Evidence Summary
Prevention Programs for Suicide

For individuals seeking immediate help, please call the National Suicide Prevention Lifeline Network Hotline (1 800-273-TALK). The National Suicide Prevention Lifeline can immediately link a caller seeking help to a trained counselor closest to the caller’s geographic location – 24 hours a day, seven days a week. Calls to the Lifeline and the counseling services provided are confidential.

Scope of the Problem

In 2013, 41,149 persons died in the United States by suicide, the 10th-leading cause of death across all ages and genders combined (Centers for Disease Control and Prevention, 2015). Of particular concern, suicide was the second-leading cause of death among younger persons, 14 to 24 years old (4,878) and 25 to 38 years old (6,348). It was the third-leading cause of death among youths ages 10–14 (386). Given these statistics, a major public health concern is the creation of effective suicide prevention programs (Finley et al., 2015; Goldston et al., 2010; Mann & Currier, 2007; Rodgers, Sudak, Silverman, & Litts, 2007).

As these recent statistics suggest, suicide is a particular health risk for adolescents and young adults in the United States (Brown, Wyman, Brinales, & Gibbons, 2007). The prevalence of suicide has increased among military personnel and veterans (Bagley, Munjas, & Shekelle, 2012; Finley et al., 2015; York, Lamis, Pope, & Egede, 2013), and in 2012 the rate of military suicides surpassed the civilian rate (Archuleta et al., 2014). Other youth populations at high risk for suicide are lesbian, gay, bisexual, and transgendered (LGBT) youths (Ybarram, Mitchel, Kosciw, & Korchmaros, 2015); Native American youths (Sabota & Kastelic, 2012; 2014); youths who have one or more family members who committed or attempted suicide (Brown et al., 2007); and persons with mental illness, substance use disorder, or a history of trauma, especially sexual trauma (Hauser, Galling, & Correll, 2013; Mann & Currier, 2007). In addition, suicide is a growing health risk for older adults (Cukrowics, Jahn, Graham, Poindexter, & Williams, 2013).

Definition of Suicidal Behavior

Defining suicide behavior is essential to understanding the population that suicide prevention programs serve. As defined by the Institute of Medicine, suicide behavior is both the nonfatal act of a suicide attempt and the fatal act of suicide itself. Both acts must be “self-inflicted,” be “destructive,” and include an “explicit or inferred intent to die” (Mann & Currier, 2007, p. 334). In contrast, suicidal ideation indicates thoughts of harming or killing oneself, but does not include intent.
Mann and Currier have differentiated suicidal behavior into attempts that are more impulsive, without intent to die, versus acts based on intent to die. The former acts are considered to be a cry for help, while the latter include intentional planning and usually succeed. Mann and Currier state that “surviving a high-lethality suicide is often a matter of chance” (p. 332), but survivors are generally more similar to individuals who die by suicide than those who cry out for help, without any intent to die. Nevertheless, all suicide attempts should be taken seriously, regardless of intent or the extent of their lethality.

**Risk Factors**

Ten known risk factors have been linked to increased suicidal behavior (SAMHSA, 2015). Populations at the highest risk include individuals who have made a previous suicide attempt; have frequent suicidal ideation; have co-occurring physical and mental health disorders; have co-occurring substance use disorders; have differences in their brain chemistry; use certain medications; have a history of trauma, family violence, or financial stress; have the means or easy access to lethal methods of attempting suicide; and have been exposed to the suicide of others through familial, religious, or cultural connections. Mann and Currier (2007) state that a history of a suicide attempt and current suicidal ideation are the most reliable predictors of suicide.

A recent review examining data from 183,100 community-dwelling adults in the United States concluded that the “many risk and protective factors of suicidal ideation are dynamic and vary by age or major depression” (Han, McKeon, & Gfoerer, 2014, p. 488). These researchers also found that more than half the people who reported suicidal ideation in the last year did not receive mental health services.

**Motivations for Suicide**

Understanding why some people are more motivated than others to attempt suicide can help shape successful suicide prevention programs. One explanation of why suicide occurs is the *stress–diathesis model*, which proposes that a person is predisposed to suicide, but stress triggers the actual suicide behavior (Mann & Currier, 2007). Examples of a predisposition to suicide, known as the *diathesis*, include personality traits such as impulsivity, aggression, and pessimism and enduring personal conditions such as a family history of suicide attempts or early child abuse. Individuals who have a predisposition are at higher risk for suicide behavior when they encounter *stressors*, such as psychiatric conditions, medical illnesses, or current environmental and relationship challenges.

