfully: In one study, positive screens ranged from 1.6 percent in inpatient settings to 6.3 percent in the ED (Roaten et al., 2018). A trial implementing universal screening in an ED and providing appropriate follow-up (resources and a post-discharge phone call) showed reduced suicide attempts (Miller et al., 2017). The American Academy of Pediatrics recommends universal screening for all patients ages 12 and older (American Academy of Pediatrics, 2023; Roos, and Sareen, and Bolton, 2013); however, the U.S. Preventive Services Task Force in 2023 found the evidence to be insufficient to recommend for or against universal screening of adults for suicide risk. Institutions interested in implementing universal screening for suicide risk should have plans to manage and support individuals who screen positive (Ayer et al., 2022; Horowitz et al., 2021; Sullivant et al., 2021).

Real-Time Mental Health Monitoring Systems

Overall Assessment

Effect on key outcomes: Some technologies demonstrate a modest ability to detect suicide risk in real time, but no research has yet tied the use of these devices to a reduction in suicide outcomes.

Other key findings: Real-time monitoring (and prediction) of suicide risk together with associated interventions is in its infancy; just-in-time adaptive interventions may hold promise.

Definition and Rationale

Two types of data have been identified for the assessment of suicide risk: static and dynamic risk factors. *Static risk factors*, such as sex assigned at birth, experiences of prior trauma, and history of suicide attempts, are unchangeable. In contrast, *dynamic risk factors*—such as access to firearms, substance use behaviors, mental and emotional health symptoms, post-hospitalization transitions, social support, and access to care—change over time. Most prior research has assessed risk factors retrospectively over periods that may extend as long as more than a year, making it difficult to determine who is at risk and, more importantly, *when* someone is at risk. *Fluid vulnerability theory* describes that individual thoughts of suicide are dynamic, with peaks representing suicidal crises (Rugo-Cook et al., 2021; Ellis, 2006).

Mobile and sensor data present a significant opportunity to advance the understanding of suicide risk assessment by capturing dynamic risk data. Generally defined, these approaches use biometric or other technology to monitor potential markers of individuals' mental health status. This information is then fed back to the user, sometimes with self-care messages, and may provide alerts to their clinical or nonclinical (e.g., families, friends) care providers for intervention when necessary.

There are three broad categories for collecting dynamic data:

- Ecological momentary assessments (EMAs) have been the most commonly studied. Participants actively provide data on their mood, including thoughts of suicide, typically using a mobile phone or application and often multiple times per day (Kleiman and Nock, 2018).
- Passive dynamic data collection entails phone sensors to collect passive data, such as GPS data, accelerometer data, or data from users' applications, to identify changes in mood or suicide risk. For example, there is research documenting an association of patterns of Instagram use and posted content with mood in nonclinical samples (Frison and Eggermont, 2017; Reece and Danforth, 2017; Robinson et al., 2016).
- Biosensor technology collects data on biomarkers that may indicate changes in mood or other emotional symptoms related to suicide risk. Biomarkers of depression, the most commonly studied mental health condition with respect to biomarkers, include heart rate, heart rate variability, and sleep patterns (Borghare, Methwani, and Pathade, 2024; Kang et al., 2020).

These data collection tools may generate massive amounts of data; therefore, AI, machine learning, and complex statistical and computational modeling are necessary to convert most data into accurate and precise indicators of risk. One could expect future applications to blend data from all three sources to discern more-precise indicators of risk.

Examples

One example is NeuraMetrix, which detects and monitors neurodegenerative diseases and psychiatric disorders by measuring typing inconsistency on keyboards (NeuraMetrix, undated). Specifically, individuals download an application on their computers that monitors typing cadence. The device is marketed to use for monitoring Parkinson's disease, Huntington's disease, depression, and Alzheimer's disease.

Another example is Battle Buddy, an application that uses content from VA's Suicide Safety Planning program to conduct AI-enabled daily check-ins with veterans (University of Southern California Institute for Creative Technologies, undated). With Mission Daybreak funding, the mobile application is incorporating data captured via wearable sensors that monitor sleep, exercise, and other health signals.

Evidence

A 2018 review identified ten studies that used real-time monitoring to assess suicide risk. All were EMA studies and focused on subpopulations at increased risk of suicide (e.g., individuals with borderline personality disorder or those who had attempted in the past) and investigated suicide ideation, not attempts or deaths. Across studies, there were generally high rates of compliance (i.e., participants answered the EMA questions). They collectively provide evidence in support of fluid variability theory. In addition, they conclude that different emotional states (e.g., sadness) predict future thoughts of suicide above and beyond one's current thoughts of suicide, whereas the same pattern is not observed for other emotions, such as hopelessness and loneliness (Kleiman and Nock, 2018).

Some newer evidence has examined passive monitoring techniques. One recent study used digital phenotyping to develop an algorithm to detect a period of risk for individuals using both active and passive data collection procedures (Barrigon et al., 2023). Participants' smartphones generated data, such as walking metrics, time spent at home, and application use. The algorithm used these data to create daily activity profiles for each patient and detect shifts in these profiles over time. These shifts were identified as critical periods, and their correlation with suicide-risk events was examined. The algorithm produced positive results in its ability to predict suicide risk (suicide attempt or ED visit for psychiatric care) within a one-week time frame, although there was no intervention examined.

A recent systematic review focused on biosensor measurement found that aspects of sleep (insomnia, onset latency, sleep efficiency), heart rate, heart rate variability, and physical activity level (as measured by biosensors) may be associated with suicide ideation (Kang et al., 2020). This suggests that biosensors targeting these physiological indicators may be useful for identifying suicide risk.

Real-time monitoring devices can be used to provide interventions through a new suite of tools termed *just-in-time adaptive interventions*. These are defined as interventions that adapt the "provision of support (e.g., the type, timing, intensity) over time to an individual's changing status and contexts, with the goal to deliver support at the moment and in the context

that the person needs it most and is most likely to be receptive" (Nahum-Shani et al., 2018, p. 446). Although there is no evidence yet of just-in-time adaptive interventions for suicide risk, trials are underway for high-risk individuals that, for example, test various ways of texting safety messages during times of heightened risk (e.g., Data Science for Dynamic Intervention Decision-Making Center, 2024). Key issues to consider are whether these interventions should complement existing approaches or be stand-alone interventions and what type of intervention will be most effective (e.g., providing the user with crisis resources, encouraging them to contact members of their social networks) (Coppersmith et al., 2022).

It is important to note that real-time monitoring often co-occurs with multifunctional digital health platforms (mHealth applications), as suggested by the examples provided. We review the evidence of those activities in another section; unfortunately, the evidence for these applications for preventing suicide is limited.

Peer-Led Mental Health Programs

Overall Assessment

Effect on key outcomes: There is variety in what constitutes peer support and mixed findings on whether peer-support programs prevent suicide. There is more information that certain types of peer support can improve certain mental health outcomes but a paucity of information on what specific aspects of peer support work, for whom, and in what contexts.

Other key findings: Implementation of peer-led mental health programs has outpaced research. Peer support is generally used to augment and extend existing services rather than as a stand-alone intervention. It is seen as complementary and employs different mechanisms (e.g., role-modeling, instilling hope) and different outcomes (e.g., recovery, resilience, improved quality of life) from those of traditional clinical services that focus on symptom relief.

Definition and Rationale

Peer-led mental health programs focus on crisis responses and mental health support related to suicide prevention, with aims to help individuals navigate service systems and engage with needed treatment and to instill hope, inspire recovery, and empower individuals to make choices and handle future crises. *Peers* are defined in different ways across different programs but often include individuals who have lived experience with mental health treatment or suicide crisis as part of their definition.

Examples

VA has a long-standing program in peer intervention services and includes it within its National Strategy for Preventing Veteran Suicide (VA, 2018). Peer-support services provided by VA include various service settings and modalities across many departments (VA,

undated-a). VA is also using peer specialists in other suicide research initiatives, including Suicide Prevention by Peers Offering Recovery Tactics (SUPPORT) (Chalker et al., 2024), Peer Engagement and Exploration of Responsibility and Safety (PEERS), and Peers for Valued Living–VA (PREVAIL-VA), as described later.

Peer support services have become increasingly popular in the civilian sector for suicide prevention, including crisis services. Examples include YouthLine in Oregon, Rocky Mountain Crisis Partners in Colorado, Recovery Innovations International, and a systemwide inclusion of peers in Arizona, including Connections Health Solutions.

There are also some examples from the active-duty military settings. Wingman-Connect is an upstream prevention program that leverages the natural social network in the Air Force (Wyman et al., 2020; Wyman et al., 2022). Airmen's Edge is a peer-to-peer education program in which peers are trained to deliver health-focused content and training in crisis-response planning (Baker et al., 2021). Project Safe Guard uses discussions within natural peer groups to improve gun safety through safe storage and restricting access during risk periods and has been implemented for National Guard and U.S. Space Force military personnel, for example (Kennedy et al., 2024; Stanley et al., 2024).

Vets4Warriors is a 24/7 peer support network staffed by veterans that provides "immediate, confidential, ongoing support to every member of the U.S. military community" before "challenges turn into crises" (Vets4Warriors, undated). A similar example is Victory for Veterans, which provides its Warriors for Life online peer support services.

Evidence

Although not specific to suicide prevention, a recent meta-analysis examined peer support for mental illness and found small but significant effects on clinical and personal recovery outcomes but not on functional outcomes (Smit et al., 2023). A VA study that added peer specialists into intensive case management teams found improved outcomes for those whose teams included a peer specialist (Chinman et al., 2015). As noted in Appendix B, improving mental health outcomes can be an indirect way of reducing suicide risk.

A 2020 review of programs using lived experience peer support for suicide prevention identified seven programs, with only three evaluated, and overall found a lack of robust evidence for the approach (Schlichthorst et al., 2020). A newer model, called Peers for Valued Living, or PREVAIL, has promising pilot data (Pfeiffer et al., 2019) and is now being tested in a larger clinical trial (Lapidos et al., 2019), as well as adapted and tested for use in VA (Schmutte et al., 2023).

As outlined in the social connections and gatekeeper training sections, the Wingman-Connect program uses peers to enhance natural social networks in an upstream preventive approach. A cluster RCT found lower suicide risk scores and depression scores among participants and that participation had an effect on reducing suicide risk scores by increasing feelings of connection and cohesion (Wyman et al., 2020; Wyman et al., 2022).

Noncrisis Psychological Treatment

Overall Assessment

Effects on key outcomes: Certain types of treatments (collaborative safety planning, CBT, and dialectical behavior therapy [DBT]) show small but positive effects on reducing suicidal thoughts and behaviors, including in studies of veterans. This general group of interventions has also been shown to improve mental health symptoms compared with control groups.

Other key findings: Despite the existence of effective psychosocial treatments, it can be hard for veterans to access such services because of limitations in availability and barriers to access.

Definition and Rationale

Noncrisis psychological treatment refers to treatments delivered to individuals (or groups) that typically last from a single, brief session to 20 weeks of treatment. Compared with crisis counseling, these psychological treatment modalities tend to be less focused on immediate needs and safety in one specific situation and more focused on development of healthy patterns of thoughts and behaviors to support long-lasting changes in one's life. Examples include CBT, DBT, and mindfulness-based interventions. This is not an exhaustive list of noncrisis treatments. In fact, in our landscape review, we identified several organizations that provide alternative therapies, such as traditional Native American healing, yoga-based therapies, and virtual reality interventions. While we do not provide a review of every single type of noncrisis psychological treatment, we do note their existence and acknowledge that there is broad heterogeneity within this category of activity.

Examples

In this section, we review some of the most common psychological interventions used to address suicidal thoughts and behaviors.

Brief Interventions for Suicidal Thoughts and Behaviors

With the emerging changes to mental health care and delivery, there has been a recent surge in use and testing of brief suicide-specific interventions. Brief interventions tend to consist of one to four sessions of intensive engagement and care. One of the most recognized of these is the Safety Planning Intervention (SPI) (Stanley and Brown, 2012). This intervention aims to enhance treatment engagement and support development of suicide-specific coping mechanisms for suicidal individuals in various clinical environments. Typically, an SPI session lasts about 20 to 45 minutes.

Another approach used has been motivational interviewing for suicidal ideation (MI-SI) (Britton et al., 2011), which spans two sessions over the course of three days. The objective of MI-SI is to enhance patients' desire to live, thereby decreasing their overall suicide risk (Britton et al., 2011). Essentially, it shifts a patient's motivation from wanting to die to want-

ing to live, aiming to make life more fulfilling (Britton, Williams, and Conner, 2008). Some researchers argue that discussing suicide can inadvertently cause patients to dwell on suicidal thoughts. Hence, they recommend that clinicians concentrate on conversations about living and positive change rather than suicide (Britton et al., 2020).

Collaborative Assessment and Management of Suicidality (CAMS) (Jobes, 2016) is a framework that aims to modify how clinicians engage with, assess, and provide suicide-specific treatment and interventions for patients at risk. It stresses the importance of collaboration between clinicians and patients and strives to improve patients' motivation to live. It is being used widely, including with veterans (Jobes, Bryan, and Neal-Walden, 2009), and usually comprises about six to eight sessions that focus directly on the drivers of a patient's wish to die and problem-solving or placing referrals to address such drivers.

Another brief intervention recently tested within an RCT in Switzerland is called the Attempted Suicide Short Intervention Program (ASSIP) (Gysin-Maillart et al., 2016). The ASSIP is composed of three sessions, each of which lasts about 60 to 90 minutes. Patients who have attempted suicide are asked to tell the clinician the story that led up to their attempt; their story is video recorded and then played back to the patient-clinician dyad in the following session to develop a list of warning signs and safety strategies. There are more ASSIP-trained therapists in Europe than in the United States (ASSIP, undated).

Cognitive Behavioral Therapy for Suicide Prevention

Cognitive behavioral therapy for suicide prevention (CBT-SP) endeavors to reduce risk factors for suicide and enhance coping with the goal of eliminating suicidal behavior. The more general umbrella of CBT has been a long-standing, proven treatment for depression and anxiety (e.g., Watts et al., 2015), with extensions to special populations and service settings in recent years (for example, peer-supported computer-based CBT for depression in veterans; Pfeiffer et al., 2020). Subtypes of CBT, CBT-SP (Stanley et al., 2009) and brief CBT (Rudd et al., 2015), focus specifically on suicide risk, aiming to equip high-risk patients with more-effective coping mechanisms (e.g., cognitive restructuring) to manage stressors and issues that lead to suicidal behaviors. Therapists are also trained to identify patient-specific factors that sustain suicidal behaviors (Brown et al., 2005; Rudd et al., 2015). The main objectives of this approach are to pinpoint the immediate triggers that activate the patient's suicidal state and to address and improve patterns of thinking, behaviors, and interpersonal interactions to bolster coping skills. Part of many CBT treatments is behavioral activation, which may include participating in pleasurable activities. Many such activities have been promoted as suicide prevention strategies themselves—see, for example, the sections of this report on passive entertainment, gaming, physical recreation, and expressive arts.

Dialectical Behavior Therapy

DBT is an intervention that integrates CBT mindfulness and acceptance and has a special emphasis on affect regulation. It was originally developed for individuals with borderline personality disorder who exhibit chronic suicidal or self-harming behaviors (Linehan et al.,

2015). DBT focuses on behavior change and employs a dialectical approach, emphasizing acceptance when patients feel misunderstood and promoting change when they need motivation. The therapy consists of three main elements: (1) receiving group-based skills training, (2) enhancing skills and overcoming motivational barriers in one-on-one therapy sessions, and (3) integrating these skills into everyday activities. Traditionally, DBT is a lengthy treatment, typically lasting a year or more, that includes individual and group therapy and coaching calls.

Mindfulness-Based Interventions for Suicide Prevention

Interventions centered on mindfulness practice form the core of this treatment. Mindfulness-based interventions include such techniques as guided meditation, mindful engagement in everyday tasks (e.g., mindful eating), body scanning, and breathing exercises, all aimed at cultivating mindfulness, a "state of active, open attention to the present" (Psychology Today, undated). Mindfulness-based interventions tend to consist of eight to 12 weeks of treatment, typically accompanied by a written manual. Examples used for veterans include brief mindfulness-based intervention for suicide ideation (MB-SI) (Herrmann et al., 2024) and mindfulness-based cognitive therapy for preventing suicide (MBCT-S) (Interian et al., 2021).

Evidence

Evidence for Brief Interventions

There is substantial evidence supporting the effectiveness of safety planning (Ferguson et al., 2022) and crisis response planning (Bryan et al., 2024) when implemented with patients at risk for suicide. These outcomes pertain to both utilization of the established plan (Stanley et al., 2016) and reduction in the frequency of suicide attempts (Stanley et al., 2018; Nuij et al., 2021). However, the methodological quality of these studies varies, and future research is needed (Nuij et al., 2021). The SPI has also been used with veterans. For example, it has been evaluated with veterans in EDs and in psychiatric inpatient settings for suicide-related concerns (Currier et al., 2015; Rings et al., 2012), with recent studies indicating that, when paired with a structured follow-up, SPI is associated with higher treatment attendance and reduced hospitalization rates three months after discharge from the ED (Stanley et al., 2015).

Motivational interviewing is often combined with other intervention components. One meta-analysis examined "motivational interviewing–infused" interventions and found that they overall were successful in increasing mental health treatment use (Lundahl et al., 2024). Specific to veterans, an open trial of MI-SI, consisting of two sessions over three days, demonstrated that veterans discharged from the hospital showed a decrease in suicidal thoughts both immediately and two months after treatment compared with their initial baseline measures (Britton, Conner, and Maisto, 2012), but a subsequent RCT showed that both groups improved to the same degree (Britton et al., 2020).

A meta-analysis of the CAMS model showed significant decreases in suicide ideation and general distress but no differences in suicide attempts or self-harm, with smaller effect sizes

noted in studies focused on active-duty military or veterans (Swift, Trusty, and Penix-Smith, 2021).

Evidence for Cognitive Behavioral Therapy

There is a large evidence base for the use of CBT interventions for suicidal thoughts and behaviors (D'Anci et al., 2019; Mann, Michel, and Auerbach, 2023; Wu et al., 2022). When applied to address specific suicide-related thinking and triggers, CBT-SP and brief CBT show reductions in repeated suicide attempts in patients who visited an ED after an initial attempt, compared with treatment as usual (Brown et al., 2005; Rudd et al., 2015). Fewer studies focus specifically on veterans; those that do tend to focus on a special population of veterans (e.g., with chronic pain or insomnia) but show positive effects on suicide ideation or attempts for these subgroups (e.g., Brown et al., 2016; Ecker et al., 2019; Ilgen et al., 2023; Kothgassner et al., 2021; Trockel et al., 2015).

Evidence for Dialectical Behavior Therapy

DBT has demonstrated effects on reducing suicidal and self-injurious behavior across different populations (D'Anci et al., 2019; Mann, Michel, and Auerbach, 2023; Rizvi et al., 2024). Most studies have been focused on individuals with borderline personality disorder (Chen et al., 2021), but DBT also shows promise among adolescents for both self-injurious behavior and suicide ideation (Kothgassner, 2021). Few studies to date have focused on veterans. A recent study among veterans who were at high risk of suicide found that both those who received DBT and those who received treatment as usual improved to the same degree in suicidal thoughts or behaviors (Goodman et al., 2016).

Evidence for Mindfulness-Based Interventions

Mindfulness-based interventions have become popular over the past two decades. A review of studies focused on veterans showed improvements in overall mental health but also higher rates of attrition during treatment (Goldberg et al., 2020). A study of MBCT-S for veterans post-hospitalization showed no difference in suicide deaths compared with treatment as usual but did show reductions in suicide attempts and rehospitalizations (Interian et al., 2021). An inpatient application of MB-SI showed some promise on proximal outcomes, such as increased curiosity and mindfulness, but the study was too small to assess suicide outcomes (Herrmann et al., 2024). In their recent review of the literature, Schmelefske et al. (2022) identified seven RCTs that noted small effects of mindfulness-based interventions on suicidal ideation, but these were not specifically focused on veterans.

