Preventing Suicide Among Students in Rural Schools

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Suicide is the second leading cause of death among 10- to 19-year-olds in the United States, accounting for nearly 20% of all deaths in this age group (Centers for Disease Control and Prevention, 2014). In addition to adolescents who die by suicide, many more survive suicide attempts. According to data collected in the 2015 Youth Risk Behavior Survey (YRBS; Kann et al., 2016), 17.7% of American high school students seriously considered a suicide attempt, 14.6% reported making a plan to attempt suicide, 8.6% reported at least one suicide attempt in the previous year, and 2.8% reported a suicide attempt that required medical attention in the previous year. Given the enormous toll of suicide on families and communities, it is of critical importance to take a focused approach in understanding the multitude of risk and protective factors associated with adolescent suicide. Furthermore, there is a strong impetus for the dissemination and implementation of efficacious suicide prevention programs, particularly in rural areas. This chapter focuses on suicidal behavior among rural youth, a population that has traditionally been understudied, and discusses viable options for school-based prevention programs in such settings.

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Among adults, it is clear that suicide is more common among those living in rural areas as compared to those living in urban and suburban regions (e.g., Hirsch, 2006; Taylor, Page, Morrell, Harrison, & Carter, 2005). The relationship between suicide and rurality has been shown to be particularly strong among young men (Caldwell, Jorm, & Dear, 2004). Support for a relationship between suicidal behavior and rurality among adolescents has been mixed, in part due to insufficient research in rural communities. One study found that the rate of suicide attempts among rural Minnesotan youth was substantially greater than the nationwide average (Forrest, 1988), while other studies (Adcock, Nagy, & Simpson, 1991; Albers & Evans, 1994; Johnson et al., 2008; Murphy, 2014) have shown similar rates of suicidal behavior among rural and urban youth. However, a recent analysis of suicide deaths in the United States indicated that rural suicide rates were nearly double those of urban areas among youth and young adults aged 10–24. Further, this study suggested that rural-urban disparities are increasing over time for both males and females (Fontanella et al., 2015). This alarming trend may reflect a number of factors, including increased access to lethal means, such as firearms; the relative scarcity of mental health resources in rural areas; barriers to care such as transportation, cost, and stigma; and geographic and social isolation. Rural school mental health (SMH) programs offer unique

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opportunities to circumvent many challenges by providing free, school-based mental health services and developing and implementing prevention programs to identify and intervene with students and risk for suicide.

Suicide Risk Factors

Demographic factors. Historically, the suicide rate has been higher for white adolescents than for black (Blum et al., 2000; Shaffer, Garland, Gould, Fisher, & Trautman, 1988). However, the racial gap in perceived risk of suicide appears to be narrowing (Greening & Stoppelbein, 2002). Recent epidemiological research has suggested similar rates of suicide attempts among black and white youth and results suggested that Hispanic youth were significantly more likely to have attempted suicide than either white or black youth (Kann et al., 2016). Further, American-Indian youth exhibit disproportionally high rates of suicide deaths (Goldston et al., 2008). The extent to which these racial and ethnic differences exist in rural areas is unknown and would likely depend on the demographic makeup of a given rural community. However, differences in suicide risk may be exacerbated in areas that are geographically isolated and offer few social supports for racial minorities. Thus, it is critical that minority youth's risk for suicide is not underestimated and that suicide prevention protocols are developed and implemented with particular attention to cultural competence.

Gender differences also emerge in rates of suicide attempts and completed suicides. Compared to male students, females are more likely to report feeling sad or hopeless, having seriously considered suicide, made a suicide plan, and to have attempted suicide (Kann et al., 2016). In contrast, male youth are more likely to complete suicide than their female counterparts. From 2004 to 2014, suicide accounted for 14.7% of deaths among boys aged 10–19, compared to 9.5% among girls of the same age group (CDC WISQARS, 2005). A number of factors may explain these gender differences, including the tendency for boys to use more lethal and irreversible means, have a higher likelihood of being intoxicated at the time of the suicide, and experience greater risks related to symptoms of conduct disorder (Brent, Baugher, Bridge, Chen, & Chiappetta, 1999). However, no single explanation appears to adequately explain this gender paradox (Canetto & Sakinofsky, 1998).

There is strong evidence to suggest that lesbian, gay, bisexual, and transgender (LGBT) youth are more likely to experience suicidal ideation and make suicide attempts (Russell & Joyner, 2001; Ybarra, Mitchell, Kosciw, & Korchmaros, 2015). In addition to depression, hopelessness, and conduct problems that elevate the risk for suicidality among all youth, several LGBT-specific risk factors have emerged in the literature, including early age of first same-sex attraction, LGBT victimization, and parental discouragement of childhood gender nonconformity (D'Augelli et al., 2005; McDaniel, Purcell, & D'Augelli, 2001; Mustanski & Liu, 2012). Further, LGBT youth may experience bullying and physical victimization at higher rates than their heterosexual peers, which may also elevate the risk for depression, suicidal ideation, and suicide attempts (Friedman, Koeske, Silvestre, Korr, & Sites, 2006; Russell, Ryan, Toomey, Diaz, & Sanchez, 2011; Ybarra et al., 2015). These results have recently been replicated in a sample of rural adolescents (Ballard, Jameson, & Martz, 2017).