The stress–diathesis model predicts the relationship between suicide and the population of persons with mental illness, substance use disorders, or histories of trauma, or combinations of these. For example, more than 90 percent of persons who commit suicide also have a psychiatric diagnosis, which would be considered a trigger or stressor (Mann & Currier, 2007). Of this population of individuals who commit suicide, 30 percent to 60 percent have bipolar or major depressive disorders; 14 percent have schizophrenia spectrum disorder; 13 percent to 16 percent have personality disorders; and 18 percent to 25 percent have substance-use disorders (Mann & Currier). In a recent review of 14 studies evaluating children and adolescents with bipolar
disorder (Hauser, Galling, & Correll, 2013), suicidal ideation and suicide behavior were very common, but completed suicide was less common among children than among adults.

Personality traits often serve as the diathesis for the population of persons with mental health or substance use disorders. Across psychiatric disorders, traits such as hopelessness and pessimism exist among all who commit suicide, aggression is linked with more successful attempts, and impulsivity is linked with more attempts but with less success in committing suicide (Mann & Currier, 2007). Another diathesis for this population is a history of childhood abuse or adversity or a history of suicide behavior among immediate family members. Liu and Miller’s (2014) systematic review supported evidence that childhood abuse and sexual assault in women were particularly associated with suicidal ideation and behavior.

A second explanation of why people commit suicide is the interpersonal–psychological theory of suicide behavior. Where he stress-diathesis model looks at statistical associations of traits, the interpersonal–psychological model focuses more on a causal pathways. Joiner (2009) proposes that suicide occurs when three factors interact. First, an individual must learn fearlessness, which leads to the development of a capacity to die. The innate human urge for self-preservation is overcome when insufficient fear of pain creates a tolerance for dying. For example, exposure to injury through combat or intentional self-injury through multiple suicide attempts may habituate or develop this learned capacity to die by suicide. Second, an individual must have a desire to die because of perceived burdensomeness. Persons who have a sense they are burdening their family, friends, or the larger society may develop a desire to die to lessen the burden on others. A third factor that contributes to suicidality is a desire to die because of perceptions of failed belongingness, defined as a sense of alienation from a valued group, such as family or friends. In sum, says Joiner, individuals who die by suicide are “those who both can and want to” (p. 245).

The interpersonal–psychological theory explains the causes and defines the characteristics of some, if not all, populations at risk for suicide behavior. Martin, Ghahramanlou–Holloway, Lou, and Tucciarone (2009) suggest this theory explains the suicide behavior of veterans of the U.S. wars in Afghanistan (Operation Enduring Freedom, or OEF) and Iraq (Operation Iraqi Freedom, or OIF). Active-duty military become desensitized to fear and pain owing to combat exposure, and veterans often feel alienated when they return home; some perceive themselves as a burden to others, especially when they have chronic injuries. This combination of factors may explain why veterans have become high risk for suicide behavior. Notably, many OEF/OIF veterans are young adults—already an at-risk population—and they have access to lethal weapons (Zamorski, 2011).

The interpersonal–psychological theory of suicide behavior also explains high suicide risk among other populations of youth, such as LGBT youth. LGBT youths may develop desensitization to pain if they are exposed to bullying and peer harassment. This internalized pain and fear combined with feelings of alienation and isolation attributable to prejudice and a sense of burden on families and society explain why LGBT youths as a population group are at higher risk for suicide. A review of a national sample of LGB and heterosexual youth in the United States (Ybarra et al., 2015) revealed, “Victims of bullying were five times more likely
and victims of peer harassment were two times more likely than nonvictimized youth to report recent suicidal ideation” (p. 455). LGB youths who were victimized were more prone than LGB youths who were not bullied to report suicidal ideation. However, compared with heterosexual youths, LG youths were no more likely to have suicidal ideation, while bisexual youths were more likely to have suicidal ideation.

Although the stress–diathesis model and the interpersonal–psychological theory describe different frameworks for explaining the motives of many populations at risk for suicide behavior, both models can be used to explain the same population. For example, the suicide behavior of veterans, described previously by interpersonal–psychology theory, could be explained by the interaction of a diathesis (e.g., aggressive, impulsive personality), triggered by the stressor of combat or the additional development of posttraumatic stress disorder (PTSD) or traumatic brain injury.