Availability of Evidence-Based Treatments

While there are some evidence-based treatments that show consistent or promising results on reducing suicidal behaviors or adjunct mental health symptomology, access and availability to these treatments remain major hurdles. In the past decade, mental health treatment and care delivery systems have undergone significant transformations. More-tolerable classes of psychotropic medications have been introduced and are now widely accessible. Additionally,

a larger share of the U.S. population is covered by managed care, with primary care clinicians playing an increasingly central role in delivering mental health services. In an early study focused on receipt of evidence-based treatment for common mental health disorders (e.g., anxiety, depression, panic disorder), Wang, Berglund, and Kessler (2000) provided crude and adjusted probabilities of receiving any mental health care and care that is aligned with clinical practice guidelines. While 53.8 percent of respondents with at least one 12-month mental disorder had accessed some form of mental health care in the past year, only 14.3 percent had received treatment consistent with evidence-based guidelines. Among individuals with the most-severe and most-disabling mental illnesses, just 25 percent received guideline-concordant care. Factors associated with receiving guideline-based treatment included being White, female, and severely ill and having mental health insurance coverage. For veterans specifically, a RAND report from 2014 indicated that about one-third (33 percent) of providers self-reported using an evidence-based treatment with the majority (greater than 75 percent) of their patients (Tanielian et al., 2014). However, the report also noted that evidence-based practices were employed more often by providers who had extensive training in these techniques and treatments. Finally, a shortage of mental health clinicians nationally makes receipt of psychotherapy challenging (SAMHSA, 2021).

Crisis Psychological Clinical Services

Overall Assessment

Effects on key outcomes: Many individuals who use crisis services, such as the Veterans Crisis Line, and agree to participate in follow-up research interviews indicate that the service aided them in not killing themselves and helped connect them with health and mental health care in the month following contact. Research on brief suicide risk interventions aimed at providing safety planning and follow-up outreach in EDs indicates that those who receive these interventions engage in fewer suicidal behaviors than those who receive care as usual.

Other key findings: Crisis services also include co-response models for police response; preliminary evidence shows that there can be benefits to these models (e.g., reduced hospital use, fewer police detentions). For those individuals at greatest risk of suicide, psychiatric hospitalization may be the only available option to ensure safety, despite a lack of evidence that such hospital stays result in long-term improvements and some research suggesting that suicide risk may increase following these stays.

Definition and Rationale

Crisis psychological clinical services are provided in the acute period of suicide risk, allowing individuals to contact these services when they are in crisis and receive support. With a focus on serving individuals at times when risk of suicide is high (Hannemann et al., 2021), crisis services prevent suicide by immediately connecting an individual with a counselor or professional to discuss their current risk and distress, getting the individual to a place where

they will not attempt suicide and self-harm, and instead getting them to a place of safety and where they can receive additional support. By design, these services are typically offered at all hours, and they differ from therapy or treatment as they are meant to provide immediate support and connect veterans to resources that can provide more ongoing support. The different formats allow veterans to contact crisis services or go to a specific location (e.g., an ED) based on their preferences, which may reduce barriers to accessing crisis services (Predmore et al., 2017). In 2021, these services were identified as a priority for the Biden administration (Peters and Woolley, 2021), underscoring the importance of these efforts.

Examples

The most widely used crisis psychological clinical service for veterans is the Veterans Crisis Line. This service is accessed through the 988 Suicide and Crisis Lifeline and allows veterans to press "1" to reach the Veterans Crisis Line, for which VA provides services. The Veterans Crisis Line is a service for any veteran and does not require them to be enrolled in VA benefits or health care to use it. In recent years, advances were made to make the service more accessible, including shortening the Suicide and Crisis Lifeline number to 988 to make it easier to remember, adding text and online chat features so that veterans do not need to call in when they are in crisis, and adding text and chat options for Spanish speakers (SAMHSA, 2023). Another option includes the immediate crisis support through the Trevor Project's 24/7 crisis line available through call, text, or online chat (The Trevor Project, undated). This option is geared toward youth in the LGBTQ+ community, providing an option for younger veterans who identify as LGBTQ+ and are seeking support. Veterans have other options for crisis services, such as the ED at their local hospital or VA, which may provide brief crisis services for suicide risk and follow-up, such as VA's Safety Planning in the Emergency Department (SPED). VA also rolled out same-day services, which provide day-of primary care and mental health care appointments to veterans (VA, 2018). Hospitalization or admittance to a psychiatric inpatient unit is included among crisis services if more support is indicated.

Evidence

Research indicates that crisis services may reduce and prevent suicide. Among a follow-up sample of civilian callers contacting the National Suicide Prevention Lifeline (representing around one-quarter of eligible callers), 80 percent reported that the call prevented them from killing themselves, and 91 percent reported that the call kept them safe (Gould et al., 2018). Among veterans, a study on the Veterans Crisis Line indicated that of a small sample of 155 callers, 83 percent said that the service aided them in not killing themselves (Johnson, Muehler, and Stacy, 2021). Determining the effectiveness of these crisis services may be difficult, as these services are often accessed anonymously, making research on post-call outcomes difficult to measure. These services are also accessed when suicide risk is highest and other methods have failed to prevent this increased risk. Research indicates that among veterans who connect with the Veterans Crisis Line, death by suicide is highest in the month

directly following the contact and remains elevated for 12 months (Hannemann et al., 2021), which is likely because those who are reaching out are at high risk of suicide at that point. Nonetheless, the Veterans Crisis Line plays a critical role in providing an accessible line to immediate services.

These crisis psychological clinical services also support callers at acute risk of suicide with getting connected to longer-term services. Of 599 veterans who called the Veterans Crisis Line in 2019 and voluntarily provided identifiable information that facilitated linkages with their VHA records (representing only a small portion of the more than 200,000 calls made to the Veterans Crisis Ling during that time), 85 percent made contact with health care and 79 percent contacted behavioral health care within one month following their call (Britton et al., 2023). Moreover, veterans were six times more likely to contact health care and ten times more likely to contact behavioral health care in the month following the call than the month preceding the call (Britton et al., 2023).

There have also been efforts to design brief suicide risk interventions in emergency settings that are geared toward connecting individuals with resources during and following the crisis (Knox et al., 2012). The literature on these interventions is further described in the post-hospitalization outreach section, as these interventions combine safety planning and follow-up outreach. Previous literature indicates that among those who receive safety planning and follow-up outreach, there is a reduction in suicide risk relative to those who do not receive these services (Stanley et al., 2018) and that these interventions are feasible to provide and acceptable among veterans (Knox et al., 2012; Stanley et al., 2016) and reduce suicide risk (Boudreaux et al., 2020). VA implemented SPED, which provides safety planning and follow-up for an ED visit due to suicide risk (U.S. Department of Health and Human Services, 2024). These interventions, which are aimed at providing additional support to veterans who present to the ED, show preliminary evidence that they are effective at reducing risk. These interventions are also described in the noncrisis psychological treatment section because they are often used during times of stability to stave off a future crisis.

Veterans experiencing severe suicide risk who present to EDs may subsequently be admitted to psychiatric inpatient units if their level of risk warrants this level of care. Research on the effects of psychiatric hospitalization for suicide risk are mixed. A study on veterans found that psychiatric hospitalization reduced subsequent suicide attempts among 28.1 percent of veterans while increasing risk among 24 percent of veterans admitted (Ross et al., 2024). A review of civilian literature detailed that these stays may lead to increased distress and greater reluctance for seeking future care (Ward-Ciesielski and Rizvi, 2021). Another review found that among individuals admitted to inpatient psychiatric care, those who have a history of suicide attempts and were admitted for suicidal ideation or behavior, among several other indicators, are at increased risk for dying by suicide following discharge (O'Connell, Durns, and Kious, 2021). Research on 905 individuals admitted for psychiatric hospitalization indicated that perceiving coercion during admission was linked to higher likelihood of attempting suicide following discharge relative to those who did not perceive coercion (Jordan and McNiel, 2020). It is important to note that admission to psychiatric hospitaliza-

tion is an acute measure that is used when there is an imminent threat to safety because of suicide risk (Sarkhel, Vijayakumar, and Vijayakumar, 2023). Thus, the severe level of risk for individuals in these studies should be taken into account when reviewing results. For those at greatest risk of suicide, psychiatric hospitalization may be the only available option to ensure safety, despite a lack of evidence for longer-term improvements.

These crisis services can be expanded to police response for suicide risk. For instance, with police-based co-responses, mental health professionals join police officers responding to a behavioral health crisis. Other models include community-based responses, such as crisis call lines, peer support programs, mobile crisis teams (medical and mental health professionals respond to crisis situations for immediate stabilization), emergency medical service–based responses to transport people to appropriate support, and 9-1-1 diversion programs to redirect mental health calls from police departments to behavioral health specialists (Beck, Reuland, and Pope, 2020). Efforts to provide psychological support during police responses to individuals at risk of suicide suggest preliminary evidence of improving outcomes (Blais and Brisebois, 2021). For instance, one study in Australia found that co-response interventions resulted in quicker resolution and fewer ED admissions (Meehan et al., 2019), even one month following the response (Every-Palmer et al., 2022). A review of care pathways for individuals at risk of suicide found that co-responder models resulted in fewer police detentions and reduced hospital use (Kerr et al., 2022). Different cities in the United States (such as Eugene, Oregon; Olympia, Washington; and Phoenix, Arizona) are rolling out community-based responses to mental health crises. Preliminary research indicates that a co-response model relative to the usual police response resulted in fewer immediate arrests but increased emergency medical service encounters in the long term (e.g., six and 12 months following the initial response) (Bailey et al., 2022). Although additional research on these co-response and community-based response police calls for suicide risk in the United States is needed, existing preliminary evidence suggests that these efforts have benefits beyond reducing risk.

Pharmacotherapy

Overall Assessment

Effects on key outcomes: Certain medications (i.e., clozapine, lithium) reduce suicidal ideation and behaviors for people living with mental health disorders (including depression, anxiety, insomnia, schizophrenia, and bipolar disorder).

Other key findings: There is a need for caution in the use of antidepressants for suicide and suicidal behaviors, especially in younger adults. However, selective serotonin reuptake inhibitors (SSRIs), among the most popular antidepressants currently prescribed, are effective in treating mood and anxiety disorders and can be an important part of a treatment plan, along with safety planning and monitoring, for individuals with mental health disorders who are also suicidal. Newer treatments (e.g., ketamine, stellate ganglion block, psychedelics) show promise but need further rigorous evaluation specifically for suicide prevention.

Definition and Rationale

A drug (e.g., antidepressants, antipsychotic medications, ketamine) is administered with the goal of reducing suicidal thoughts and behaviors.

Examples

The most studied pharmacotherapies for addressing suicide risk are clozapine, lithium, and antidepressants. However, interest is growing, fueled by emerging research, in ketamine, cannabis, psychedelics, and stellate ganglion block for addressing suicide risk.

Evidence

Clozapine

Currently, clozapine is the only medication with a U.S. Food and Drug Administration (FDA) indication for reducing risk of recurrent suicidal behavior. However, because of its side effect profile, clozapine is infrequently used in clinical practice (Baig et al., 2021).

Clozapine has been shown, across seven studies, to reduce the odds of suicide compared with a placebo control (Mann, Michel, and Auerbach, 2023; Wilkinson et al., 2023; Yao and McCall, 2023). Regulatory approval was primarily granted based on findings from the multicenter, randomized, double-blind, two-year International Suicide Prevention Trial (Meltzer et al., 2003). This study evaluated clozapine against olanzapine in patients with schizophrenia and schizoaffective disorder who were at high risk of suicide. Over 18 months, fewer of those treated with clozapine attempted suicide, needed hospitalization or emergency interventions to prevent suicide, or required additional treatment with antidepressants, anxiolytics, or sleep aids. A meta-analysis of seven studies, all conducted on patients with psychotic disorders, supported these findings (Wilkinson et al., 2023). Most of these studies (four out of seven) had a comparison group receiving non-clozapine antipsychotics, with one study specifying the absence of antipsychotic medication use in the comparison group.

Lithium

Lithium is the most studied pharmacological treatment for suicidal thoughts and behaviors, with most studies being conducted among patients with mood disorders (e.g., depression, bipolar disorder). In general, there is strong support for the use of lithium in the treatment of suicidal behaviors, especially for patients with bipolar disorder or depression (Lewitzka et al., 2015). Several RCTs have provided evidence supporting lithium's effectiveness in reducing suicidal behavior. A review of 48 RCTs involving patients with mood disorders indicated that those who were treated with lithium had a lower incidence of suicide and overall mortality compared with those who received a placebo, applicable to both bipolar and unipolar depression. However, one notable study diverged from these findings: a large VA cooperative study. This RCT included veterans diagnosed with bipolar disorder or depression who had recently experienced a suicide-related event. Participants were given lithium in addition to their usual care, but the trial was terminated early after 519 veterans were randomized, as

it showed no significant difference in the recurrence of suicide-related events between the treatment groups. The researchers concluded that supplementing standard care with lithium was unlikely to effectively prevent suicide-related events in patients actively receiving treatment for mood disorders (Katz et al., 2022).

Antidepressants

A wide array of antidepressant medications are available, with SSRIs being the most commonly prescribed. These have a proven effect at reducing depressive symptoms, although they are only partially effective, with only about 65 percent of individuals responding and a minority remitting completely (Yuan et al., 2020). There is a good deal of controversy over the effect of SSRIs on suicide risk, with some studies concluding that antidepressants reduce, increase, or have no effect on suicidal ideation or completed suicide (e.g., Courtet and Olié, 2015; Hengartner and Plöderl, 2019; Hengartner et al., 2021; Kaminski and Bschor, 2020; Sharma et al., 2016; Khan et al., 2018). The FDA issued a warning about the potential for SSRIs to increase the risk of suicidal thinking and behavior in children and adolescents (up to age 24) but noted a potential protective effect on older age groups (Stone et al., 2009). The risk was identified as highest in the first few months after a new prescription, indicating the need for close monitoring during that period.

More-recent research on adults has produced mixed findings, depending on the analytic method. For example, Khan et al. (2018) noted a general reduction in the rate of suicide and suicide attempted for those individuals who were prescribed antidepressants; however, there were no significant differences in suicide or suicide attempt rates between those individuals who were prescribed antidepressants versus a placebo. Two studies reanalyzed data from Khan et al. using different methods, calling these results into question, and found evidence of *increased* rates of suicide attempts for individuals who were prescribed antidepressants compared with placebo (Kaminski and Bschor, 2020; Hengartner and Plöderl, 2019). Another recent review of observational studies reported an increase in suicide attempts or suicide deaths related to SSRIs or other newer-generation antidepressants (e.g., serotonergic-noradrenergic antidepressants) used for treating depression and other unspecified issues (Hengartner et al., 2021).

Overall, there is a need for caution in the use of antidepressants for suicide and suicidal behaviors, especially in younger adults. However, these medications are effective in treating mood and anxiety disorders and can be an important part of a treatment plan, along with safety planning and monitoring, for individuals with these disorders who are also suicidal (Zisook, Domingues, and Compton, 2023).

Emerging Pharmacotherapies

Stellate ganglion block: To date, there is no evidence that stellate ganglion block, an anesthetic injection to the stellate ganglion at the base of the neck, reduces suicide. However, recent evidence from a multisite trial indicates that it reduced PTSD symptoms relative to a

sham control in a sample of active-duty service members (Olmsted et al., 2020), and a pilot has been completed for individuals with treatment-resistant depression (Sussman et al., 2023).

Ketamine: Ketamine is being used in anesthesiology, pain management, and, more recently, for major depressive disorder and treatment-resistant depression. Evidence from several high-quality RCTs demonstrates rapid antidepressant effects of ketamine at a sub-anesthetic dose for individuals with treatment-resistant and bipolar depressions (Bahji, Zarate, and Vazquez, 2021; Ibrahim et al., 2012; Price and Mathew, 2015). The quick onset of ketamine's antidepressant effects, particularly in patients who do not respond to traditional antidepressants, has led to growing interest in its potential as an intervention to prevent suicide. One RCT comparing ketamine with midazolam (in the family of drugs known as benzodiazepines) in 57 patients with treatment-resistant depression found that ketamine significantly reduced suicidal ideation within 24 hours after infusion, an effect not seen with midazolam (Price et al., 2014). A systematic review of RCTs investigating ketamine's impact on suicidal thoughts confirmed that ketamine rapidly reduced suicidal ideation within 24 to 48 hours after administration, and this effect was at least partially independent of its impact on depressive symptoms (Hochschild, Grunebaum, and Mann, 2021). In a preliminary study assessing longer-term effects, repeated doses of open-label ketamine were found to quickly and significantly decrease suicidal ideation in 14 outpatients with treatment-resistant depression and persistent suicidal thoughts; in two patients, this reduction was sustained for at least three months following the final ketamine infusion (Ionescu et al., 2016). However, it remains uncertain whether these findings will translate into a measurable reduction in actual suicidal behavior. In conclusion, ketamine effects tend to last only hours, and the use of ketamine to treat long-term suicidal thoughts and behaviors has yet to be established.

Ketamine is not without risks. Among those prescribed intranasal esketamine to treat mental health conditions, feelings of dizziness and disassociation are not uncommon but generally are tolerable (based on clinical trials) (Oraee et al., 2024). Ketamine may be addictive (Fitzgerald et al., 2021). Chronic use of large amounts of ketamine has been associated with adverse cognitive, urinary, and gastrointestinal issues, and use of ketamine with other substances, most notably gamma hydroxybutyrate (known as GHB) and opiates, can increase the risk for serious adverse events or death (Palamar et al., 2023).

Cannabis: There is interest among individuals with certain conditions, such as chronic pain (Bicket, Stone, and McGinty, 2023) and mental health conditions (Rup et al., 2021), to use cannabis to help manage their symptoms. To date, there is no evidence that cannabis reduces suicide risk, although certain types of cannabis use (e.g., heavy or long-term use) may increase suicide ideation and attempts among certain users (e.g., those who initiate use during adolescence) (Borges, Bagge, and Orozco, 2016; Shamabadi et al., 2023). Research examining the benefits of cannabis on pain and other outcomes is generally considered to be of low quality with mixed results (Häuser, Petzke, and Fitzcharles, 2018; Pratt et al., 2019).

Psychedelics: There is a current resurgence of interest in using psychedelics to assist in the treatment of mental health conditions, such as depression, anxiety (including PTSD), and

substance use disorders.[2] Clinical research typically examines the use of these substances in conjunction with some form of psychotherapy,[3] and concern has been raised about the quality of extant research (Humphreys et al., 2025). There is some limited evidence that psychedelics may reduce suicidality, but there is also concern about a risk of increased suicidality as an adverse event related to psychedelic experiences. One meta-analysis of eight clinical studies suggests that psychedelic treatment reduces suicidality, but these studies were limited by small sample sizes and lack of a control group (Zeifman et al., 2022). There is some concern about adverse events during and following clinical use of psychedelics,[4] including concerns about suicidality, although research is at its nascent stage, and it is too early to draw strong conclusions (Breeksema et al., 2022).

With respect to non-suicide outcomes, the most promising results indicate that 3,4-methylenedioxymethamphetamine with psychotherapy may reduce PTSD symptoms and that psilocybin with psychotherapy may reduce depressive symptoms and symptoms associated with alcohol use disorder (Humphreys et al., 2025). Other promising outcomes associated with psychedelic use include spiritual benefits, improved mood, mindfulness, empathy, and compassion (Evans et al., 2023).

Expressive Arts

Overall Assessment

Effects on key outcomes: There is insufficient evidence to determine whether expressive arts therapies reduce suicidal thoughts and behaviors. There is some evidence showing positive impact of expressive arts therapies on mental health outcomes in veteran populations, including PTSD symptoms, depression symptoms, and quality of life.

Other key findings: Expressive arts therapies appear to be feasible and acceptable components of mental health treatment for veterans.

Definition and Rationale

Expressive arts or *creative arts* therapy (referred to hereafter as *expressive arts therapy*) is a multimodal treatment characterized by a patient's active participation in a creative process, such as visual arts, movement, drama, music, or writing (International Expressive Arts Therapy Association, undated). Expressive arts therapies are typically facilitated by a certi-

[2] In particular, this includes the classic psychedelics: N,N-dimethyltryptamine (known as DMT); lysergic acid diethylamide (known as LSD); mescaline or peyote; psilocybin or psilocin, ibogaine, and 3,4-methylenedioxymethamphetamine (or MDMA, commonly known as ecstasy or Molly).

[3] New evidence finds that psilocybin may affect depression symptoms absent of psychotherapy (Ellis et al., 2024).

[4] See Kilmer et al. (2024) for a review.

fied professional with a degree in art or dance or movement therapy. The healing potential of expressive arts therapies for military service members and veterans has been recognized at the national level. Since 2011, a partnership between DoD and the National Endowment for the Arts (NEA), called Creative Forces, was established to integrate expressive arts therapists into clinical settings at DoD and VA (NEA, undated-a). Expressive arts therapies are thought to improve mental health among military veterans by offering a space for a nonverbal expressions and processing of moral injuries, such as visual representations of a combat-related trauma (Berberian, Walker, and Kaimal, 2019; Walker, 2016). Additionally, expressive arts therapy participation can promote positive emotions, increase feelings of self-efficacy through mastering a new skill, and, through the group delivery setting, increase social connectedness with other veterans (Berberian, Walker, and Kaimal, 2019).

Examples

Expressive arts therapies for veterans are often delivered as an adjunctive component to enhance interdisciplinary health care services. For example, the National Intrepid Center of Excellence (NICoE) at the Walter Reed National Military Medical Center in Bethesda, Maryland, provides comprehensive services, including expressive arts therapies, to veterans with traumatic brain injury and other psychological health conditions (Ayer et al., 2015). Visual arts therapy interventions offered at NICoE feature mask-making, a common art therapy technique that provides participants with a platform to visually express traumatic memories, intrusive thoughts, and memories and work toward resolving issues of self-identity. Additionally, Operation Homecoming is a pilot expressive writing program at NICoE in which military service members, veterans, and their families participate in creative-writing workshops as an avenue for processing the impact of their military service and transition back to civilian life (NEA, undated-c).

In addition to visual arts and writing interventions, novel approaches to performing arts therapy are being implemented by veterans' service organization across the United States. One such example is the Comedy Bootcamp program developed by the Armed Services Arts Partnership (Han et al., 2024). During the seven-week program facilitated by veterans and Comedy Bootcamp alums, participants meet in small groups once per week to learn basic skills needed for stand-up comedy (e.g., performing, joke writing). The program culminates in a performance in which each veteran performs a five-minute stand-up comedy set. Throughout the intervention, veterans are taught "humor skills," such as learning to laugh at themselves and finding humor in their daily lives (Armed Services Arts Partnership, undated).

Other examples are Operation Charlie Bravo and VHV. Operation Charlie Bravo provides music therapy through its weekly Jam Program, in which veterans learn new instruments, music theory, and restoration of donated musical instruments in a team-based group setting. VHV has partnered with local theater companies to lead workshops for incarcerated veterans on playwriting and performances focused on issues related to military suicide.

Evidence

Compared with usual treatment for adults with depression and PTSD, expressive arts therapies have shown small to moderate effects on mental health outcomes, although findings are mixed, and study quality is generally low. Meta-analyses of the effects of expressive arts therapies on psychological outcomes indicate that results differ by type of arts intervention. Visual arts therapies appear to have significant effects on depressive symptoms, while dance or movement therapy shows no effects on depression and stress-related symptoms. Drama-based expressive therapies appear to have an overall medium effect on an array of psychological and behavioral outcomes (Orkibi et al., 2023). Importantly, to our knowledge, no meta-analytic review of expressive arts therapies to date has reported suicide-related outcomes, highlighting the lack of existing evidence of the direct effects of such therapies on suicidality.

For veteran populations specifically, expressive arts interventions appear to target intermediary risk factors for suicide. A systematic review of expressive arts therapies on veterans with PTSD found that visual arts, music, and writing therapy reduced PTSD and depression symptoms and increased quality of life (Poor et al., 2023). Regarding comedy interventions, an evaluation of the Comedy Bootcamp program found that, compared with a control group, veterans reported increased positive humor style, self-esteem, and greater resilience following the program, as well as a decrease in depression and stress, all of which may be protective against suicidal ideations (Olah et al., 2022; Tucker et al., 2013). The NEA Creative Forces research team has published 23 articles evaluating their funded art and music therapy programs for military service members and veterans (NEA, undated-b). While this research demonstrates feasibility and acceptability of such programs, the majority of studies had very small sample sizes (Vetro-Kalseth, Vaudreuil, and Segall, 2021), were case studies (Maltz et al., 2020), or used exclusively qualitative methods (Berberian, Walker, and Kaimal, 2019), making it challenging to draw conclusions regarding the benefits for this population.

A small body of research points to the potential utility of incorporating arts therapy into multicomponent, community-based suicide prevention programs for nonveteran, high-risk populations. For example, a preliminary quasi-experimental study of Life Is Precious, a culturally responsive afterschool program including expressive arts therapy for Latina adolescents at risk for suicide, found significant reductions in suicidal thoughts and behaviors (Tuda et al., 2025). Additionally, participation in interactive theater performance workshops, in which college students develop performances based on their own experiences with mental distress and suicidal thoughts, was associated with increased feelings of student self-efficacy and help-seeking (Davico et al., 2022). However, it is unclear whether the expressive arts components themselves directly affected program outcomes.

Animal-Assisted Programs

Overall Assessment

Effects on key outcomes: There is insufficient evidence to determine whether animal-assisted programs reduce suicidal thoughts and behaviors. Canine- and equine-assisted interventions have been shown to improve PTSD symptoms for veterans, although the studies lack precision on the specific types of interventions or programs that are most promising.

Other key findings: N/A

Definition and Rationale

Animal-assisted programs involve activities to care for animals (training, feeding), time with assistance or support animals, or pet ownership. To date, such programs are aimed at improving mental health rather than directly addressing suicide risk. The National Center for PTSD (NCPTSD), for instance, states that dog ownership and assistance dogs can be helpful for individuals with PTSD by bringing out feelings of love, providing companionship, providing an outlet for giving orders and training, reducing stress, and getting people out of the house, into the outdoors, and meeting people (NCPTSD, undated). However, NCPTSD still recommends accessing proven treatment (such as a trauma-focused CBT) to address the PTSD symptoms.

Examples

There is a wide variety of programs related to animals. Most popular are programs that pair veterans with trained service dogs or engage them in training service dogs and equine therapy approaches that include riding and caring for horses.

In our scan, we discovered several programs that focused on service dogs or canine companions. For instance, K9 Partners for Patriots pairs rescue dogs with veterans and trains the rescue dogs to be service dogs in 25 weeks. Another example is Trauma and Resiliency Resources, which is focused on reducing moral injury through different therapeutic activities (e.g., eye movement desensitization and reprocessing, yoga, narrative therapy), including equine therapy.

Evidence

All the evidence to date is related to mental health and well-being rather than direct suicide prevention. A recent meta-analysis shows meaningful improvements in PTSD symptoms, as well as other aspects of mental and social health (Leighton, Nieforth, and O'Haire, 2022), and a systematic review also supported animal-assisted interventions for improving PTSD symptoms (Chirico et al., 2022). Despite this therapy's promise for veterans, reviews state that research is still needed because of diversity in types of programs, small sample sizes, and

methodological limitations (Fonseka, Marshall, and Edwards, 2022; Li and Sánchez-García, 2023).

A recent nonrandomized controlled trial testing the use of service dogs for veterans with PTSD demonstrated decreased PTSD symptoms, anxiety, and depression among those paired with a service dog (Leighton et al., 2024). Descriptive data related to suicide risk in this study were also presented, but statistical analyses were not conducted. The research directly examining the effects of animal-assisted interventions and suicide risk is limited and not specific to veterans; however, a pilot study of 30 adolescents in a Northern Spain residential program were provided an animal-assisted intervention (AAI) called OverCome-AAI that focuses on reducing suicide risk through teaching interpersonal and emotion regulation skills (Muela et al., 2021). While the preliminary findings indicated reductions in suicidal ideation and plans and increased willingness to seek help, the study did not have a control group, so study findings cannot be attributed to the presence of animals in the intervention.

Medical Devices

Overall Assessment

Effects on key outcomes: Brain stimulation devices and treatments have shown promise in treating various mental health conditions, mostly in patients who are or have grown to be resistant to pharmacological treatment for these types of disorders. More recently, some treatments (i.e., electroconvulsive therapy, repetitive transcranial magnetic stimulation, and vagus nerve stimulation) have been used to reduce suicidality in various populations.

Other key findings: Although initial treatments were invasive and used sedation and implantation of tools in the brain itself, current brain stimulation treatments are less invasive and are capable of titrating the specific electrical pulse or signal rate such that treatments can be specialized for each person based on their individual needs.

Definition and Rationale

In general, brain stimulation therapies use devices to alter (either increase or reduce) electrical signals within the brain. This is done through administering electricity through invasive (e.g., deep brain stimulation) or noninvasive (e.g., transcranial magnetic stimulation) means (Office of Science Policy, Planning, and Communications, 2024). The exogenous stimulation of the neurons through electrical signals from these devices in various parts of the brain affects patterns of firing and release of neurotransmitters such that thoughts and behaviors, including suicidal ideations, are altered (Bozzay et al., 2020). Several of these therapies have been promising in treatment of various types of psychiatric disorders, such as major depressive disorder and obsessive-compulsive disorder. Most often, these brain stimulation therapies are used after or in combination with medication and other types of more-traditional therapies (Bozzay et al., 2020; Office of Science Policy, Planning, and Communications, 2024).

Other medical devices have been proposed to reduce suicide risk, including some of those that were included in the analyses presented in Chapter 2. In this section, we limit our review to medical devices that are FDA approved or noted as experimental treatments that have been shown to potentially reduce mental health conditions, specifically suicidal ideations.

Examples

While some brain stimulation devices have FDA approval, others are considered more experimental.

U.S. Food and Drug Administration–Approved Brain Stimulation Therapies

Electroconvulsive therapy (ECT): During ECT, doctors place electrodes at specific points on a patient's head and use them to send electric currents that induce a form of controlled seizure in the brain underneath. Although the electrodes sit on top of the skull, the patient is under general anesthesia during the procedure, which is considered more than noninvasive. ECT has historically been used as a treatment for major depression but has recently had some success in reducing the risk of suicide in patients with depressive disorder (Rönnqvist, Nilsson, and Nordenskjöld, 2021). Because of the imprecise nature of ECT, there are a variety of side effects, including memory loss, disorientation, and confusion (National Alliance on Mental Health, undated).

Repetitive transcranial magnetic stimulation (rTMS): This noninvasive therapy works by applying low-intensity magnetic signals that travel through the skull into specific sites in the brain. The target brain region of these signals is often areas primarily involved with executive function (e.g., areas associated with regulation of thoughts and emotions, such as the prefrontal cortex). Recently a newer type of rTMS called *theta-burst stimulation* has been developed and delivers a specific number of pulses (approximately 600) in a short time (three minutes), and initial results show that this method may be more promising for specific conditions, like treatment of major depression or depressive symptoms (Levit, 2023; Mehta et al., 2022). This therapy has some side effects, such as mild headaches or dizziness (Mehta et al., 2022; Office of Science Policy, Planning, and Communications, 2024).

Vagus nerve stimulation: This invasive, surgical treatment implants a device subdermally near the vagus nerve, often in the chest not too far from the shoulder. The device emits electrical signals through the left vagus nerve, which runs from the base of the brain down the spinal column and carries messages directly from the brain to other parts of the body to help govern behaviors and bodily functions. Electrical signals are sent from the device to the nerve at consistent intervals and are subsequently sent to the brain. Side effects can include neck pain, breathing problems, and discomfort at the location of device implantation, but many can be assuaged by placing a magnet over the area of the chest where the device is implanted; this temporarily deactivates the device.

Experimental Therapies

Deep brain stimulation: This invasive treatment uses surgery to implant electrodes in specific regions of the brain, often under the cortical level to reach harder parts of the brain. These electrodes are connected to a device that generates electrical pulses sent through the wires to alter endogenous electrical signals in areas of the brain and assuage symptoms of certain conditions associated with the brain regions. Once the device is implanted, providers can work with the patient to tailor the levels of pulse generation that best mitigate against the symptoms of specific disorders. This treatment has been used in movement disorders, such as Parkinson's disease, and treatment-resistant forms of epilepsy. Side effects can include irritation around the surgery site, dizziness, and confusion (National Alliance on Mental Health, undated; Office of Science Policy, Planning, and Communications, 2024).

Hyperbaric oxygen therapy (HBOT): This treatment is used for various medical conditions by supplying patients with 100 percent oxygen inside a special chamber. This treatment was first used to treat physical wounds to hasten the healing process. For neuronal issues, like injury or death in serious mental conditions like major depression, the belief is that this treatment can promote neuron regeneration by improving blood supply and oxygen supply to the injured brain region or site (Cleveland Clinic, 2023; Feng and Li, 2017).

Neurofeedback therapy: Neurofeedback therapy is a noninvasive therapy that has been the subject of efficacy studies for decades. This method of biofeedback allows subjects to review their brain waves in real time through audio or visual means and enhance their awareness of how they can change their brain patterns and train in ways that allow them to achieve what they think is optimum performance (Marzbani, Marateb, and Mansourian, 2016). Recent clinical trials have revealed improvements in depressive symptoms for individuals using neurofeedback therapy, and it appears it may be a promising treatment for mental disorders, but more research needs to be done. While there are limited to no side effects of neurofeedback therapy, it is generally more expensive than more-traditional forms of therapy (DeRubeis, Siegle, and Hollon, 2008).

NightWare: This prescription digital therapeutic is a medical-grade wearable device that detects the occurrence of a nightmare in the wearer and uses a series of short vibrations that "interrupt nightmares" (NightWare, 2020, p. 4; NightWare, undated). Past research has shown an association between nightmares and suicide risk (Bernert et al., 2015; Nadorff, Pearson, and Golding, 2016), making identification of ways to reduce nightmares a possible means to prevent suicide.

Evidence

Many of the FDA-approved therapies display preliminary evidence that suicidality was reduced in individuals using ECT, rTMS, and vagus nerve stimulation compared with placebo or more-intermittent brain stimulation treatments. However, most of the work has been done in individuals with treatment-resistant depression and suicidality (Bozzay et al., 2020; Chen et al., 2021; Mehta et al., 2022). At least one meta-analysis study suggests that rTMS

improves suicidality in certain cases, but no such improvements in depressive symptoms were seen, suggesting that rTMS may be helpful for suicidality alone. However, a different study on rTMS revealed that a sham-control group for rTMS did not consistently find benefits of rTMS on suicidal ideation (Bozzay et al., 2020).

For the experimental-based treatments, the evidence is less consistent as to whether these therapies show promise of reducing suicidality. For deep brain stimulation, initial evidence from positron-emission tomography scans reveals that when electrodes were placed in specific areas, exogenously administered electrical signals changed blood flow in regions of the brain associated with depression; this result is similar to findings following use of antidepressants (Johns Hopkins University, undated). To date, there is no published evidence on the effects of HBOT on suicidality and limited research on neurofeedback therapy on suicidality. One small pilot study reported that use of HBOT reduced suicidality, alongside effects on attention, anxiety, depression, cognition, memory, quality of life, and brain blood flow in veterans with PTSD (Louisiana State University Health Sciences Center New Orleans, undated). For neurofeedback therapy, one study with a very small sample size reported that neurofeedback increased activation in brain regions that are potential neurobiological mechanisms of major depressive disorder and suicidal thoughts and behaviors (Aupperle et al., 2024). In terms of research on the NightWare device, a retrospective study reported that more than 90 percent of users had sleep improvement or reductions in nightmares (Robertson et al., 2023). However, a randomized sham-controlled study with the NightWare device revealed that both the active device and the sham-control groups had significant improvements in outcomes, such as sleep quality, but those wearing the NightWare device displayed improvements that were stronger than the sham-control group (Davenport and Werner, 2023). Although neither of these studies reported on NightWare's effect on suicidality, the results may support the need for additional research on the NightWare device's direct effect on suicidal ideations.

These results are noncomprehensive and are an initial, high-level overview of some of the brain stimulation therapies that are being used or considered for use in reducing suicidality for veterans and others in the future. While additional research needs to be done, specifically in the area of brain stimulation therapy on suicidality alone and not in conjunction with other disorders, initial research shows that some of these therapies may be promising, especially for those who need individualized types or treatment or those who are medication resistant.

Clinician Training

Overall Assessment

Effect on key outcomes: Suicide prevention trainings for clinicians often increase clinician knowledge, confidence, and intentions to engage in best practices, but fewer studies have documented a change in clinician therapy practices or corresponding patient outcomes.

Other key findings: Although most clinicians report engaging in empirically supported interventions, many also report engaging in contraindicated practices. Theoretically, training clinicians effectively can reduce contraindicated practices, but training is also a strategy to move newer interventions supported by clinical trials (e.g., safety planning) into clinical practice.

Definition and Rationale

Training clinicians in evidence-supported suicide prevention techniques can help ensure that treatment that occurs in community settings is similar to that conducted in research trials and is delivered with fidelity (Shafran et al., 2009). Clinician training can assist clinicians in accurately recognizing risk factors for suicide (via gatekeeper trainings) or assessing and collaboratively treating suicide risk (e.g., CAMS) (Jobes, 2012). Additionally, training initiatives can focus on assisting patients in recognizing their own suicide risk and planning for appropriate skills to implement if in a suicide crisis (e.g., crisis response planning) (Bryan et al., 2017) and in safety planning (Stanley and Brown, 2012). In general, and specifically in veteran populations (Bozzay et al., 2020; Ecker et al., 2019; Green et al., 2018; Johnson, Muehler, and Stacy, 2021; Swift, Trusty, and Penix-Smith, 2021), the quality of crisis response and safety plans predicts suicide-related outcomes, highlighting the importance of these trainings (Gamarra et al., 2015).

Examples

The STRONG STAR Training Initiative provides training in evidence-informed treatments to providers, peers, and allies. It also provides technical assistance and a postvention support for providers who lose patients to suicide (STRONG STAR Training Initiative, undated). Another organization that provides training is ReflexAI, which focuses on training crisis line responders and others. The organization uses AI and simulations to supplement human-to-human crisis response training. Zero Suicide has on its website a list of training programs it recommends, including for providers (Zero Suicide, 2016).

Evidence

Many mental health clinicians and allies (e.g., educators, first responders) report using at least one best practice for treating those at risk of suicide (Rozek et al., 2023). However, 40 percent also report using contraindicated strategies, such as safety contracting (Edwards and Sachmann, 2010). Therefore, there is a need to train clinicians in specific techniques but also in the evidence base for existing interventions. For example, despite the strong evidence for safety planning and crisis response planning, not all clinicians are aware of the effectiveness of these methods (Reyes-Portillo et al., 2019); one study found that 20 percent of clinicians reported that they perceived safety planning to be not at all or only minimally effective

(Haroz et al., 2024). Several studies also suggest that many clinicians want more training in safety planning strategies (Moscardini et al., 2020).

Most assessments of clinician training efficacy tend to focus on such outcomes as knowledge acquisition and post-training trainee skill-specific confidence, while fewer studies demonstrate training effectiveness by assessing such outcomes as change in clinical practice or patient outcomes. Although not sufficient, clinician confidence is an important outcome, as greater clinician confidence results in greater likelihood of implementation and adherence to evidence-based practices (LoParo et al., 2019; Whitmyre et al., 2024). Increases in clinician confidence may also be hard to demonstrate because of high rates of reported clinician confidence prior to training (i.e., ceiling effects), despite clinicians not using best practices (Stewart et al., 2020).

There is some evidence to support changes in clinician practices as a result of training. The most robust is for DBT (DeCou, Comtois, and Landes, 2019). The DBT training program has shown to improve not only clinician knowledge, attitudes, and intentions but also actual clinician treatment behaviors (Bender et al., 2023; Dimeff et al., 2009; Rizvi et al., 2017). A national VA training study regarding brief CBT also demonstrated positive outcomes (Karlin et al., 2012), and other successful evaluations of brief CBT training have been conducted in VA primary care settings (Cully et al., 2012; Mignogna et al., 2023). There is also evidence that training providers in safety planning yielded increased clinician knowledge and clinician confidence to engage in safety planning and that, following training, clinicians also implemented safety planning more often and thought this intervention to be effective (Whitmyre et al., 2024). The perceived effectiveness of these types of planning interventions is also moderated by the fidelity with which clinicians implement the intervention (Haroz et al., 2024). In other words, clinicians who are better trained to implement safety planning with fidelity also report higher perceived effectiveness (Bowden et al., 2022).