**Cultural Variables Affecting Suicide**

Cultural variables—such as ethnicity, gender, and class—also influence suicidal behavior. One major cultural factor is ethnicity (Joe, Canetto, & Romer, 2008). To illustrate, American Indians (AIs) and Alaska natives (ANs) together represent the ethnic group with the highest rates of suicidal ideation and nonfatal behavior among youth. The highest rate of suicide mortality occurs among American Indian youths, especially males, but these rates differ greatly among tribes. The next-highest rates of suicide behavior based on ethnicity are Latina/Latino youth, followed by African American youth, and, last, European American youth. While boys (under 18) reportedly kill themselves five times as often as girls across all ethnicities, numbers of suicide completions among ethnic minority boys are increasing. Han and colleagues’ (2014) review of suicidal ideation among adults “demonstrated that the relationship between race/ethnicity and suicidal ideation is complex and varies by age” (p. 493).

Gender, too, intersects with suicide behaviors (Hamilton & Klimes–Dougan, 2015). Studies of suicidal ideation and behavior confirm that females make more attempts at suicide, but males are more successful in completing the act (representing 81 percent of suicide deaths for all young people between the ages of 10 and 24 years old) because they use more lethal means (Nowotny, Peterson, & Boardman, 2015). In an evaluation of suicidal ideation among females and males, ages 13–22, Nowotny and colleagues proposed that individual responses to social gender norms (e.g., how females and males should look and behave) serve to regulate functioning in society. How obligated a young person feels to follow restrictive gender norms may contribute to the individual’s suicidal ideation and risk for completed suicide. Consequently, gender expectations are major risk factors for suicidal ideation or behavior among LGBT youths, especially transgendered youths and adults (Haas et al., 2011; Joe et al., 2008).

Social class is a third cultural factor contributing to the prevalence of suicidal ideation and behavior among U.S. populations. Rehkopf and Buka’s (2008) review of the association between suicide and socioeconomic characteristics suggests there are lower rates of suicide among individuals in higher socioeconomic areas. Poverty plays a particular role in increasing the risk.
of suicide behavior among individuals living in rural areas, where mental health treatment may not be readily available. Rehkopf and Buka conclude: “Resources for suicide prevention should be targeted to high poverty/deprivation and high unemployment areas” (p. 145).

**Evidence-Based Programs to Address the Problem**

Much of the work in suicide prevention has been the result of the Garrett Lee Smith Memorial Act (GLSMA, 2004), which was passed in 2004 to address concerns about young people and to implement community-based suicide prevention programs for youths and young adults (Goldston et al., 2010). The GLSMA provided for the identification of best practices, established a resource center, and funded 14 state-based and 22 college-based suicide prevention programs (Rodgers et al., 2007). At-risk groups are now the target of numerous suicide prevention programs, such as suicide prevention for military organizations (York et al., 2013; Zamorski, 2011), suicide prevention in schools and colleges (Goldston et al., 2010; Miller, 2009), prevention programs for AI/AN communities (Sabota & Kastelic, 2012; 2014), and suicide prevention and intervention models for older adults (Cukrowics et al., 2013). In addition, universal programs serve all populations at risk for suicide (Brown et al., 2007). Despite increased emphasis nationwide on both targeted and universal suicide prevention, some researchers suggest that the effectiveness of these programs has not been adequately evaluated using evidence-based practices.

Research has indicated that suicide prevention programs can reduce suicide and risk. Programs are available for multiple age groups and ethnicities. These programs have been implemented in a variety of settings, including school, home, community, and workplace. As a group, these programs represent a combination of screening interventions, interventions aimed at prevention, and interventions focused on treatment of suicidal ideation or suicide attempts.

**Screening**

Universal screening is the administration of a screening survey to a broad population; targeted screening concentrates on populations most at risk, such as youth. The diagnosing of children and adolescents for suicidal ideation and behavior occurs in schools, mental health centers, and juvenile justice settings (Goldston et al., 2010). A recent development has been the training of students to provide peer support as a means of screening for suicide behaviors (Walker, Ashby, Hoskins, & Greene, 2009). Youth suicide screening also occurs through primary care clinicians and in hospital emergency rooms, though such screening is often overlooked (Horowitz, Ballard, & Pao, 2009).

One brief, valid screening tool that can be easily administered is the Columbia Suicide Screen, an 11-item measure validated by the National Institute of Mental Health to evaluate mood, substance abuse, and suicidal ideation and attempts (Horowitz et al., 2009). This tool reportedly has lower rates of false positives — that is, results that falsely suggest suicide risk. Generally, managing both true and false positive screens is challenging for nonmedical personnel screening for youth suicide. O’Connor, Gaynes, Soh, and Witlock (2013) also report there is little evidence that screening measures administered in medical primary care offices effectively screen for suicide risk among youth.