Support with Social Determinants of Health

Overall Assessment

Effect on key outcomes: Suicide rates are associated with many environmental conditions; thus, addressing these conditions may reduce suicide rates. There is some evidence that anti-poverty programs (such as state-level earned income tax credit [EITC] programs or increases in the minimum wage) reduce suicides. Direct provision of housing supports may be effective at creating contexts in which suicide-specific counseling may be more effective, but a large experimental study failed to find evidence that Housing First, which provides permanent housing without preconditions and offers choice in the wraparound support services they receive, reduced suicidality (Aquin et al., 2017).

Other key findings: N/A

Definition and Rationale

Social determinants of health are environmental conditions that affect health outcomes. They can be grouped into five areas: economic stability, education access and quality, health care access and quality, neighborhood and built environment (for example, the safety and environmental quality of one's neighborhood), and social and community context (e.g., social connections and support) (Office of Disease Prevention and Health Promotion, U.S. Department of Health and Human Services, undated). Many social determinants of health have been associated with rates of suicide in the United States (e.g., Liu et al., 2023; Milner et al., 2013). Among veterans, state-level estimates of firearm ownership correlate with veteran suicide rates (Morral, Schell, and Scherling, 2024), and, among veterans seen at the VHA, those who died by suicide were more likely than comparable veterans to report legal problems, violence, and other psychosocial needs (Mitra et al., 2023). Addressing social determinants of health may therefore aid in efforts to reduce suicide.

Examples

HealthyPeople 2030 puts forth eight objectives for improving social determinants of health:

1. Increase employment in working-age people.
2. Reduce the proportion of people living in poverty.
3. Reduce the proportion of families that spend 30 percent of income on housing.
4. Increase the proportion of voting-age citizens who vote.
5. Increase the proportion of federal data sources that include country of birth.
6. Increase the proportion of children living with at least one parent who works full time.
7. Reduce the proportion of children with a parent or guardian who has served time in jail or prison.
8. Increase the proportion of high school graduates in college the October after graduating.

We describe these because examples of activities that provide support with social determinants can be wide ranging. One example is the Center for Veterans Issues, which primarily serves veterans in Wisconsin. The organization conducts needs assessments with veterans and their families, develops an individualized service plan, and then offers connection to resources and referrals, education, and emergency practical support (e.g., financial assistance, child care, safes and other devices for means safety). Another example is St. Vincent de Paul CARES (undated), which provides services to veterans experiencing homelessness. One of its programs, We Care, conducts follow-up calls at regular intervals to check in on prior participants. VA also offers support with many of these social determinants of health, including disability benefits, housing assistance, insurance products, education and other training benefits, and vocational rehabilitation and employment support.

Evidence

The interventions designed for improving social determinants of health are even more wide ranging than the number of social determinants there are. Because of this breadth, we focus on reviewing the evidence for four areas: providing jobs, increasing the minimum wage, providing supportive housing, and increasing household incomes.

Providing Jobs

There is substantial evidence that increases in unemployment are associated with increases in suicide rates (Reeves et al., 2012), although the effect may be more pronounced in regions with a larger proportion of women in the labor force (Phillips and Nugent, 2014) or with less generous unemployment benefits (Cylus, Glymour, and Avendano, 2014). There is also evidence that individuals who lose jobs have elevated rates of suicide attempts compared with those who maintain employment (Elbogen et al., 2020) and that, across studies, losing a job is associated with increased psychological distress (Paul and Moser, 2009).[5] There is evidence that among those who are unemployed, gaining a job is associated with reductions in psychological distress (Paul and Moser, 2009). However, we were unable to locate any evidence on the relationship between gaining employment and reductions in individual suicidality. We did not identify any studies specific to veterans.

Increasing the Minimum Wage

As of the time of this writing (August 2024), the federal minimum wage is $7.25 per hour (unchanged since 2009), and 34 states, territories, and districts have higher minimums, the maximum being Washington, D.C., at $17.50 per hour (U.S. Department of Labor, 2025). Federal legislation has been introduced to increase the federal minimum wage (Congressional Budget Office, 2024), and many states and localities have recently increased or are considering increasing the minimum wage. Three studies found evidence that increases in states' minimum wages are associated with reductions in annual suicide rates, with a $1 increase associated with a 1.9- to 4.6-percent decrease in the annual suicide rate (Dow et al., 2020; Gertner, Rotter, and Shafer, 2019; Kaufman et al., 2020). However, the evidence suggests that this effect may be more pronounced among individuals without a high school degree during periods of high unemployment (Kaufman et al., 2020) and populations more likely to work in minimum wage jobs in the United States (e.g., women workers, non-Hispanic Black workers, and Hispanic workers) (Dow et al., 2020). We did not identify any studies specific to veterans.

Providing Supportive Housing

In 2023, approximately 35,574 veterans were experiencing homelessness, a 7-percent increase from the year prior (de Sousa et al., 2023). Among VHA users, veterans experiencing homelessness have consistently higher rates of suicide than those who are housed. In 2021, the suicide

[5] This latter finding is tempered somewhat by selection effects, in that those more likely to become unemployed have elevated distress at baseline compared with those who maintain employment.

rate among veterans experiencing homelessness was 112.9 per 100,000, 186.5 percent greater than the rate for veterans who were not experiencing homelessness (Office of Mental Health and Suicide Prevention, 2023). While there are many suicide prevention initiatives focused on reducing suicide risk among unhoused veterans, one approach may be to provide supportive housing. *Housing First* is a model that provides permanent housing, without preconditions (e.g., sobriety, medication compliance), to individuals experiencing chronic homelessness and offers choice in where individuals live and in the wraparound support services they receive (although access to or the provision of such services is a fundamental component of the model) (National Alliance to End Homelessness, 2022). There is evidence that Housing First improves quality of life and housing stability (Woodhall-Melnik and Dunn, 2016). Its effect on suicidality has not been commonly studied. In one exception, a large, multisite study across Canadian cities showed reductions in suicidality over two years among individuals randomized to participate in Housing First *and* those who received treatment as usual (i.e., standard community services for persons experiencing homelessness), but it failed to find evidence that Housing First was superior at reducing suicidality (Aquin et al., 2017). The authors suggested that Housing First may not independently reduce suicidality but may "set the stage for improved long-term follow-up and enhanced access to care" (Aquin et al., 2017, p. 480), including treatments devoted specifically to suicidality (see the earlier sections in this chapter on noncrisis and crisis psychotherapy).

VA offers a suite of services for veterans experiencing homelessness. Among VHA patients experiencing homelessness, those who used these services were less likely to die by suicide over the study period, and there was evidence that receipt of more services was associated with lower suicide risk (Montgomery et al., 2021).

Increasing Household Incomes

Regional rates of poverty are positively associated with suicide rates among adults (Kerr et al., 2017) and children (Hoffmann et al., 2020) in the United States. Since 2011, veterans in priority group 5 (i.e., low-income veterans without a qualifying disability) who are enrolled in VHA have had the highest suicide rates among all priority groups (Hoffmann et al., 2020). One way U.S. policies increase income is through the EITC, a federal tax refund based on pretax earnings, marital status, and number of children in the household. Since the federal program was initiated in 1975, several states have created supplemental EITC programs. In one study, a 10-percentage-point increase in state EITC relative to the federal credit was associated with a 1-percent decrease in suicide death (Morgan et al., 2021). Another study showed that this reduction was more pronounced for nondrug suicides among those without a high school degree (Dow et al., 2020).[6] A meta-analysis also found evidence that increases in income, particularly those that lift households out of poverty, improve mental health symp-

[6] Further evidence is provided by Lenhart (2019). Rambotti (2020) did not find evidence of a relationship between EITC and suicide rates in fully adjusted models, although it did find evidence that Supplemental Nutrition Assistance Program participation is associated with reduced suicide rates.

toms (Thomson et al., 2022). This has led some to propose that anti-poverty policies could reduce suicide rates.

Means Safety

Overall Assessment

Effect on key outcomes: There is little evidence to suggest that existing means restriction efforts have successfully changed the ways in which firearm owners store their firearms or how individuals store potentially lethal medications.

Other key findings: There is compelling evidence that putting time and space between a veteran at risk of suicide and the means they may use to attempt suicide may prevent some suicides. Although the existing evidence suggests that this type of means restriction is effective, creative approaches are needed to overcome inherent limitations of current intervention techniques. These approaches must be coupled with robust evaluation efforts to accurately validate these efforts and develop best practices.

Definition and Rationale

Means safety entails putting time and space between a person at risk of suicide and the means used to take one's own life. Some theories purport that some suicides occur during crisis periods and that putting time and space between individuals in such crises and the means by which they may take their lives could be lifesaving (Harvard T. H. Chan School of Public Health, Harvard University, 2024).

Examples

Programs that seek to promote means safety do so by

- restricting access to lethal means (for example, policies that bar certain individuals from accessing firearms, barriers that prevent people from jumping from heights, and policies or procedures that limit the quantity of potentially fatal drugs dispensed by authorized providers)
- encouraging secure storage practices (for example, media campaigns that promote secure storage of firearms, packaging of prescription drugs, and programs that provide safe disposal options of potentially fatal prescription drugs)
- substituting lethal means with less-lethal options (for example, "breakaway" rods, such as closet rods or shower rods, that cannot support a human's weight; in 2022, suffocation accounted for 13.1 percent of veteran suicides; Office of Suicide Prevention, 2024).[7]

[7] The Joint Commission recommends that inpatient psychiatric facilities be "ligature-resistant" environments (Joint Commission, 2017, p. 3).

Cover Me Veterans is an organization that provides free gun skin kits to veterans, with the ability to upload a "personally relevant and meaningful image" to include on the gun skin. CALM (Counseling on Access to Lethal Means) operates WorriedAboutaVeteran.org, which provides friends and family members of veterans at risk of suicide with practical tools to recognize risk, support their loved one, and help keep them safe, particularly with respect to temporarily changing where and how household firearms are stored.

Evidence

There is compelling evidence that access to lethal means contributes to suicide.[8] Firearms are the most-common means that veterans use to end their lives (Office of Suicide Prevention, 2024) and are an extremely fatal means of suicide attempt, resulting in death in 85 to 95 percent of attempts (Elnour and Harrison, 2008). There is evidence that new gun purchasers have elevated rates of suicide (Studdert et al., 2020). Similarly, there is evidence that, relative to both living and deceased controls, those who die by suicide are more likely to live in a home where firearms are present (for a review, see RAND Corporation, 2018). There is also evidence that state-level gun ownership rates are associated with state suicide rates (RAND Corporation, 2024) and state veteran suicide rates specifically (Morral, Schell, and Scherling, 2024).

The evidence on firearm storage and suicide is less conclusive. As noted in a review by RAND (RAND Corporation, 2018), there is some evidence that individuals who died by suicide stored their firearms less securely than controls who were alive (Conwell et al., 2002; Grossman et al., 2005) and that those who died by firearm suicide stored their firearms less securely than controls who died from others causes of death (Shenassa et al., 2004). But there are also studies that found no differences in household firearm storage practices among adolescents who died by suicide versus living adolescents in the same community (Brent et al., 1991; Brent et al., 1993) and between those who died by firearm suicide versus suicide by other means (Dahlberg, Ikeda, and Kresnow, 2004). Research specifically in veteran populations has also documented rates of unsafe firearm storage and factors (e.g., attitudes and beliefs) associated with unsafe storage practices (Simonetti et al., 2018; Khazanov et al., 2024; Nichter et al., 2024; Theis et al., 2021).

There is evidence that reductions in the availability of lethal means are associated with decreases in suicide rates. However, there is less evidence about the types of interventions that can reduce availability of lethal means, particularly firearms. Reductions in the presence of households with firearms in U.S. regions over time have been associated with subsequent decreases in regional suicide rates (Miller et al., 2006). There is also evidence that reductions in prescribed opiates are associated with declines in the suicide rate (Olfson et al., 2023).

[8] Because firearms account for the majority of suicides among veterans and service members, the evidence reviewed here focuses on firearm access and storage. However, we briefly review evidence for medication storage, and there is additional evidence for other types of means safety efforts.

Other research has found deceases in suicide rates associated with reductions in the availability of toxic pesticides in Sri Lanka, toxicity in domestic gas in the United Kingdom, and barriers erected at suicide hotspots (Azrael and Miller, 2016; Pirkis et al., 2015).

With respect to firearms, there are three strategies to promote secure storage of firearms: clinical interventions (education or counseling by health care professionals or others in health systems), community interventions (education or counseling in nonclinical settings, partnerships with gun retailers, communication campaigns, distribution of storage devices, firearm safety training and demonstrations, and safe storage maps), and policy interventions (e.g., laws that punish firearm owners who store firearms insecurely).

Among these efforts, the strongest evidence falls in three areas: clinical interventions for firearm owners *with children in the home*,[9] distribution of firearm-storage devices, and state-level policies, specifically child access prevention laws.[10] The lack of evidence for other types of interventions is largely due to a lack of evaluations rather than null or negative findings from existing evaluations.

In 2022, poisoning accounted for 8.2 percent of veteran suicides (Office of Suicide Prevention, 2024). While not as numerous as interventions regarding firearm storage, there are also efforts to minimize access to large quantities of potentially lethal medications. This includes efforts that limit the quantity of pills dispensed, how medications are stored, and how they are disposed of when no longer needed (Simonetti et al., 2024). However, few of these interventions have been evaluated (Simonetti et al., 2024).

Wellness Retreats

Overall Assessment

Effect on key outcomes: There is limited evidence on the efficacy of wellness retreats as a stand-alone intervention in suicide prevention. However, there is evidence illustrating a reduction in symptoms related to PTSD, depression, and anxiety in veterans who attend wellness retreats. Additionally, positive protective factors, such as resilience and social connection, are cited as positive outcomes of wellness retreats.

Other key findings: Some wellness retreats cite PTG as their primary outcome, which is defined as positive changes that emerge from traumatic experiences (Henson, Truchot, and Canevello, 2021; Tedeschi and Calhoun, 1995).

[9] Many, though not all, firearm owners do not think that it is acceptable to have discussions with their health care providers about firearm storage, and they do not consider providers to be trusted messengers about firearm storage (see Ramchand, 2022, for a review).

[10] See Ramchand (2022) for a review.

Definition and Rationale

Wellness retreats are defined as in-person gatherings of individuals for a shared experience away. Wellness retreats often draw on other intervention and suicide prevention models, such as peer support and social connection (see other sections in this chapter). The goals of wellness retreats are to foster connection and community for veterans and to help alleviate PTSD, depression, and anxiety symptoms, often while spending time in nature.

Examples

Wellness retreats exist in a variety of settings and can focus on different activities for the participants. Some examples of wellness retreats are

- therapeutic retreats, which use counseling and peer support
- camps or retreats that focus on recreational therapy
- use of yoga as a complementary modality to treat PTSD and encourage physical and emotional resilience (Feathered Pipe Foundation, undated).

An example of a wellness retreat is Project Sanctuary, which offers a weeklong recreation-based retreat for injured military members and their partners (Feathered Pipe Foundation, undated; Townsend et al., 2018). The model combines recreational therapy, education, and counseling to address the participants' needs. Another example, Boulder Crest, is described in Chapter 2.

Evidence

There is some evidence describing positive outcomes of wellness retreats for veterans. One evaluation study did not employ a control group but found reductions in PTSD, depression, and anxiety symptoms and an increase in resilience and connection and purpose after injured military service members participated in the weeklong retreat (Townsend et al., 2018; Vergun, 2016).

One study, based in Canada, used a pre-post follow-up method to measure the success of trauma-oriented retreats. The outcomes showed positive results in participants' re-finding their sense of self, managing their symptoms, having increased social connection, and finding hope for a meaningful life (Smith-MacDonald et al., 2022). Another study, with 127 participants, showed positive results in reducing PTSD, depression, and anxiety symptoms through recreation-based wellness retreats at three and six months after the retreat (Townsend et al., 2018; Veterans Families United, undated).

Some wellness retreats focus on PTG, which is described as positive changes that emerge from traumatic experiences (Henson, Truchot, and Canevello, 2021; Tedeschi and Calhoun, 1995). Boulder Crest is an example (Boulder Crest Foundation, undated). The concept of PTG suggests that facing past trauma can be a "catalyst for transformation," thereby allowing people to find greater purpose and meaning in their lives (Boulder Crest Foundation, 2023).

PTG may theoretically contribute to post-combat suicide resiliency, although there is not yet evidence to support this (Blevins, 2019).

Social connection is a large aspect of wellness retreats. As described in the social connection section earlier in this report, research shows that veterans with social connections in their life have less-severe PTSD and a higher likelihood of seeking help and that those experiencing social isolation have higher risk of suicidal thoughts, depression, and anxiety (Werber, Phillips, and Skrabala, 2023). This suggests that social connection can be a protective factor against suicidal ideation and suicide (Kleiman and Liu, 2013).

As described previously, the evidence for the effects of these programs is limited because of a lack of rigorous evaluations and the fact that wellness retreats have a lot of variability in their programming. Additionally, because wellness retreats can comprise multiple approaches and include other intervention components (e.g., trauma-informed care, PTG, peer support, social connection), it is hard to ascertain their efficacy as a stand-alone intervention.

Passive Entertainment

Overall Assessment

Effect on key outcomes: There is no empirical literature that examines passive entertainment as a suicide prevention strategy.

Other key findings: Passive entertainment is often used alongside other features in social connection and community programs. However, passive entertainment can be considered a type of coping strategy or activity that can lessen suicide risk and is incorporated into empirically supported interventions that way. It may also communicate motivating messages or provide safe spaces for recovery, but more research is needed to determine its contribution to suicide prevention in these applications.

Definition and Rationale

Entertainment here is defined as passive participation (e.g., being an audience member) in sporting events, concerts, plays, movies, or other forms of entertainment. This type of activity, on its own, does not appear in the empirical literature. However, it can be included as a part of safety planning for individuals at risk of suicide as a means of coping and distraction from suicidal thoughts and impulses (Stanley and Brown, 2012). It can also be an activity that is used in behavioral activation or activity scheduling to reduce depressive symptoms. Behavioral activation is a common element in CBT and can be a stand-alone intervention strategy. In behavioral activation, patients are encouraged to engage in activities that were previously pleasurable for them in order to increase activity and increase the chances of a positive mood or enjoyment. Such activities can include things like watching television, movies, and sports or listening to music. Entertainment can also be used to provide helpful messages to veterans about healing and recovery or offer sober spaces for those struggling with alcohol or substance abuse.

Examples

One example is the Warrior Healing Center in Cochise County, Arizona, in which entertainment is part of the social and community-building activities offered, along with case management and crisis services. Another type of entertainment is stand-alone, such as the Veterans Suicide Prevention Channel, which engages in "producing and broadcasting shows that contain healing subject matters and information, educating, entertaining and providing resource information" (Veterans Suicide Prevention Channel, undated).

Evidence

There is no empirical evidence for entertainment on its own as a suicide prevention strategy. However, entertainment activities can be used as a component of safety planning and CBT-SP, both of which are empirically supported approaches (Bryan and Rudd, 2018; Nuij et al., 2021; Stanley et al., 2018; Wenzel, Brown, and Beck, 2009). Behavioral activation or activity scheduling is considered a standard part of CBT (e.g., Martell, Dimidjian, and Herman-Dunn, 2022), with evidence of its impact on reducing depressive symptoms (Chartier and Provencher, 2013; Cuijpers, Van Straten, and Warmerdam, 2007; Orgeta, Brede, and Livingston, 2017).

Post-Hospitalization Outreach

Overall Assessment

Effect on key outcomes: Research on interventions that involve contacting individuals following inpatient psychiatric hospitalization generally suggests that outreach is effective in reducing suicide risk; however, other studies have reported mixed findings. Models that combine safety planning during an ED visit or hospitalization for suicide risk with follow-up outreach have preliminary evidence that these programs effectively reduce suicide risk relative to not receiving this intervention.

Other key findings: When veterans are admitted to a psychiatric unit or hospitalized because of suicide risk, the period directly following their discharge is a critical period when additional support is often needed to prevent suicide. Outreach during this time can help increase connectedness and feelings of belonging or can help get veterans connected to important follow-up care appointments that can provide psychological support, psychiatric and medication management, and coordination for key social determinants of health, such as housing.

Definition and Rationale

The prevalence of suicide is 100 times higher than the global rate among civilians in the three months following a psychiatric stay (see the meta-analysis by Chung et al., 2017). Research on veterans indicates they face similar increases in risk following an inpatient mental health

discharge (Katz et al., 2019). Thus, the period following admissions and hospitalizations for suicide risk is a critical point for outreach and engagement with veterans. This can be in the form of follow-up appointments or checking in via mail, phone calls, or emails. These "checking-in" contacts are considered non-demanding, as they are less intensive and do not place requirements on the veteran.

Post-hospitalization outreach can overlap with case management or care coordination when it involves working with the patient to establish outpatient support services during the transition from inpatient hospitalization. It also overlaps with crisis psychological clinical services, as these may include hospitalization and a plan for follow-up outreach.

Examples

Follow-up visits following hospitalizations are key to continuity of care (Arnon, Shahar, and Klomek, 2024); however, creative solutions are needed for veterans who do not attend these follow-up appointments or who may be difficult to engage in continued care. One example of a potential solution is Caring Letters (also known as Caring Contacts), which was introduced by Motto (1976) as a format to intervene with individuals at high risk of suicide following inpatient psychiatric hospitalization. The traditional format required health care providers to write brief and caring letters to individuals discharged and at risk of suicide, with the purpose of increasing belongingness and connectedness to others, which suicide theory indicates are key to reducing the risk of suicide (Joiner et al., 2009). VA sends caring letters to veterans who contact the Veterans Crisis Line. Advances have been made to adapt this for veterans and incorporate veteran-to-veteran peer support, given the shared military culture and understanding among veterans (Reger et al., 2024).

Health care systems have implemented safety planning and follow-up outreach after an ED visit or hospitalization due to suicide risk. For instance, VA implemented SPED, which provides these services to veterans (U.S. Department of Health and Human Services, 2024). Other models of outreach following discharge for suicide risk have been implemented for civilians, such as the Hospital Outreach Post-Suicidal Engagement, or HOPE, program (Williamson et al., 2020; Wright et al., 2021).

Evidence

Research has examined the effects of Caring Letters on reducing the risk of suicide among civilians (Beautrais et al., 2010; Carter et al., 2013; Denchev et al., 2018; Hassanian-Moghaddam et al., 2011; Robinson et al., 2012) and veterans (Comtois et al., 2019; Livingston et al., 2024; Luxton et al., 2020). Specifically, early research examining Caring Letters provided through postal contacts following hospitalization to those refusing ongoing care determined that, after five years, there was a significant decrease in deaths by suicide among those who received the contacts relative to those who were not contacted (Motto, 1976). Since then, studies have applied a similar model, and findings for these studies are mixed. Some report that contact following hospitalization relative to care as usual did not significantly change the

number of deaths by suicide or suicide risk overall (Robinson et al., 2012; Vaiva et al., 2006), while others found that it significantly reduced rates of suicide in addition to reducing suicidal ideation and attempts (Hassanian-Moghaddam et al., 2011; Motto and Bostrom, 2001). Research on Caring Letters has expanded to military populations and has produced similar mixed results and study limitations (e.g., recruitment challenges) (Luxton et al., 2020). Moreover, studies with preliminary findings indicate that adaptations to Caring Letters for veterans may be useful, such as incorporating peer support and shared military experience by peer veterans writing the Caring Letters to veterans recently discharged for suicide risk (Ehret et al., 2021; Livingston et al., 2024). VA's evaluation of its program sending letters to veterans who contacted the Veterans Crisis Line found no differences whether the contact was sent by a clinician or peer; it also found that those who received letters did not have different rates of subsequent suicide attempts but that those who received the caring letters reported greater health care use (Reger et al., 2024).

Research on models of post-hospitalization outreach that incorporate safety planning and follow-up contact has provided evidence that these programs effectively reduce suicide risk (Stanley et al., 2018); increase well-being, coping self-efficacy, feelings of hopefulness (Wright et al., 2021), subjective well-being, and feelings of being connected to social supports (Williamson et al., 2020); are feasible to provide and acceptable to veterans (Knox et al., 2012; Stanley et al., 2016); and reduce suicide risk (Boudreaux et al., 2020). For instance, research on a pilot project titled Suicide Assessment and Follow-up Engagement: Veteran Emergency Treatment (known as SAFE VET) found that, based on medical records, veterans who received safety planning and follow-up outreach had significantly fewer (45 percent less) suicidal behaviors six months following their visit than those who did not receive this intervention and outreach (Stanley et al., 2018). Given these findings, VA implemented SPED, which provides safety planning and follow-up outreach for an ED visit due to suicide risk (U.S. Department of Health and Human Services, 2024). Ongoing research efforts are needed to determine the effects of SPED on reducing suicidal behaviors following visits to EDs among veterans; however, findings on similar programs suggest that these interventions and follow-up reduce suicidal behaviors.

Suicide Postvention

Overall Assessment

Effect on key outcomes: Suicide postvention is somewhat helpful for facilitating the grief process in the short term; however, its impact as a suicide prevention strategy for family members, coworkers, and peers has not been well established.

Other key findings: Activities to support individuals who have lost someone to suicide are popular components to suicide prevention efforts and are incorporated within the military to mitigate the impact of suicide deaths on fellow service members and veterans. Given

the heightened risk of suicide among those affected after a suicide loss, suicide postvention focuses not only on grief support but also on preventing additional suicides in the aftermath.

Definition and Rationale

People experiencing suicide bereavement are at an increased risk for poor health outcomes, including depression, PTSD, and suicidal thoughts and behaviors (Tal Young et al., 2012). Knowing someone who died by suicide is a risk factor for those affected, making them more likely to think about or attempt suicide themselves (Hamdan et al., 2020). *Postvention* is a set of activities that attempt to mitigate this risk through supports to those affected by a suicide death (Cerel, Frey, and Maple, 2014), offering risk screening and structured support through different phases of suicide loss, including stabilization, grief work, and promoting PTG (Defense Suicide Prevention Office, 2020). This process can help the bereaved find support in their grieving process, destigmatize grief associated with suicide loss, and help honor the decedent. DoD has embedded this set of activities into its military suicide prevention strategy to mitigate the risk to fellow service members when a service member dies by suicide (Pak, Ferreira, and Holloway, 2019) and the postvention part of the National Strategy for Preventing Veteran Suicide ("Goal 10: Provide care and support to individuals affected by suicide deaths and suicide attempts to promote healing"; VA, 2018, p. 28).

Examples

Some examples of programs for military service members are the TAPS (Tragedy Assistance Program for Survivors) Suicide Loss Support program (Ruocco et al., 2022). There are also toolkits for suicide postvention efforts, including the toolkit from the Defense Suicide Prevention Office (2020) and the U.S. Army's *Unit Commander's Suicide Postvention Handbook* (U.S. Army Resilience Directorate, undated). In our scan, we did not identify any examples of postvention programs for veterans.

Evidence

Suicide postvention is recognized as an important aspect of suicide prevention. Almost all national and state level suicide prevention plans include postvention efforts (Suicide Prevention Resource Center, undated; U.S. Department of Health and Human Services, 2024). However, even though postvention is being implemented somewhat widely and incorporated into suicide prevention guidelines, there is little solid evidence that it is effective for the general population, although it may be helpful for treating complicated grief reactions in the short term (Andriessen et al., 2019).

Media Campaigns

Overall Assessment

Effect on key outcomes: Media campaigns have demonstrated success primarily in increasing general awareness and knowledge of suicide, with more-limited success in changing attitudes and the least amount of demonstrated success in changing behavior. There is specific evidence that veterans exposed to some media campaigns have indicated a willingness to use a crisis line and associated behavioral changes.

Other key findings: N/A

Definition and Rationale

Media campaigns with the intention of preventing suicide use various advertising methods (e.g., online, television, radio, flyers, newsprint) to disseminate information to the general public to reduce suicide. Specific messages might include information regarding risk factors and warning signs of an individual in a suicide crisis, messages that destigmatize help-seeking, information on available resources, appeals to change the way firearm owners store their firearms, or direct attempts to persuade individuals experiencing suicidal ideation to seek help. All of these types of media campaigns aim to change beliefs or create behavioral intention through increasing such constructs as self-efficacy or altering norm perception. These strategies have shown to ultimately influence behavior (Wakefield, Loken, and Hornik, 2010).

Examples

Media campaign research can be broken down based on the proximity of the outcome to the ultimate goal of a specific prevention behavior (e.g., help-seeking, safe firearm storage):

- knowledge and awareness campaigns, which attempt to provide information either directly to the individual at risk of suicide or to an individual within the at-risk individual's social network—for example, media campaigns that provide information to the general community regarding risk factors for suicide and appropriate resources to which the at-risk individual can be referred or campaigns that provide normative information regarding accurate risk perceptions in the community and the availability and contact methods of help-seeking resources (Bossarte et al., 2014)
- campaigns that seek to change attitudes, which attempt to alter potential negative beliefs about help-seeking or reduce any shame that may be felt regarding the experience of suicidal ideation (Hamblen et al., 2019; Karras et al., 2024)
- campaigns that hope to change behaviors, which encourages specific behaviors, like using support resources or changing the way firearms are stored.

In partnership with the Ad Council, VA operates the "Don't Wait. Reach Out" campaign, which uses public service announcements in donated media to encourage veterans to reach out to a VA-run website for help if they are struggling (VA, undated-b). The Real Warriors Campaign has been run by DoD to "decrease stigma, increase psychological health literacy, and open doors to access to care by encouraging psychological health help seeking among active duty service members, veterans, and their families" (Military Health System, 2024). Brady and the Ad Council operate the End Family Fire campaign, which includes public service announcements for veterans called "Service Never Stops" that encourage secure firearm storage practices (Brady Campaign to Prevent Gun Violence, 2021).

Evidence

Ostensibly, the goal of all these media campaigns is to ultimately influence behavior; however, research generally supports the ability of media campaigns to provide knowledge and influence attitudes, but evidence regarding behavior is mixed (Pirkis et al., 2019). Research specifically in veteran communities indicates that, generally, media campaigns have had an effect regarding knowledge acquisition. For example, 65 percent of veterans in a nationally representative sample reported that they are aware of the Veterans Crisis Line (Tsai et al., 2020). Additionally, research has demonstrated that information about the Veterans Crisis Line can increase reported likelihood of use, as well as the actual use, of that service (Bossarte et al., 2014). In veteran communities, programs targeting means restriction messaging, such as promoting safe firearm storage (Karras et al., 2019), have also been able to demonstrate knowledge acquisition but not a change in behavioral intention or actual safe storage practice.

Researchers have also begun to explore the most-effective messaging strategies by identifying the types of messages and messengers that may be associated with positive attitudes about secure firearm storage (Anestis et al., 2021; Anestis et al., 2022). In research examining potential barriers to effective suicide prevention messaging in veterans, low credibility of the messenger, emphasis on the loss associated with not seeking help, stereotyping, and too great an emphasis on military service were all associated with negative appraisals of media campaigns (Karras, Levandowski, and McCarten, 2022).

One specific example of a more comprehensive approach to suicide prevention that involves several messaging components is the Together with Veterans initiative (Monteith et al., 2020). This initiative has six components, the first two of which involve campaigns to both reduce suicide and increase help-seeking, as well as messaging to promote safe firearm storage. This program was developed collaboratively with the veteran community. Program developers report that veteran stakeholders involved in the project preferred veteran-to-veteran messaging that both acknowledges suicide as a problem and provides a sense of hope and encouragement to create a culture of acceptable help-seeking. Messaging about firearms required even further nuance, with veterans again preferring this messaging to come from peers and the discussion about safe firearm storage centering on increasing the time between suicidal thoughts and lethal action. Researchers involved in this project stressed the importance of

collaboratively identifying culturally acceptable lethal means restrictions and assisting in redirecting incorrect assumptions around mental health and firearms (e.g., firearms will be taken away if a veteran receives a mental health diagnosis). This program also recommends that messaging be delivered by informed peers who are aware of local laws and regulations.

There has been a wealth of research on the potential unintended consequences of media messaging regarding suicide. The World Health Organization, the American Foundation for Suicide Prevention, and other large organizations, based on decades of research citing an increased incidence of suicide following specific types of suicide death reporting (Niederkrotenthaler et al., 2020), have adopted responsible methods for reporting death by suicide (Mishara and Dargis, 2019). These recommendations include particular caution regarding reporting celebrity suicides but also to avoid sensationalizing and discussion of means, plus other important considerations for reporting on suicide death. Therefore, as research continues to progress in the identification of optimal content and facilitators of beneficial messaging, there is reason for the thoughtful and cautious development of messaging content, as adverse effects have been observed. Research has pointed out that media adoption of guidelines on reporting suicide death (Abbott et al., 2018; Sumner, Burke, and Kooti, 2020) is inconsistent, and strategies have been developed to increase media adherence to these guidelines (Duncan and Luce, 2022).

Gaming

Overall Assessment

Effect on key outcomes: There is evidence identifying associations between collaborative video game play and positive psychological characteristics (e.g., social engagement, belonging) and between problematic gaming and suicide risk.

Other key findings: Overall, the literature regarding gaming as a suicide intervention is in its infancy. Interventions that aim to bolster social connectedness in existing gaming communities through online support, the encouragement of prosocial interactions, and the broadening of social networks may be a promising avenue for suicide prevention.

Definition and Rationale

The concept of *gaming* is potentially quite broad and could span a continuum of scientific literatures, theorized mechanisms, and level of empiricism from collaborative video game play to gamified psychological interventions. For the purpose of this brief review, this section will only view *gaming* as participation in recreational video games that were not specifically designed to affect psychological outcomes but that may alter these outcomes through some intermediate mechanism (e.g., greater social connection or engagement).

Examples

The Stack Up Overwatch Program (StOP) is a supportive intervention prompted by a nonprofit organization (Stack Up). This program leverages a publicly available Discord server and staffs a peer support channel with trained crisis response support staff. Regiment Gaming also leverages Discord to build service members' and veterans' social connections via gaming.

Evidence

In terms of the limited scope of viewing *gaming* as participation in recreational video games, research has demonstrated that gaming can increase certain protective factors related to suicide risk, such as the satisfaction of intrinsic psychological needs (Britton et al., 2014; Ryan, Rigby, and Przybylski, 2006), social connectedness, sense of community, and belonging (Konijn and Bijvank, 2009; Wan and Nordmann, 2023). However, there is also a robust literature demonstrating strong associations between problematic gaming and risk factors for suicide, such as sleep disruption and social isolation (Ellithorpe, Meshi, and Tham, 2023; Lee and Ham, 2018), as well as more directly an increased risk for both suicidal ideation and attempt (Savci et al., 2021). There is also literature indicating that violent video games in particular may increase the acquired capability for suicide (Mitchell et al., 2015), providing a theoretical mechanism by which risk is increased through video game play—a mechanism consistent with leading theories of suicide (Van Orden et al., 2010).

Few examples exist in the empirical literature that both pertain specifically to veterans and assess programs designed to promote video game play as a direct intervention for suicide. Furthermore, we are not aware of any RCT in which individuals at risk of suicide were assigned to video game play as an adjunctive treatment modality, outside of "serious games" built specifically as gamified psychological interventions.

However, there is some literature that preliminarily evaluates supports built into online gaming communities (Colder Carras, Bergendahl, and Labrique, 2021). For example, Stack Up has provided preliminary evidence suggesting the general feasibility of a video game–based peer support community (Perepezko et al., 2024). Stack Up was also selected as one of the organizations to participate in the Centers for Disease Control and Prevention Veteran Suicide Prevention: Evaluation Demonstration Project that uses the Centers for Disease Control and Prevention evaluation framework to build the infrastructure necessary to support program evaluation. Results from this evaluation will serve as the first rigorous program evaluation of community engagement during video game play as an intervention for mental health and will include such outcomes as suicidal ideation.

Proponents of video game play as a means of promoting psychologically healthy characteristics reference literature that cites video games as influencing both hedonic (i.e., mood based) and eudaimonic (i.e., existential) components of well-being through such methods as distraction and cooperative engagement in shared moral-based goal acquisition (Colder Carras et al., 2018). Indeed, veterans and active-duty service members report using gaming as a coping mechanism for military and psychological distress (Banks and Cole, 2016), and

small qualitative studies with veterans have shown that some veterans report that specific types of video game play (e.g., first-person shooters) assist them in managing PTSD symptoms and provide a sense of camaraderie (Elliott et al., 2015). These reports are supported by a study demonstrating that, when individuals with depression were assigned to 30 minutes of video game play three times per week, participants' depressive symptoms reduced over the course of a month (Russoniello, Fish, and O'Brien, 2013). However, social network studies regarding the level to which certain individuals engage with the healthier aspects of video game play demonstrated that those with higher depressive symptoms were less and less likely to engage with social support game functions over time, leading to an increasingly isolating experience (Prochnow et al., 2023). This suggests that these components of game play are not necessarily engaged with by the individuals that may benefit most from them.

Gaming is a broad concept that requires nuanced operational definitions and methods when investigating whether recreational game play could be a fruitful suicide intervention or prevention effort. The available literature seems to suggest that if used appropriately, gaming may bolster healthy psychological characteristics that may have downstream effects on suicide risk. However, many research questions remain, including for whom this intervention might be most effective, what types of games may be associated with greater protective factors and less suicide risk, what potential mechanisms reinforced by gaming may support psychological health, which additional supports are needed, and how these supports can be effectively integrated into gaming platforms.

Clinical Practice Guidelines

Overall Assessment

Effect on key outcomes: Research examining whether clinical practice guidelines improve care is limited.

Other key findings: Research on clinical practice guidelines that are not specific to suicide prevention suggests that following clinical practice guidelines improves care and that the way these guidelines are implemented can be important to their use in clinical settings.

Definition and Rationale

Clinical practice guidelines provide a valuable, evidence-based tool to identify a standard of care and inform practice among professionals who may not have the time or methodological expertise to review the literature on best practices (Vachhrajani, Kulkarni, and Kestle, 2009). These guidelines often provide best practices for various aspects of care, including screening, assessment, interventions, and management of care.

Examples

Clinical practice guidelines have long been used to establish best practice for preventing suicide (e.g., American Psychiatric Association, undated). The most relevant example for those providing services to service members and veterans is the *VA/DoD Clinical Practice Guidelines for Assessment and Management of Patients at Risk for Suicide* (VA and DoD, 2024). These guidelines establish best practices for identification, comprehensive assessment, and management of patients at risk of suicide. Moreover, these clinical practice guidelines provide resources, such as safety plan worksheets for clinicians to develop with their patients, and other tools that providers can disseminate to patients and their families.

There are other relevant clinical practice guidelines that are geared toward civilians. Although it is dated (and may not be in line with current recommendations), the American Psychiatric Association's (2003) *Practice Guideline for the Assessment and Treatment of Patients with Suicidal Behaviors* previously provided best practices for assessment, treatment, documentation and risk management, and psychiatric management for care provided by psychiatrists. More-recent guidelines were developed by Zero Suicide through the AIM-SP (Assess, Intervene, and Monitor for Suicide Prevention) guidelines for clinical practice (Brodsky, Spruch-Feiner, and Stanley, 2018). This approach is geared less toward a certain type of provider or patient population and instead proposes a model for which best practices of suicide prevention can be offered (Brodsky, Spruch-Feiner, and Stanley, 2018).

Evidence

Early research outlined the need for assessment of how clinical practice guidelines should be implemented, noting that consideration of clinician readiness, barriers to changing current practices, and the level of intervention that the guidelines are intended for are worth considering prior to dissemination of guidelines (Moulding, Silagy, and Weller, 1999). One study examined the implementation of clinical practice guidelines for the assessment and treatment of patients with suicidal behaviors and depression. Study authors reported that active implementation, such as seminars, local implementation teams, and providing feedback, significantly improved guideline compliance (Forsner et al., 2008). Limited research has examined whether clinical practice guidelines improve care. A study on clinician adherence to depression guidelines indicated that guideline-concordant care was associated with improved outcomes among patients experiencing depression (Hepner et al., 2007). Finally, research indicates that clinical practice guidelines on preventing suicide across professional disciplines vary (Bernert, Hom, and Roberts, 2014). For instance, there was a lack of consensus on determining risk-level categories, means restrictions, and legal and ethical considerations across the guidelines. Alignment on these factors may be important to keeping prevention approaches consistent and providing effective prevention care. Clinical practice guidelines provide a valuable tool to clinicians that can result in improved care; however, additional research is needed to identify the extent to which these guidelines affect care.