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Screening tools are beneficial in assessing suicide risk among adults, especially when medical primary care physicians (PCPs) administer the assessment (Szanto et al., 2013). When PCPs assess cognitive overload and cognitive vulnerabilities in the elderly, they are screening for suicide behavior as well. Szanto and colleagues point out that “Age-dependent decline in executive function and decision competence may contribute to the accumulation of stressful life events and to the decision to take one’s life” (p. 587). One of the challenges in screening for suicide behavior among late adults is the need to discern the difference in age-related thoughts of death in contrast to suicidal ideation beyond the natural thoughts about death that come with aging. Szanto and colleagues caution that, with an aging population, “We lack the tools with which to determine when thoughts of death warrant intervention” (p. 587).

Within military organizations, screening for suicide risk is reportedly controversial and has received mixed support (Archuleta et al., 2014; Zamorski, 2011). In addition, there is no evidence that universal screening in general military populations is beneficial, but it can be useful when combined with screening for substance use, depression, or PTSD (Zamorski, 2011). To screen for suicide-related behavior, Finley and colleagues (2015) emphasize it is essential that all veterans receive screening for substance use, depression, and PTSD, because this will give “red flags” that these veterans need future follow-up.

**Prevention**

Programs aimed at suicide prevention include general education and awareness programs, such as media campaigns about causes, risk factors, and school- and community-based programs. Other prevention programs include focused education of primary care physicians; organizational “gatekeeper” training of first responders such as clergy, emergency medical technicians, and school personnel; and crisis “hotline” training (Rogers et al., 2007). Screening for persons at risk for suicide, followed by a referral for treatment, is another element of prevention services. All education programs emphasize the importance of restricting lethal weapons as a means of preventing suicide (Mann et al., 2005). Referral for medication to address depression or other mental health concerns is a further means of prevention (Mann & Currier, 2007).

Suicide prevention programs aimed at specific high-risk populations, such as AI/AN communities, “are likely to be most effective when they address local contexts” (Sabato & Kastelic, 2012, p. 105). For this reason, SAMHSA developed resources specific to AI/ANs, encouraging these communities to select suicide prevention programs for AI/AN youths that are “flexible enough to integrate the values, beliefs, language, and practices of a particular community without a loss of effectiveness” (Gallup, Macro International Inc., & Kauffman & Associates, 2010, p. 71). One prevention program for older adults, called the “care transition model,” provides support to adults transitioning from hospital or emergency room care to the home, or from home to a residential care facility (Szanto et al., 2013). This added support aims to lessen the confusion and sense of loss that older adults feel in such transitions, thereby lessening suicidal ideation.

**Treatment**

Suicidal ideation and suicide behavior are generally treated as symptoms of another disorder or co-occurring disorders, such as depression, PTSD, psychotic disorders, personality disorders, and substance use disorders. Suicide is 15 times as high among persons with mood disorders as in the general population, so it is essential to treat mood disorders or other co-occurring disorders as a means of preventing suicide (Cipriani, Pretty, Hawton, & Geddes, 2005). For patients who seem to be at imminent risk, hospitalization is necessary. Forms of outpatient treatment include frequent involvement of mental health clinicians, family involvement, and removal of any lethal means of suicide from the patient (Mann & Currier, 2007). Monitoring for substance use, and treating when necessary, also is essential, as is frequent follow-up (Mann et al., 2005).

There are “surprisingly few empirically supported treatments for suicide risk published in the professional literature” (Archuleta et al., 2014, p. 59). The primary interventions with the best empirical support are Cognitive Behavioral Therapy (CBT), redesigned for suicidal ideation, and Dialectical Behavior Therapy. Reportedly, a CBT treatment model, designed specifically for suicidal ideation among military personnel, is being tested for its efficacy (Archuleta et al., 2014).

In combination with psychotherapy and substance abuse treatment, medications (selective serotonin reuptake inhibitors [SSRIs] and antipsychotics) are used for treating suicide behavior. For long-term management, lithium has been shown to be of use in terms of removing or lessening suicidal ideation, especially for patients with depressive or bipolar disorders (Cipriani et al., 2005; Mann & Currier, 2007). However, lithium withdrawal must be closely monitored. Reviews of studies of treatment of youth suggest that SSRIs may be beneficial in combination with psychotherapy; such studies do not support the hypothesis that SSRIs induce suicidal acts in youth (Mann & Currier, 2007).