Religious or Spiritual Programming

Overall Assessment

Effect on key outcomes: Very little research to date has moved beyond studies of risk or resilience factors to studies of the impact of spiritual or religious components in suicide prevention programs on suicide outcomes.

Other key findings: There is a solid rationale for including aspects of spirituality or religion in suicide prevention programs. Gatekeeper programs, which sometimes leverage chaplains as gateways to treatment for those at risk, demonstrate mixed impact and are recommended to be used as part of a comprehensive program rather than as stand-alone activities.

Definition and Rationale

Religious beliefs, practices, or rituals can be a component of suicide prevention programs, as can spirituality (search for meaning, purpose, and a sense of connectedness). The empirical literature shows inconsistent and complex relationships between religion (affiliation, participation, and doctrine) and suicide risk, but it is clear that, for some people, religion can play a protective role in decreasing suicide risk (Lawrence, Oquendo, and Stanley, 2016; Poorolajal et al., 2022). Conversely, spiritual problems such as lack of purpose, a sense of punishment by God, or an insecure relationship with God can increase risk for veterans (Kopacz et al., 2018; Smigelsky et al., 2020). This type of information has led to calls to integrate spirituality and religion into suicide prevention activities for veterans (Amato et al., 2017).

Examples

Chaplains play a prominent role in suicide prevention for service members and veterans, often acting as gatekeepers and being able to provide largely confidential supports with less stigma (Cooper et al., 2023; Kopacz et al., 2014; Lee-Tauler et al., 2023; Smigelsky et al., 2024).

One example is Deep Sea Valkyries, a Christian-based organization that takes veterans on a weeklong sea voyage that includes therapy, Christian devotions, and deep-sea diving to combat veteran suicide. A second example is Project Savior Outdoors, which organizes fishing events, retreats, and Bible study in its suicide prevention activities.

Evidence

The most prominent model is in the military context and involves chaplains as gateways or gatekeepers (see the section on gatekeeper training earlier in this chapter), for which evidence of effects is mixed. The newest version of this, called Chaplains-CARE, has been evaluated for its training efficacy, but program outcomes have not yet been evaluated (Lee-Tauler et al., 2023). Some evaluation of faith-based suicide prevention with adolescents in African American churches is currently underway (Molock et al., 2008) and is based on an empirically supported military program (Wingman-Connect) (Wyman et al., 2020). This program has not

been tested with military veterans. Another program is the HOLLY Program, which is set in Christian churches and has some demonstrated promise (Bazley and Pakenham, 2019).

Physical Activity, Recreation, or Exercise

Overall Assessment

Effect on key outcomes: Some evidence shows that prescribed physical activity may reduce suicide attempts but not suicidal ideation.

Other key findings: There is a well-established link between physical and mental health, and observational studies have shown that veterans who are physically active are less likely to die by suicide or have suicidal thoughts and that those who die by suicide are more likely to exhibit evidence of low levels of physical activity (e.g., obesity, high body mass index). Existing RCTs are typically small, have short follow-up periods, and prescribe low-intensity exercise, all of which limit the strength of evidence (Shimura et al., 2023).

Definition and Rationale

For the purpose of this brief review, *physical activity* was defined as any exercise or wellness activity associated with greater bodily movement. Studies in the civilian and veteran literature were included, with an emphasis on studies in which mental health or suicide was an outcome rather than studies exploring specific mechanisms. Although outside the scope of this review, several mechanistic theories are offered in the literature (Portugal et al., 2013; Smith and Merwin, 2021) that include neurological or physiological explanations for this association, with some theories directly discussing suicide, impulse control, and known theories of suicide (Fabiano et al., 2023). In addition, it can be used as a component of safety planning and CBT-SP, both of which are empirically supported approaches (Bryan and Rudd, 2018; Nuij et al., 2021; Stanley et al., 2018; Wenzel, Brown, and Beck, 2009). Behavioral activation or activity scheduling is considered a standard part of CBT (e.g., Martell, Dimidjian, and Herman-Dunn, 2022), with evidence of its impact on reducing depressive symptoms (Chartier and Provencher, 2013; Cuijpers, Van Straten, and Warmerdam, 2007; Orgeta, Brede, and Livingston, 2017).

Examples

VA's Whole Health initiative is a health coaching program that supports VA patient quality of life through assisting veterans in making healthy lifestyle changes, including increasing physical activity and exercise (Bokhour et al., 2020). Another example is the Warriors for Freedom project, which provides several different physical activities, such as scuba diving, hunting and fishing, golfing, and camping (Warriors for Freedom, undated). Its goal is to foster community, provide support, and help restore hope and purpose as a means of reducing suicide. One additional example is the organization Hunting with Soldiers, whose goal is

to provide healing through nature (Hunting with Soldiers, undated). They see the connection between PTSD and suicide and focus on building connection through hunting and fishing and highlight the healing properties that being in nature and in community can provide.

Evidence

The reciprocal relationship between mental health and physical health is well established in the scientific literature (Cadenas-Sanchez et al., 2021; Fabiano et al., 2023; Fossati et al., 2021). Recent events, such as the coronavirus disease 2019 pandemic, have also highlighted the importance of physical activity in contributing to healthy coping during stressful events (Dragioti et al., 2022). For individuals diagnosed with mental health conditions, structured physical activity regimens have been shown to be equivalent to frontline treatments, such as pharmacotherapy and psychotherapy (Helgadóttir et al., 2017; Recchia et al., 2022; Verhoeven et al., 2023).

With respect to suicide, several meta-analyses and systematic reviews have been conducted (Baek et al., 2024; Fabiano et al., 2023; Johnson-Chung, 2022; Vancampfort et al., 2018) and found that, in the general population, greater physical activity is associated with less incidence of suicidal ideation (Vancampfort et al., 2018). In cross-sectional studies, physical activity was significantly less likely to be reported in those who died by suicide (Simon, Powell, and Swann, 2004). In veteran populations, healthy lifestyle behavior, including exercise, has been shown to be protective against suicide in large nationally representative samples (Fanning and Pietrzak, 2013). Studies in veteran samples have also demonstrated both direct and indirect links between exercise and suicide risk, with indirect relationships operating through lower depressive symptoms and better sleep patterns (Davidson et al., 2013). Furthermore, in veteran samples, indicators of inactivity, such as obesity (Stefanovics, Potenza, and Pietrzak, 2020) and frailty (Kuffel et al., 2021), are also linked to suicide risk, with frailty in older veterans being linked to both suicide attempts and suicide death (Kuffel et al., 2023). Body mass index also significantly moderated the relationship between PTSD and suicide risk (Kittel et al., 2016). Physical activity affects risk factors of suicide, with evidence in veteran populations suggesting that increased exercise is associated with reductions in alcohol use (Gil et al., 2024).

These associations have led some to test prescribing exercise independently or in combination with other treatments as a suicide prevention strategy. In an analysis of RCTs in which physical activity was prescribed to individuals with physical ailments or mental health diagnoses but not specifically among veterans (Fabiano et al., 2023), positive effects were observed for suicide attempts but not suicidal ideation. However, these were far from conclusive findings, as study sample sizes were relatively small, follow-up periods were short, and the prescribed exercise was low intensity. These general study characteristics limit the potential observable impact of prescribed physical activity because of the lengthier times required for regular exercise to influence physical and mental well-being (Grasdalsmoen et al., 2020; Stanton, Happell, and Reaburn, 2014) and the well-documented dose-response

relationship between exercise intensity or duration and mental health (Shimura et al., 2023). Furthermore, in RCTs regarding exercise and mental health, suicide is often not the primary outcome, not comprehensively measured, or not sampled sufficiently because of the low incidence of suicide.

Early small-scale evaluation studies have supported the initial implementation of VA's Whole Health initiative, reporting positive endorsements of the program in a small number of patients (Purcell et al., 2021). Larger-scale studies have also demonstrated that, when compared with patients receiving the typical VA standard of care, patients participating in Whole Health programs reported greater satisfaction and engagement with care (Bokhour et al., 2024). Evaluations of this program are ongoing, and proponents have published articles regarding lessons learned from initial implementation (Kligler et al., 2023), gaps in Whole Health program components for specific veteran populations (e.g., rural veterans) (LeBeau et al., 2023), and the impacts of the Whole Health program on physical and mental health outcomes for veterans diagnosed with specific conditions, such as PTSD (Reed et al., 2023).

Overall, there are few studies specifically examining the implementation of programs designed to increase physical activity in veteran samples that are powered sufficiently to examine the impact on suicide risk. Furthermore, the programs that exist often assess more-proximal and more-practical outcomes for the intervention, such as increased well-being, treatment adherence, or health outcomes (Denneson et al., 2019). The majority of studies in veterans appear to either establish the relationship between suicide risk and healthy behaviors in larger-scale epidemiological surveys (Nichter et al., 2021) or examine the association between PTSD outcomes and exercise, which may or may not include suicide as a secondary outcome (Björkman and Ekblom, 2022).

CHAPTER 4

Summary and Recommendations

This report first put forth a framework for mapping suicide prevention activities in a matrix defined by who the activity serves and what the activity aims to do. Using this framing, we placed suicide activities in one or more of the cells of the matrix, demonstrating how they may complement each other to ultimately prevent veteran suicide. These activities ranged from approaches that address social or environmental conditions that affect suicide to those that aim to prevent those with suicide risk from dying by suicide.

Next, we examined both the current state of veteran suicide activities and how those are poised to change. There is a current focus on programs that promote social connections, those that offer case management, and those that offer noncrisis psychological treatment. Most are in-person, but the new generation of suicide prevention efforts may look different. For example, mHealth applications and real-time monitoring of indicators of suicide risk are in development and, as discussed in Chapter 3, just-in-time adaptive interventions could use these technologies to offer interventions to veterans at risk of suicide during periods of acute risk.

Chapter 3 provides evidence of all 26 categories of suicide prevention activities. There is considerable overlap in these categories, and our reviews tried to point out overlaps that exist. There is evidence that some activities can prevent suicide, that some can reduce risk associated with suicide, and that some can promote overall well-being. But with many research areas, there is considerable opportunity for future investigation.

We developed five recommendations based on these efforts. These recommendations should be of interest to those organizations charged with developing, investing in, implementing, or evaluating comprehensive suicide prevention strategies.

Recommendation 1. Prioritize Implementation of Evidence-Based Prevention Activities

There are suicide prevention activities with a robust evidence base that are primed for implementation. These are

- community-based suicide prevention initiatives
- suicide risk screening and assessment

- noncrisis psychological treatment
- crisis psychological clinical services
- pharmacotherapy (for those with mental health conditions).

These suicide prevention activities are currently available for many veterans. As described in Chapter 1, every state and many cities participate in the joint SAMHSA/VA Governor's and Mayor's Challenges to prevent veteran suicide in their communities. VA has a universal screening program (Risk ID), in which all veterans are assessed annually for suicide risk (Gujral et al., 2023), and REACH VET, which is an algorithm that uses data from health records to discern suicide risk (Landes et al., 2024). VA offers evidence-based psychological care and pharmacotherapy as described in its clinical practice guidelines (Sall et al., 2019). It also operates the Veterans Crisis Line to provide crisis care, and, in December 2020, the Veterans Comprehensive Prevention, Access to Care, and Treatment (COMPACT) Act became law, which covers emergency VA or non-VA care for veterans in acute suicidal risk (VA, 2023a). In addition, many of these evidence-based practices are offered outside VA, often for free or at a reduced fee, for veterans who prefer to receive their care elsewhere or who may be ineligible for VA care.

However, despite widespread implementation of these evidence-based practices, they have limitations, and the veteran suicide rate continues to rise. For example, as described in Chapter 3, community-based suicide prevention activities are difficult to sustain without dedicated funding; suicide risk assessment may yield a high number of false positives; noncrisis psychological treatment is effective but has modest effects; and pharmacotherapy is only proven to be effective for individuals with specific diagnosed mental health conditions.

These limitations signal the need for strategic implementation strategies: ones that prioritize sustainability or that target evidence-based activities to specific settings (i.e., assessing risk in EDs) or individuals (i.e., veterans with mental health conditions).

To optimize the effectiveness of mental health treatment (i.e., noncrisis psychological treatment and pharmacotherapy), one must ask whether more of those already in treatment need to be provided with evidence-based treatment, whether those in treatment need supports (e.g., case management, housing, self-management tools) to complement their receipt of evidence-based treatment, or whether more of those with undiagnosed mental health conditions need to access treatment. The answer may suggest that all three are needed. Ensuring that evidence-based approaches have their optimal impact requires considering the contexts in which they are implemented, which is our basis for Recommendation 2.

Recommendation 2. When Implementing a Suicide Prevention Activity, Consider the Context in Which the Activity Is Intended to Be Delivered

Before investing in a specific suicide prevention activity within a community, organizations should consider the nested contexts where the activity is intended to occur. Such evaluations should be done in consultation with the socio-ecological model put forth in Figure 1.1. For example, if one implements a suicide risk assessment or screening program, there needs to be assurances in place that there are policies that dictate what occurs after a positive screen and personnel and resources available to assist those who screen positive for suicidality. And while mHealth applications are extremely popular among proposed interventions, the evidence to date suggests that many veterans are either unaware that these exist or uninterested in using them (Harned, Dhami, and Reger, 2023; Reger et al., 2022).

In Recommendation 1, we described that noncrisis psychological treatment and pharmacotherapy both have robust evidence bases: When the interventions are delivered as intended, some veterans will benefit from them (recall from Chapter 3 that effects are modest and the treatments are not effective for everyone). In accordance with this recommendation, one needs to consider *who* will deliver these therapies and *where* will this treatment occur.

To address the issue of *who* will deliver these treatments, one must first ensure that clinicians are equipped with knowledge to deliver these treatments. Training clinicians to deliver evidence-based approaches is one strategy to equip them. However, as described in Chapter 3, although clinicians learn from trainings and may intend to change their behaviors, there is little evidence to show that such trainings modify clinician behavior. The lack of evidence demonstrating changes in clinician behavior may call for the need for more research on the effectiveness of trainings (see Recommendation 5).

After training, another reason clinician behavior may not change is because the contexts in which they work may not be set up to administer the intervention as intended (i.e., the *where*). Larkin, Arensman, and Boudreaux (2023) describe some of the factors that may affect the delivery of evidence-based care for suicide, including outer contexts (e.g., reimbursement policies); inner contexts (e.g., system leader and staff attitudes, workforce capacity); bridging factors, which describe the interactions between outer and inner contexts; and innovation factors, which are associated with the practice itself and how well it fits within the system in which it is being implemented. Strategically implementing evidence-based practices within institutions or societies best equipped to adopt them or encouraging systems to change in ways that will more likely support and sustain evidence-based practices may be as critical for preventing suicide as the intervention itself.

Some prevention activities involve peers to better engage potential patients or to build supportive relationships, hope, and a recovery mindset. However, how and when to integrate peers into care, and how to sustain these roles, are not yet clear.

Outside the health care system, another contextual consideration is at the society level, which asks whether all veterans have adequate access to these treatments. Veterans report

various barriers to seeking care, including lack of awareness about available resources, fear of negative consequences of seeking care, their own attitudes about mental health treatment, their family's and peers' attitudes about mental health treatment, and their motivation to seek treatment (Bovin et al., 2019). For those who are ineligible or choose not to seek care within VA, cost may be another barrier to care (Davenport et al., 2023). Addressing these barriers through policy change, media campaigns, gatekeeper trainings, or other means may therefore also be a key component of suicide prevention initiatives to optimize the impact of treatments, even in the absence of robust evidence (see Recommendation 4).

Recommendation 3. Conduct a Needs Assessment to Identify Gaps in Suicide Prevention Activities

Comprehensive veteran suicide prevention strategies should be implemented in communities defined by geography (e.g., veterans in San Antonio, Texas) or population (e.g., women veterans). Community-specific needs assessments can help identify where, within communities, there are needs, resources, and gaps. We recommend that these needs assessments be guided by the RAND Suicide Prevention Activity Pyramid, presented in Figure 1.2. A better understanding of the activities and resources within a community can help those seeking to prevent suicide identify where investments are needed. It is critical to ensure a balance between those efforts that prevent the relatively few veterans trying to end their lives from attempting or dying by suicide with those efforts that help veterans with suicidal thoughts manage these thoughts and prevent those at increased risk from developing such thoughts.

We provide five examples of subpopulations of veterans for whom such a suicide needs assessment is warranted and how different menus of suicide prevention activities may be needed for each.

Veterans Who Live in Communities with Less Restrictive Firearm Policies and High Levels of Firearm Ownership

Veteran suicide rates vary across states, and these differences can largely be explained by how many gun owners live in the state and the state's firearm-related policies (Morral, Schell, and Scherling, 2024). Efforts that try to put time and space between a veteran at risk of suicide and a firearm may look different in states (and communities) with less-restrictive firearm laws and with a higher prevalence of firearms. For example, the messages and messengers used in safe storage media campaigns may look different in areas with strong hunting cultures than they do in metropolitan areas in which firearm owners often own guns for personal protection. Those states with less-restrictive firearm laws could include policy initiatives focused on

advancing more-restrictive firearm policies (RAND Corporation, 2024).[1] But there are also strategies that should be implemented across geographies: For example, clinicians across all geographies working with individuals who express suicidal thoughts should counsel them (and their caregivers) on temporarily or permanently removing their firearms or adopting more-secure storage practices.

Veterans with Other Than Honorable Discharges

Veterans with other than honorable (OTH) discharges are at increased risk of suicide, with suicide rates among these veterans twice as high as those among veterans with honorable characterizations of service (Reger et al., 2015). An OTH characterization is reserved for "significant departure from the conduct expected of enlisted Service members" of the military services (Department of Defense Instruction 1332.14, 2024, p. 35), but there is evidence that some groups have been disproportionately affected, including Black service members (Connecticut Veterans Legal Center, 2022), LGBTQ+ service members (Veterans Legal Clinic, 2020), and service members with traumatic brain injuries, PTSD, and substance use disorders (Highfill-McRoy et al., 2010; U.S. Government Accountability Office, 2017). Although OTH is an administrative and nonpunitive characterization of service, it has important impacts on veterans' eligibility for health care and medical services and other benefits from VA (Clague et al., 2024).[2] Therefore, this group will benefit from strategic suicide risk assessment and provision of evidenced-based mental health treatment in community settings. Programs included in our landscape analysis, such as the Community Veterans Assistance Project and Black Veterans for Social Justice, offer services (and some have applied to Mission Daybreak to expand service) that are specifically inclusive of veterans with OTH discharges. Strategically advertising or otherwise promoting evidence-based care in settings where veterans with OTH discharges may visit (e.g., veteran legal clinics) or within communities where they may affiliate (e.g., organizations serving the LGBTQ+ community) may be particularly important for reaching this group.

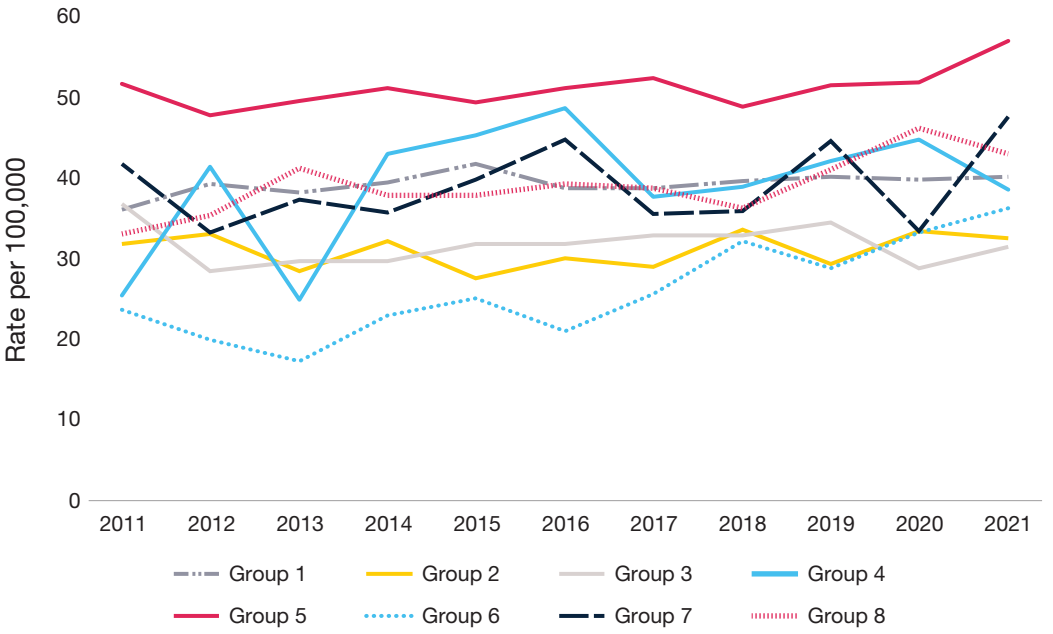
Veterans with Limited Economic Resources

Veterans with limited economic resources are at increased risk of suicide. When stratified by priority group, veterans in priority group 5 (i.e., those with nonservice-connected conditions and those with noncompensated service-connected conditions who are rated 0-percent disabled and whose income and net worth are below an established threshold) have had higher rates of suicide than any other priority group for the past decade (Figure 4.1). As described in

[1] RAND's Gun Policy in America initiative identified that child access prevention laws, extreme risk protection orders, minimum age requirements, and waiting periods may all decrease suicide risk (RAND Corporation, 2024).

[2] VA has expanded some mental health and behavioral health services, including emergency suicide care, for veterans with OTH discharges (VA, 2019).

FIGURE 4.1
Suicide Rate Among Veterans Health Administration Users, by Priority Eligibility Group



SOURCE: Features data from Office of Mental Health and Suicide Prevention, 2023.
NOTE: A full list of priority group eligibility is available on VA's website (see VA, 2024).

Chapter 3, veterans experiencing homelessness (many of whom likely overlap with priority group 5) are also at elevated risk of suicide. A needs assessment focused on this subpopulation may suggest that economic supports, which could be provided via case management or more-direct supports with housing or other social determinants of health, are necessary. For example, one Mission Daybreak applicant planned to distribute a virtual electronic benefit transfer card to veterans seeking transitional housing support. Another example is Code of Support Foundation's PATRIOTlink, a free cloud-based resource navigation platform that is a directory of curated, vetted, and verified direct services for veterans, their families, and caregivers.

As described in Chapter 3, economic supports may not independently prevent suicide but can provide the conditions in which effective suicide prevention activities (e.g., psychological counseling, pharmacotherapy) can be delivered most effectively.

Newly Transitioning Veterans

Individual risk for suicide is higher after leaving the military (compared with during military service) (Reger et al., 2015), with risk increasing steadily over the first year of separation (Ravindran et al., 2020). Some veterans may be more vulnerable to suicide risk on separation,

especially younger veterans and those with two or fewer years of military service (Ravindran et al., 2020). Transition support for these individuals may be particularly salient; many will need to focus on tangible outcomes, like employment or education, particularly as many are trying to reestablish or create support networks or new personal identities outside a military context. At least two organizations identified during our landscape analysis focused on this group, one of which offered a course for transitioning members of Special Forces that includes executive-style education, professional development, and one-on-one career coaching.

Veterans Who Experienced Military Sexual Trauma

Veterans who have been victims of military sexual trauma are at increased risk of suicide (Kimerling et al., 2016). Identifying and supporting those who have had these experiences should be a priority for efforts to prevent veteran suicide. VA screens all patients for experiences of military sexual trauma (Galovski, Street, Creech, et al., 2022), but similar efforts may be needed for veterans who seek care outside VA (Schultz et al., 2023). For those who report having had such an experience, a comprehensive assessment should be conducted, including a suicide risk assessment with proper follow-up. Some programs we categorized as mental health supports offer services specifically targeted toward veterans who experienced military sexual trauma, with a varying evidence base. Many of the animal-assisted programs marketed their services to this group of veterans: For example, K9 Partners for Patriots pairs rescue dogs with veterans and enrolls veterans in a free, 25-week service dog program with the goal of "guid[ing] veterans from self-doubt to renewed confidence" (K9 Partners for Patriots, undated) (although, as described in Chapter 3, there is currently insufficient evidence to determine whether animal-assisted programs reduce suicidal thoughts and behaviors).

In addition to these measures, a comprehensive veteran suicide prevention strategy should include efforts to prevent military sexual traumas. Such an approach is *upstream* prevention, in that it prevents an originating experience (trauma) that is known to precipitate psychological sequalae that might include thoughts of suicide, suicide attempts, and death by suicide. There are many recommendations for actions that DoD can take to prevent sexual assault (see, for example, Acosta, Chinman, and Shearer, 2021). Community-based suicide prevention initiatives could advocate these policies but can also play a role themselves. For example, many incidents of military sexual assaults go unreported, which means that perpetrators are not punished and future incidents are undeterred (Acosta, Chinman, and Shearer, 2021). Organizations could bolster DoD's efforts to encourage those who have experienced sexual assaults to report these incidents.

These examples illustrate how different components of the RAND Suicide Prevention Activity Pyramid may be particularly salient for different subpopulations of veterans, each of which is at increased risk of suicide. These activities range from those that prevent individuals who report thoughts of suicide from attempting with a firearm to preventing the trauma that, for some, contributes to suicidal thoughts.

Recommendation 4. Apply Different Thresholds of Evidence When Considering Different Suicide Prevention Activities

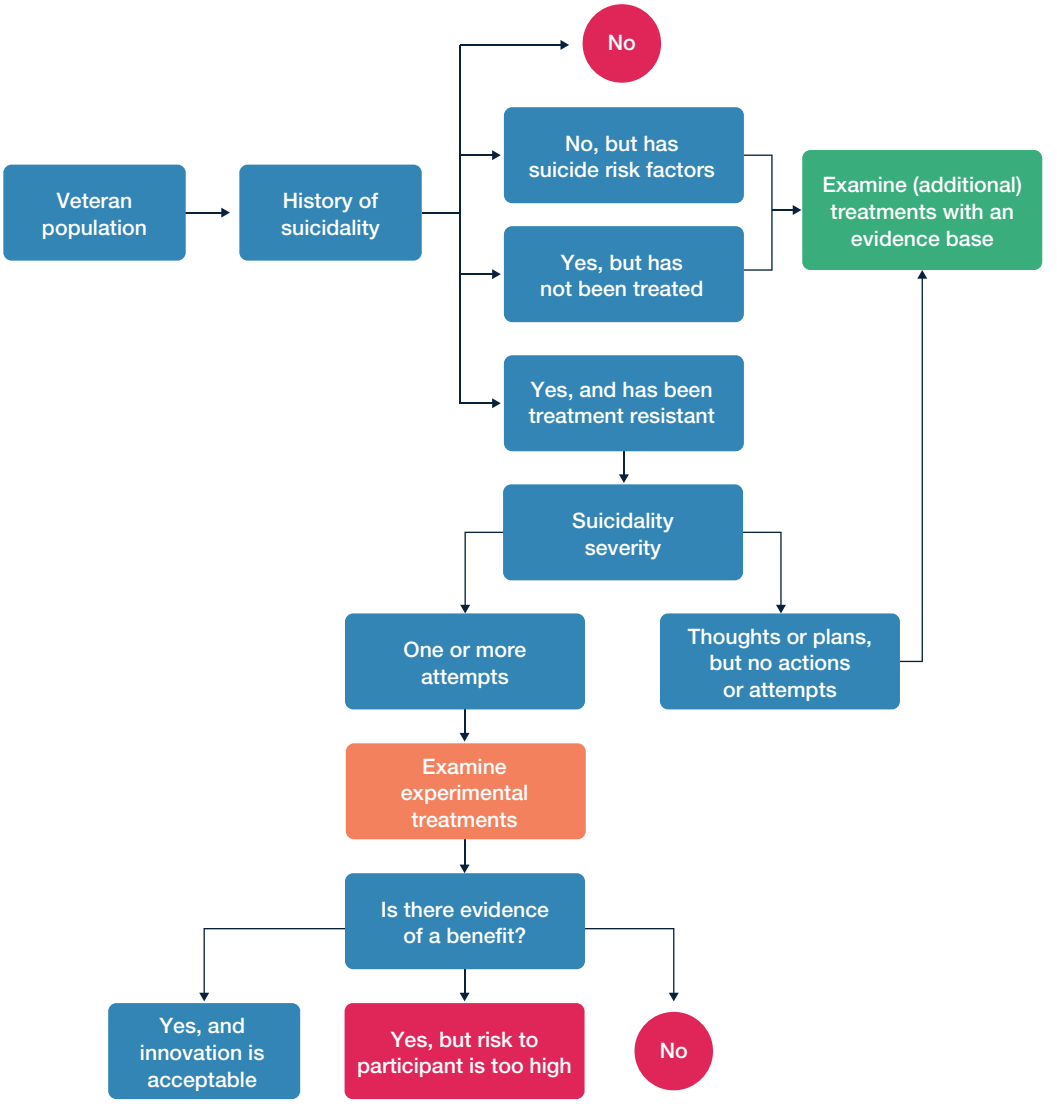
Our first recommendation calls for the continued implementation of suicide prevention activities with a robust evidence base. However, it may be worth investing in novel programs or treatments with less than a robust evidence base. One reason is that although more than 6,000 deaths per year is significant, suicide remains, epidemiologically, a rare outcome. Studies seeking to demonstrate an effect on mortality, particularly those that operate in classes we defined as *primordial prevention*, *wellness*, and *mental health*, need to be large and monitor participants for extended periods to observe an effect, which means that they are expensive and take time.

For many health conditions, speculative treatments are often considered in severe cases, despite the potential for negative side effects, because the population is in need. For example, chimeric antigen receptor T-cell therapy, commonly known as CAR T-cell therapy, involves genetically modifying a patient's own T cells to target and attack cancer cells and can be used in patients who are otherwise resistant to cancer treatments (Mitra et al., 2023). Despite the fact that CAR T-cell therapy has the potential for negative side effects and does not have a substantial evidence base that proves its effectiveness, society has deemed it worth pursuing for certain patients because of the level of severity of their illness and the potential for a positive outcome. In fact, there are policy mechanisms by which some patients can access treatments not yet approved by FDA that include participation in clinical trials, the FDA's expanded access program (in which a patient, manufacturer, and licensed provider all agree that the patient meets the program criteria and the FDA approves the request) and Right to Try, which does not require FDA approval. As described in Chapter 3, psychedelic-assisted therapy for mental health conditions has not yet received FDA approval, but at least 50 patients have accessed it through the expanded access program (Kilmer et al., 2024).

Those implementing suicide prevention initiatives should consider the role of evidence in the programs they invest in (and thus make available), in addition to the balance of risks (adverse events) and rewards (lives saved). Figure 4.2 is an illustrative example of one tool that communities could use to decide the role that programs *without* a robust evidence base should play in their overarching suicide prevention strategy. In this diagram, evidence-based programs are indicated for those at risk of suicide who have not yet availed themselves of these types of treatments. Experimental treatments are reserved for those with severe suicidality (defined in this example as having made a past suicide attempt). In addition, the types of programs included are those that are deemed *acceptable*, meaning they must have *some* evidence of a benefit and a low risk of adverse events.

FIGURE 4.2

Illustrative Decision Tree for Funding Suicidality Treatment Based on Group of Interest



Recommendation 5. Invest Strategically in Research That Can Fill Notable Gaps in Knowledge

Across our review of the existing evidence regarding veteran suicide prevention, several themes emerged, revealing common gaps in knowledge. Strategic research investments, such as those described in the following sections, can assist stakeholders in funding potentially promising programs while simultaneously ensuring that proposed research designs address common limitations and assist in progressing the field of veteran suicide prevention.

Conducting Adequately Powered Randomized Controlled Trials with Long-Term Follow-Up

One of the most prevalent limitations across the veteran suicide prevention literature was the presence of small effect sizes for suicide behaviors, a lack of control groups, and a lack of evidence on long-term effectiveness. A related limitation is that most studies ended follow-up with patients after a short time or focused exclusively on immediate rather than long-term outcomes for suicide behaviors. For example, studies in the clinician training, case management, and social connection program literature often report immediate benefits, but few demonstrate sustained impact or long-term suicide behavior outcomes. To address this gap, future research should include investigations with control groups adequately powered to ascertain modest effects over longer periods.

Linking Intervention Components to Suicide Behaviors

Many suicide prevention evaluations measured proximal outcomes related to the targets of the intervention. For example, research regarding gatekeeper training, clinician training, and media campaigns often highlighted positive changes in knowledge, attitudes, and intention to engage in behaviors consistent with the tenets of the intervention. While these are important outcomes, few studies demonstrated change in behaviors or suicide outcomes. Those that have gone beyond the initial assessment of intervention components have tended to show small effect sizes (Spafford et al., 2024) or have documented breakdowns in the dissemination pipeline between training or intervention execution and veteran outcome (Hayden and Lauer, 2000). Future research should continue to explore which activities are associated with sustained behavior change in veteran populations and assess longer-term outcomes, including changes in downstream target behaviors (e.g., suicide behavior, help-seeking).

Specifying Operational Definitions and Mechanisms of Change

Many of the studies in the literature regarding nonclinical interventions (e.g., physical activity, social connection, expressive arts, peer support, wellness retreats, gaming, animal-assisted programs) lacked clear operational definitions or an articulation of how and why the activities are related to reduced suicide-related behaviors. Operational definitions allow

a given program to specify behaviors, thoughts, or attitudes it wishes to change and consider which elements of the program may influence those targets. Operational definitions also help identify the ways in which an intervention might exert an effect (i.e., mechanisms of change). Mechanisms of change provide an understanding of not only how the interventions work but also which aspects of the intervention may require greater investments to create the largest impact. Researchers charged with evaluating existing programs should work collaboratively with program developers to specify target outcomes, mechanisms of change, and accurate and reliable measurement of these changes over time.

Investing in Precision Medicine: Which Treatment Works for Whom?

This recommendation relates directly to Recommendations 1 and 3: Future research should identify which empirically supported interventions work for specific subpopulations of veterans. For example, some of the stronger evidence–supported approaches (e.g., dialectical behavioral therapy, lithium) have produced inconsistent results for veterans (Goodman et al., 2016). Future research may be able to identify factors that make specific veterans particularly suitable for specific interventions, consistent with other recommendations for precision medicine approaches in mental health (De Berardis et al., 2021; Lenze, Rodebaugh, and Nicol, 2020; Scala, Ganz, and Snyder, 2023).

Disentangling Multifaceted Interventions

In an effort to create robust, effective programs, many of the reviewed studies included multicomponent programs, such as social determinants of health, community-based initiatives, social connection programs, and digital health platforms. While the combination of elements is a promising strategy for creating multifaceted, comprehensive suicide prevention programming, consistent with recognized recommendations (Sinyor et al., 2024), this creates a challenge for evaluations that aim to identify the most-effective program elements and direct the investment of resources to improve programing and create efficient and effective interventions. Future research should consider study designs and evaluation strategies that allow the comparison of different aspects of their program and their impact on intervention targets and suicide behaviors.

Promoting Sustainability of Primordial Prevention and General Well-Being

Government bodies, advocates, and researchers have increasingly called for greater diversity in types of suicide prevention initiatives. Consistent with the recommendations made to DoD (DoD, 2022) and recent recommendations from large suicide prevention organizations, there has been an increase in community programs targeting general well-being and an increase in quality of life. This is consistent with the primordial and wellness levels of the RAND Suicide Prevention Activity Pyramid presented in Figure 1.2. As per an earlier research rec-

ommendation, it is important to connect these types of initiatives to reductions in suicidal behavior. However, programs that attempt to intervene with instrumental supports targeting prolonged stability may take longer to demonstrate an effect on suicidal behaviors.

If the goal of suicide prevention programs is to have the widest possible dissemination to at-risk communities and to ensure that these programs endure over time, future research should consider more-collaborative models that conduct research studies in nonclinical settings. Research methods, such as community-based participatory research, may assist in involving veteran populations and veteran organizations in the research process, increasing the chances of program adoption (Hanlon et al., 2023). Future research should also consider sustainability in the research design, with the goal of community adoption. Funding agencies may wish to direct specific funding toward sustainability of more-comprehensive, community-based programs or require more-comprehensive community transition plans.

Prioritizing Ethical Considerations for Promising Avenues of Research

Some of the suicide prevention strategies currently in use, and many more that have been proposed, leverage emerging technologies to identify and treat veterans at risk of suicide. Although such technologies as passive real-time data monitoring, neuromodulation through medical devices, and algorithm-based risk assessment mark potential steps forward in suicide prevention, the rapid advancement of technology should not create the permission structure for rapid implementation without a consideration of ethical implications. A more thorough consideration of these implications can be found elsewhere (D'Hotman, Loh, and Savulescu, 2020); however, some highly relevant considerations include contestability of algorithmic determinations, transparency of algorithms, accountability, and modified consent practices. Future research regarding these technologies should work to establish thoughtful research protocols that consider these important implications prior to dissemination efforts.

APPENDIX A

Detailed Methodology

To identify a broad selection of veteran suicide prevention initiatives and programs, we used two simultaneous approaches. Firstly, a web-scraping search was conducted in February and March 2024 that aimed to capture a broad variety of veteran suicide prevention programs, with the resulting programs screened for relevance to ensure they were programs that (a) targeted suicide prevention and (b) targeted veterans. Secondly, we conducted an extensive review and extraction exercise of two major veteran suicide prevention grant databases: Mission Daybreak and Face the Fight. After both processes were complete, we abstracted the details of the veteran suicide prevention programs using internal survey software to standardize abstractions.

Web-Scraping

To identify potential website domains that concerned a veteran suicide prevention program, we applied Boolean keyword search strings to Google searches. For the purposes of data refinement and iterative improvement to the relevance of the website domains, we conducted the web search process in two phases: a pilot round (February 2024; Table A.1) and a subsequent final round (March 2024; Table A.2). The pilot round was conducted with less-restrictive keyword search strings to maximize the number of unique website domains that may potentially be of relevance for veteran suicide prevention initiatives. These included general topics related to the theme of suicide prevention in veteran and military contexts, such as *veteran suicide prevention* and *military mental health*.

Following a screening of a sample of the pilot-round website domains, we performed a subsequent final round that iterated on, and restricted, these search strings by imposing that each string include an additional keyword or phrase, such as *program funding* or *services offered*. A full list of the search strings in both phases of the web-scraping approach is available in Table A.3. In this subsequent round, to further maximize potentially relevant websites, we additionally used a snowball-sampling approach. This involved a reviewer taking a website domain that the web-scraping process had captured that appeared likely to contain multiple relevant websites and searching this database manually for additional veteran suicide prevention programs.

The pilot round of web-scraping was conducted in early February 2024. After running searches with these strings, we captured 1,835 unique website domains, with the majority under the .com (n = 655), .org (n = 570), and .gov (n = 292) extension types. Fifty-one website domains were sampled per extension type to conduct a pilot screening for inclusion; extension types with fewer than 51 unique URL domains had all URLs screened. This resulted in a total pilot screening sample of 323 unique domain URLs. The screening process was conducted by one reviewer, resulting in 39 URLs being included. This resulted in just more than 12 percent of all sampled unique domain URLs being included, although the .net, .org, and .gov extension types had substantially greater inclusion rates at 31.5 percent, 23.5 percent, and 22.6 percent, respectively. The results of the pilot round are presented in Table A.1; extension types that saw low overall counts have been aggregated into the *other* extension type field.

The subsequent final round was conducted in March 2024 and iterated on the pilot round by using data from the pilot round's results to identify more-promising extension types and search strings. After running these altered searches, we captured 1,149 unique domain URLs. All of these unique domain URLs were then screened by one reviewer for inclusion to form the final web-scraping sample of veteran suicide prevention programs. The results of the final round of web-scraping, which resulted in 115 unique domain URLs to abstract, are presented in Table A.2.

Abstraction

After we identified programs, each was abstracted by one of seven members of the research team. An abstraction survey was designed in RAND's internal survey software and facilitated the recovery of standardized, validated data on the programs. The survey included 27 variables, the results of which have been presented in Chapter 2.