**Outcome Evidence**

**Challenges with Outcome Evidence**

Evaluating evidence of a suicide prevention program’s effectiveness is problematic, because it is difficult to discern what counts as evidence (Sabato & Kastelic, 2012). The major challenge in program evaluation is the absence of sufficient measurements. Rodgers and colleagues (2007) point out that, because suicide is relatively rare, it is inaccurate or limited to say that programs are effective because suicide has been prevented. Instead, efficacy must be determined by evaluating a decrease in suicidal ideation or suicide attempts.

Another complication in evaluating suicide prevention programs is that suicide-related behavior often develops as part of co-occurring mental health disorders, such as depression and substance use disorder, particularly in combination with PTSD (Finley et al. 2015). Thus, suicide prevention programs must be viewed in consort with other treatment approaches. The intent of intervention becomes to decrease risk factors, such as increasing treatment of depression and PTSD and decreasing impulsivity and aggressive behavior (Brown et al., 2007).

**Outcomes of Current Interventions**

Evidence of the effectiveness of current prevention programs related to suicide screening is weak. O’Connor and colleagues’ (2009) review of 56 studies regarding the accuracy of screening instruments found that these measures “have limited ability to detect suicide risk in adolescents” (p. 741). Among adults, screening provided only “minimal evidence” (two studies) of identifying increased risk of suicide (p. 747).

Pertaining to prevention programs, Miller’s (2009) review of 13 school-based suicide prevention programs stated that there are “a number of methodological problems, making definitive conclusions about the efficacy of these programs difficult” (p. 185). They concluded that “current scientific foundation regarding school-based suicide prevention programs is very limited” (p. 181). Similarly, Bagley and colleagues’ (2010) systematic review of seven studies of suicide prevention programs for military or veterans noted problems with methodology and data reporting. The authors stated that these studies were of “mixed quality” (p. 257), making conclusions regarding effectiveness difficult to reach.

Mann and colleagues’ (2005) systematic review of suicide prevention strategies examined both U.S. and international studies from 1966 through June 2005. Ultimately, this broad review examined 93 different studies; experts from 15 different countries were involved in the review process. They concluded that the best interventions to reduce suicide rates were 1) to restrict access of at-risk individuals to lethal methods and 2) to educate physicians about screening for suicide risks. They reported that more testing and evidence is needed to assess the efficacy of all other suicide prevention methods (e.g., medication, gatekeeper education, psychotherapy, collaboration between hospitals and treatment teams, and the use of media for public education).

Conclusions
The increase in suicide behavior over the past two decades led the U.S. Congress to term youth suicide, in particular, “a public health tragedy” and pass the Garrett Lee Smith Memorial Act (GLSMA, 2004, p. 1). Indeed, the literature suggests that suicide is a social or societal problem as well as an individual problem. Joiner (2009) argues the need “for more innovation, research, and funding” (p. 247). Since 2002, numerous programs have been developed, but despite the increase in suicide deaths over the past 5 years and the attention given to suicide prevention by federal, state, local, and private sources, suicide prevention programs remain relatively ineffective. The utility of these screening, prevention, and intervention programs is limited because of significant problems in the design of the programs and the measurement of their outcomes. In addition, most of the research has concentrated on European Americans, and the suicide prevention field insufficiently addresses the treatment needs of racial/ethnic minorities (Joe et al., 2008).

As a result, clinicians are challenged to know the best practices to follow. With the existence of the current, fluid diversity in the United States in terms of race/ethnicity, class, sexuality/gender, religion, and age and the expanding number of veterans adjusting to life after two wars, American society as a whole may be at increased risk for suicide-related behaviors. For these reasons, suicide prevention must remain a national priority that considers individual

risk and protective factors (Han et al., 2014), as well as societal and cultural ones (Joe et al., 2008).

**Additional Resources (from the National Institute of Mental Health)**

- National Suicide Prevention Lifeline
- Veterans Crisis Line
- National Strategy for Suicide Prevention
- NIMH Multimedia on Suicide Prevention
- NIMH Statistics on Suicide
- National Library of Medicine—Suicide
- Take 5 To Save Lives
- StopBullying.org

**References**


Gallup, Macro International Inc., & Kauffman & Associates. (2010). *To live to see the great day that dawns: Preventing suicide by American Indian and Alaska native youth and young adults.*

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