To ensure the abstractors were aligned in their interpretation of veteran suicide prevention programs and how to fill in the survey for each program, a small number of programs (n = 7) were double-abstracted, and inter-rater reliability was assessed. The abstractors then met and discussed discrepancies in their abstracting approach and interpretation of programs' details. After this, three more organizations were double-abstracted, and another inter-rater reliability test found very strong alignment between the abstractors.

For programs captured through the web-scraping process, the abstraction process itself involved closely exploring the program's website and any additional relevant materials that arose from a Google search of the program and organization to complete the abstraction survey with as much information as possible. Abstractors were not restricted in the forms of materials they could read and attempt to find to learn more about each program, which included RCT protocols, evaluation reports, gray literature, and news articles. The abstraction process for the Mission Daybreak application organizations and Face the Fight grantees also followed the same process, as well as a close reading of the organizations' application statements in the Mission Daybreak and Face the Fight databases.

The captured programs were then randomly assigned to the research team to abstract. During the abstraction process, we allowed for *snowballing*—that is, if a researcher came across an additional program that would likely be of relevance while learning about the program online, this additional program was included for abstraction.

TABLE A.1
Web-Scraping Pilot Round Results

Extension Type	Unique Domains	Unique Domains Sampled	Included Unique Domains from Sample	Percentage of Included Unique Domains from Sample
vet	1	1	1	100.0
net	19	19	6	31.6
org	570	51	12	23.5
gov	292	51	11	21.6
com	655	51	7	13.7
mil	111	51	2	3.9
us	33	33	0	0.0
edu	139	51	0	0.0
All other	19	15	0	0.0
Total	1,835	323	39	12.1

NOTE: These data included social media platforms in the .com extension domain, such as Facebook, Instagram, LinkedIn, X (formerly Twitter), and YouTube.

TABLE A.2
Web-Scraping Final Round Results

Extension Type	Unique Domains	Included Unique Domains	Percentage of Included Unique Domains
org	484	85	17.6
com	331	22	6.7
mil	24	2	8.3
au	12	1	8.3
uk	6	1	16.7
info	4	1	25.0
vet	3	3	100.0
All other	285	0	0.0
Total	1,149	115	10.0

TABLE A.3

Keyword Search Strings Used in the Pilot and Final Round of Web-Scraping

Phase of Web-Scraping	Search String
Pilot round	(“military mental health”) AND (“collaboration” OR “funding” OR “nonprofit” OR “programs”) OR (“Alabama” OR “Alaska” OR “Arizona” OR “Arkansas” OR “California” OR “Colorado” OR “Connecticut” OR “Delaware” OR “Florida” OR “Georgia” OR “Hawaii” OR “Idaho” OR “Illinois” OR “Indiana” OR “Iowa” OR “Kansas” OR “Kentucky” OR “Louisiana” OR “Maine” OR “Maryland” OR “Massachusetts” OR “Michigan” OR “Minnesota” OR “Mississippi” OR “Missouri” OR “Montana” OR “Nebraska” OR “Nevada” OR “New Hampshire” OR “New Jersey” OR “New Mexico” OR “New York” OR “North Carolina” OR “North Dakota” OR “Ohio” OR “Oklahoma” OR “Oregon” OR “Pennsylvania” OR “Rhode Island” OR “South Carolina” OR “South Dakota” OR “Tennessee” OR “Texas” OR “Utah” OR “Vermont” OR “Virginia” OR “Washington” OR “West Virginia” OR “Wisconsin” OR “Wyoming” OR “D.C.”) (“military suicide support”) AND (“collaboration” OR “funding” OR “nonprofit” OR “programs”) OR (“Alabama” OR “Alaska” OR “Arizona” OR “Arkansas” OR “California” OR “Colorado” OR “Connecticut” OR “Delaware” OR “Florida” OR “Georgia” OR “Hawaii” OR “Idaho” OR “Illinois” OR “Indiana” OR “Iowa” OR “Kansas” OR “Kentucky” OR “Louisiana” OR “Maine” OR “Maryland” OR “Massachusetts” OR “Michigan” OR “Minnesota” OR “Mississippi” OR “Missouri” OR “Montana” OR “Nebraska” OR “Nevada” OR “New Hampshire” OR “New Jersey” OR “New Mexico” OR “New York” OR “North Carolina” OR “North Dakota” OR “Ohio” OR “Oklahoma” OR “Oregon” OR “Pennsylvania” OR “Rhode Island” OR “South Carolina” OR “South Dakota” OR “Tennessee” OR “Texas” OR “Utah” OR “Vermont” OR “Virginia” OR “Washington” OR “West Virginia” OR “Wisconsin” OR “Wyoming” OR “D.C.”) (“veteran suicide hotline”) AND (“collaboration” OR “funding” OR “nonprofit” OR “programs”) OR (“Alabama” OR “Alaska” OR “Arizona” OR “Arkansas” OR “California” OR “Colorado” OR “Connecticut” OR “Delaware” OR “Florida” OR “Georgia” OR “Hawaii” OR “Idaho” OR “Illinois” OR “Indiana” OR “Iowa” OR “Kansas” OR “Kentucky” OR “Louisiana” OR “Maine” OR “Maryland” OR “Massachusetts” OR “Michigan” OR “Minnesota” OR “Mississippi” OR “Missouri” OR “Montana” OR “Nebraska” OR “Nevada” OR “New Hampshire” OR “New Jersey” OR “New Mexico” OR “New York” OR “North Carolina” OR “North Dakota” OR “Ohio” OR “Oklahoma” OR “Oregon” OR “Pennsylvania” OR “Rhode Island” OR “South Carolina” OR “South Dakota” OR “Tennessee” OR “Texas” OR “Utah” OR “Vermont” OR “Virginia” OR “Washington” OR “West Virginia” OR “Wisconsin” OR “Wyoming” OR “D.C.”) (“veteran suicide prevention”) AND (“collaboration” OR “funding” OR “nonprofit” OR “programs”) OR (“Alabama” OR “Alaska” OR “Arizona” OR “Arkansas” OR “California” OR “Colorado” OR “Connecticut” OR “Delaware” OR “Florida” OR “Georgia” OR “Hawaii” OR “Idaho” OR “Illinois” OR “Indiana” OR “Iowa” OR “Kansas” OR “Kentucky” OR “Louisiana” OR “Maine” OR “Maryland” OR “Massachusetts” OR “Michigan” OR “Minnesota” OR “Mississippi” OR “Missouri” OR “Montana” OR “Nebraska” OR “Nevada” OR “New Hampshire” OR “New Jersey” OR “New Mexico” OR “New York” OR “North Carolina” OR “North Dakota” OR “Ohio” OR “Oklahoma” OR “Oregon” OR “Pennsylvania” OR “Rhode Island” OR “South Carolina” OR “South Dakota” OR “Tennessee” OR “Texas” OR “Utah” OR “Vermont” OR “Virginia” OR “Washington” OR “West Virginia” OR “Wisconsin” OR “Wyoming” OR “D.C.”)

Table A.3—Continued

Phase of Web-Scraping	Search String
Final round	(“veteran suicide prevention” OR “military mental health” OR “veteran suicide hotline” OR “military suicide support”) AND (“program”)
	(“veteran suicide prevention” OR “military mental health” OR “veteran suicide hotline” OR “military suicide support”) AND (“program funding”)
	(“veteran suicide prevention” OR “military mental health” OR “veteran suicide hotline” OR “military suicide support”) AND (“program investment”)
	(“veteran suicide prevention” OR “military mental health” OR “veteran suicide hotline” OR “military suicide support”) AND (“program services”)
	(“veteran suicide prevention” OR “military mental health” OR “veteran suicide hotline” OR “military suicide support”) AND (“services offered”)
	(“veteran suicide prevention” OR “military mental health” OR “veteran suicide hotline” OR “military suicide support”) AND (“technology applications”)
	(“veteran suicide prevention” OR “military mental health” OR “veteran suicide hotline” OR “military suicide support”) AND (“technology innovation”)
	(“veteran suicide prevention” OR “military mental health” OR “veteran suicide hotline” OR “military suicide support”) AND (“technology services”)
	(“veteran suicide prevention” OR “military mental health” OR “veteran suicide hotline” OR “military suicide support”) AND (“technology solutions”)
	(“veteran suicide prevention” OR “military mental health” OR “veteran suicide hotline” OR “military suicide support”) AND (“nonprofit”)
	(“veteran suicide prevention” OR “military mental health” OR “veteran suicide hotline” OR “military suicide support”) AND (“non-profit”)
	(“veteran suicide prevention” OR “military mental health” OR “veteran suicide hotline” OR “military suicide support”) AND (“joint effort”)
	(“veteran suicide prevention” OR “military mental health” OR “veteran suicide hotline” OR “military suicide support”) AND (“NGO”)
	(“veteran suicide prevention” OR “military mental health” OR “veteran suicide hotline” OR “military suicide support”) AND (“collaboration”)
	(“veteran suicide prevention” OR “military mental health” OR “veteran suicide hotline” OR “military suicide support”) AND (“partnership”)
	(“veteran suicide prevention” OR “military mental health” OR “veteran suicide hotline” OR “military suicide support”) AND (“nationwide”)
	(“veteran suicide prevention” OR “military mental health” OR “veteran suicide hotline” OR “military suicide support”) AND (“statewide”)

Table A.3—Continued

Phase of Web-Scraping	Search String
	(“veteran suicide prevention” OR “military mental health” OR “veteran suicide hotline” OR “military suicide support”) AND (“Alabama” OR “Alaska” OR “Arizona” OR “Arkansas” OR “California” OR “Colorado” OR “Connecticut” OR “Delaware” OR “Florida” OR “Georgia” OR “Hawaii” OR “Idaho” OR “Illinois” OR “Indiana” OR “Iowa” OR “Kansas” OR “Kentucky” OR “Louisiana” OR “Maine” OR “Maryland” OR “Massachusetts” OR “Michigan” OR “Minnesota” OR “Mississippi” OR “Missouri” OR “Montana” OR “Nebraska” OR “Nevada” OR “New Hampshire” OR “New Jersey” OR “New Mexico” OR “New York” OR “North Carolina” OR “North Dakota” OR “Ohio” OR “Oklahoma” OR “Oregon” OR “Pennsylvania” OR “Rhode Island” OR “South Carolina” OR “South Dakota” OR “Tennessee” OR “Texas” OR “Utah” OR “Vermont” OR “Virginia” OR “Washington” OR “West Virginia” OR “Wisconsin” OR “Wyoming” OR “D.C.”)

APPENDIX B

Reviewing and Interpreting the Evidence

In this appendix, we describe what we mean by *evidence* and how it can be used to decide which programs or tools to pursue regarding suicide prevention activities. This information may be useful to funding agencies or researchers in deciding where best to allocate empirical or funding resources to address current limitations in veteran suicide research.

How Evidence Is Generated and Evaluated

Generating evidence on whether a program is reducing suicide risk is critical to determining effectiveness of the program. A program based on proven strategies, rather than assumptions or theoretical links, is more likely to produce positive outcomes. Program evaluation has two primary components: the evaluation design and the data that are collected. In the following sections, we provide a brief overview of these components specific to different suicide prevention activities, but readers interested in learning more about ways to assess their efforts can turn to open-access tools, such as the RAND Suicide Prevention Program Evaluation Toolkit (Acosta et al., 2013).

Evaluation Design

Designs that use a comparison group and that measure outcomes before, during, and after participation in a program or activity are the gold standard for examining whether that program or activity is effective (Hariton and Locascio, 2018; Himmelfarb Health Sciences Library, 2023).[1] A control group of individuals, who do not receive the program and can be directly compared with the intervention group, is important for establishing that changes observed are due to program participation rather than other factors (e.g., time, natural recovery trajectories, unrelated life events or factors). Random assignment of participants to receiving the program or not receiving the program is the most rigorous way to test whether the program is responsible for significantly reducing the risk of suicide because the assignment is unbiased and individuals in each group are directly comparable with each other. However, this type of research is more expensive and intensive and may call for certain ethical and institutional

[1] Qualitative evaluations are also valuable, either to complement quantitative data collection or to stand on their own. However, care must be taken to include all sorts of perspectives—not just satisfied program completers but also individuals who may have declined to participate or stopped participation early.

approvals; thus, it is difficult to implement. For these reasons, programs interested in evaluation could contact evaluation experts or consider other forms of evaluation designs, including those without a comparison group.

Evaluating the intervention with a sample similar to whom the intervention is intended to treat is also important. For example, if the intervention is intended for women veterans, it should be tested on women veterans. There is often a desire for programs and practices to be designed explicitly for, or tailored to, the specific culture and needs of veterans. However, veterans usually benefit from existing proven strategies to the same degree as nonveterans. Thus, strategies known to be effective in suicide prevention generally can and should be leveraged in suicide prevention programs for veterans, with new strategies being the most pressing to evaluate to determine safety and impact.

Data Collection

Both the type of data collected and the method by which the data were collected help determine the effectiveness of a program. Broadly speaking, there are two types of data: outcome measures and process measures.

Outcome Measures

The most salient outcome in evaluating programs intended to reduce suicide is the reduction of suicide deaths. However, suicides, while devastating with large emotional impacts, are relatively low in number compared with some other harmful activities (e.g., car accidents) and require evaluation over long periods. Thus, studies that try to measure this outcome follow individuals over years or decades (and it is therefore often considered a long-term outcome), and the data on suicide rates are scattered across geography and institutions, making consistent gathering of these data difficult.

Because of these issues, suicide prevention programs tend to be evaluated based on their measures of short-term outcomes and items the implementers can readily measure, even though these outcomes may not be the indicators of whether a suicide prevention program works at reducing suicide deaths in the long term. For instance, suicide ideation may be identified as a short-term outcome, but ideation is relatively common and can fluctuate a good deal, making it a poor predictor of suicide risk (Franklin et al., 2017). However, as described previously, preventing veterans from developing or helping them manage their suicidal thoughts is considered part of the RAND Suicide Prevention Activity Matrix.

Studies often speak of evidence related to mental health outcomes, but not suicide outcomes specifically. There is clear evidence that having a mental health disorder elevates risk for suicide and suicidal behavior, with estimates varying from increased odds of about 4 to 13 depending on the mental disorder (Favril et al., 2022; Gili et al., 2019; Moitra et al., 2021; San Too et al., 2019). However, suicide deaths remain a rare event, and prediction models are generally poor at predicting individual risk (Belsher et al., 2019; Franklin et al., 2017). For instance, although having a depressive disorder increases the risk of suicide, it is not a robust predictor in isolation, as only about 4 percent of those with depression will ultimately die by suicide (Goldsmith et al., 2002). Nonetheless, these findings mean that

reducing mental health symptoms is likely a useful strategy in preventing suicide, albeit an indirect one. On one hand, studies that aim to improve mental health sometimes demonstrate reductions in suicide ideation and suicide attempts in addition to their targeted symptom reduction (e.g., Engel et al., 2016; Unützer et al., 2006), and a recent meta-analysis and review shows that indirect approaches can reduce suicide risk (van Ballegooijen et al., 2025). On the other hand, recent thinking suggests that more directly targeting suicide ideation and suicidal behavior is important. Findings from one meta-analysis that compared direct and indirect suicide interventions revealed that direct suicide interventions reduced suicide risk both in the short and long terms, whereas indirect interventions improved risk in only the long term, suggesting the need for direct and indirect interventions (Meerwijk et al., 2016). Indeed, one of the seven elements in the Zero Suicide Framework is to "Treat suicidal thoughts and behaviors *directly* [emphasis added] using evidence-based treatments" (Zero Suicide, undated-a).

While the evaluations described earlier measure suicide as a primary outcome, some evaluations focus more on proximal factors that are known to reduce risk of suicide or prevent suicide. For instance, interventions that target changes in knowledge, attitudes, or behaviors for factors important to preventing suicide, such as safe firearm storage, are also important to test for effectiveness. In these cases, rather than examining reductions in suicide risk, such an evaluation would examine whether a group alters its firearm storage behavior in response to an intervention. Changes to these proximal factors (e.g., attitudes, behaviors) are critical to reducing suicide risk and provide a way to examine change that may influence suicide risk. While these smaller-scale pilot evaluations may not be adequately powered to assess for the impact of the intervention on suicide behaviors, they can be valuable in providing useful information.

In evaluations that are examining direct impact on suicide-related outcomes, it is important to use valid and reliable measures for suicide risk and other outcomes. There are many ways of assessing short-term (e.g., suicide ideation) and proximal (i.e., knowledge) outcomes. The strongest evaluations administer reliable (e.g., consistent and stable over time) validated measures (e.g., a set of questions that have been tested and show that they collect the information they intend to collect) (Nelson, 1980). There are various measures of suicide risk (Andreotti et al., 2020) that have been tested for reliability and validity (Thom, Hogan, and Hazen, 2020), and findings with reliable and valid measures should be regarded more highly than findings with measures that are not reliable and valid.

Process Measures

Program evaluations can also aid in identifying whether a program is acceptable (e.g., surveying veteran satisfaction with the program) or feasible (e.g., whether the program can recruit and retain the veterans they are targeting) (Ideas Impact Framework, undated). These data can inform the implementation of a specific program by aiding in decisions regarding the strategy and frequency with which a program is disseminated and delivered. However, process outcomes are not sufficient for determining the effectiveness of a program: For example, a program may demonstrate satisfaction ratings from a high percentage

of users, but that program may not effectively improve suicidal ideation or prevent suicide attempts or deaths. Therefore, program outcomes or process measures are highly useful metrics to improve program dissemination but do not, in isolation, allow determinations of the effectiveness of a program.

Abbreviations

24/7	24-hours-a-day, seven-days-a-week
AI	artificial intelligence
ASSIP	Attempted Suicide Short Intervention Program
CAMS	Collaborative Assessment and Management of Suicide
CBT	cognitive behavioral therapy
CBT-SP	cognitive behavioral therapy for suicide prevention
C-SSRS	Columbia–Suicide Severity Rating Scale
DBT	dialectical behavioral therapy
DoD	U.S. Department of Defense
ECT	electroconvulsive therapy
ED	emergency department
EITC	earned income tax credit
EMA	ecological momentary assessments
FDA	U.S. Food and Drug Administration
HBOT	hyperbaric oxygen therapy
LGBTQ+	lesbian, gay, bisexual, transgender, queer, and other
MBCT-S	mindfulness-based cognitive therapy for preventing suicide
MB-SI	mindfulness-based intervention for suicide ideation
mHealth	mobile health
MI-SI	motivational interviewing for suicide ideation
N/A	not applicable
NEA	National Endowment for the Arts
NICoE	National Intrepid Center of Excellence
PTG	posttraumatic growth
PTSD	posttraumatic stress disorder
RCT	randomized controlled trial
REACH VET	Recovery Engagement and Coordination for Health—Veterans Enhanced Treatment
rTMS	repetitive transcranial magnetic stimulation
SAMHSA	Substance Abuse and Mental Health Services Administration
SMVF	service members, veterans, and families

SPED	Safety Planning in the Emergency Department
SPI	Safety Planning Intervention
SSRI	selective serotonin reuptake inhibitor
VA	U.S. Department of Veterans Affairs
VCL	Veterans Crisis Line
VHA	Veterans Health Administration
VHV	Veterans Healing Veterans from the Inside Out

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Preventing veteran suicide is a national priority for government, veteran advocacy groups, and the private sector. This attention has led many individuals and organizations to leverage their expertise to create, expand, or promote activities that they hope will prevent future deaths. While the number and array of diverse approaches reflect a nation committed to a common goal, they also can create confusion. Advances in technology also generate questions about the future of veteran suicide prevention.

In this report, the authors analyze current and emerging activities to prevent veteran suicide. They introduce the RAND Suicide Prevention Activity Matrix, a framework that organizes current approaches, how they complement each other, how they might change, their evidence for preventing veteran suicide, and why they might (or might not) work. This framework places 26 categories of activities in a matrix based on whom the activity targets (the veteran directly, those who regularly interact with the veteran, or social influences) and what the activity is intended to accomplish (address social conditions, promote general well-being, address mental health symptoms, provide mental health supports, and prevent suicide crises). Entities committed to preventing veteran suicide and seeking to design evidence-informed, comprehensive suicide prevention strategies will benefit from the framework and evidence reviewed in this report, in addition to the recommendations the authors developed from these data.

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