Schools provide unique venues to facilitate social support and acceptance for LGBT students; however, the 2013 National School Climate Survey indicated serious concerns about school culture regarding LGBT youth (Kosciw, Greytak, Palmer, & Boesen, 2014). More than 80% of LGBT youth reported being verbally harassed because of their sexuality, over one-third reported experiencing physical harassment at school, and nearly one-fifth reported experiencing physical assault. Most students did not report being harassed or assaulted to school personnel and many cited doubts that staff would intervene effectively or concerns that the situation would worsen. Of those who did report victimization to school personnel, over 60% reported that no action

was taken. Furthermore, nearly two-thirds of LGBT youth reported hearing homophobic remarks often or frequently at school, often in front of school personnel. Students noted that teachers were unlikely to intervene when hearing students use homophobic language, which may send a message that such language is tolerated. This message may be underscored by staff's behavior; more than half of students reported hearing homophobic remarks from school personnel. These concerns may be particularly pronounced in small towns and rural areas, where students reported the highest rates of biased language, harassment, and assault.

Despite these alarming trends, schools have unique opportunities to provide safe and affirming spaces for LGBT students through Gay-Straight Alliances (GSAs) or similar clubs. The presence of a GSA within a school is associated with increased sense of school belonging, subjective experience of safety, reduced depression, and decreased risk of suicide attempts (Goodenow, Szalacha, & Westheimer, 2006; Heck, Flentje, & Cochran, 2011; Walls, Kane, & Wisneski, 2010). However, only half of students in the 2013 National School Climate Study (Kosciw et al., 2014) reported having a GSA or similar club in their school, and small, rural schools, particularly those in conservative regions or in poorer neighborhoods, are least likely to have GSAs (Fetner & Kush, 2008; Kosciw et al., 2014).

Psychopathology and substance abuse. Though the single greatest predictor of a completed suicide is a prior suicide attempt (Borowsky, Ireland, & Resnick, 2001; Bridge, Goldstein, & Brent, 2006; Lewinsohn, Rohde, & Seeley, 1994), psychopathology and substance abuse also greatly increase youth's vulnerability to suicidal behavior (Rosenberg et al., 2005). Depression is a particularly strong predictor of suicide attempts, even when controlling for social support, religiousness, and other protective factors (Greening & Stoppelbein, 2002; Rosenberg et al., 2005). While the association between depression and suicidality is evident, other psychological symptoms have been associated with suicidal behaviors. In a psychological autopsy study of adolescent suicide victims, Brent et al. (1999) found that the presence of a mood disorder, substance-abuse disorder, or conduct disorder significantly predicted an increased risk for suicide. Posttraumatic stress disorder (PTSD) has been shown to increase the risk of suicidal ideation and past suicide attempts, even when controlling for the effects of depression and gender (Mazza, 2000). Despite the risks posed by the presence of depression and other psychological symptoms, the ability to regulate emotions may protect against suicidality despite the presence of depressive symptoms (Pisani et al., 2013).

A strong association between substance use/abuse and suicidal behavior has also been demonstrated (Adcock et al., 1991; Brent et al., 1993; Dunn, Goodrow, Givens, & Austin, 2008). Early initiation to alcohol, cigarettes, cocaine, and inhalants has been associated with increased risk of suicidal ideation and attempts among rural youth (Dunn et al., 2008). The relationship between frequency of substance use and suicidality is less clear. One study found that the frequency of inhalant use was associated with suicidal ideation among rural adolescents, but no relationship was found between suicidality and any other type of substance. In contrast, opioid, nicotine, and other illicit drug (excluding alcohol, marijuana, and Ritalin) use was associated with suicidal ideation among urban adolescents (Murphy, 2014). Another study, however, found that heavy alcohol use and hard drug use were both associated with suicide attempts among youth from rural communities or small metropolises (Rosenberg et al., 2005). While substance use/abuse may play an important role in suicide risk detection and prevention, further research is needed to clarify this relationship, particularly in rural areas.

Comorbidity further increases the risk of suicidal behavior among adolescents. When major depression co-occurs with substance abuse, the risk of completed suicide is particularly high (Brent et al., 1999). Additionally, the combination of mood, disruptive, and substance-abuse disorders has been shown to place youth at increased risk for suicidal behaviors (Adcock et al., 1991; Wagner, Cole, & Schwartzman, 1995). Psychological symptoms

and comorbidities are of particular concern in rural areas, where limited access to mental health services may exacerbate suicide risk (Fontanella et al., 2015; Hirsch, 2006). Thus, it is important for school personnel to be familiar with local providers, school-based resources, and community mental health agencies in order to facilitate appropriate referrals for mental health services.

While psychopathology and/or substance abuse are associated with elevated risk for suicide, these factors cannot solely account for attempted and completed suicides among adolescents. Adolescents may be particularly prone to impulsivity, which may directly or indirectly elevate the risk of suicidality (Witte et al., 2008). A study of 153 survivors of nearly lethal suicide attempts (ages 13–34) classified nearly one-quarter of their sample as impulsive suicide attempters, indicating that respondents reported making their attempt within 5 min of deciding to attempt suicide and more than 90% of the sample reported spending less than a day planning after making the decision to attempt suicide (Simon et al., 2001). Further, majority of existing literature suggests comparable lethality among planned and impulsive suicide attempts (Rimkeviciene, O'Gorman, & De Leo, 2015).

Impulsive suicide attempts may be particularly common among those without psychopathology or substance-abuse risk factors. A 2010 study of the Rhode Island YRBS data indicated that planful attempters tended to report prior depressive symptoms and suicidal ideation but that non-planful attempters were unlikely to report these risk factors. Further, non-planful attempters were more likely to report attempts that required medical attention than those who reported planned suicide attempts, which may suggest increased risk of physical harm among the more impulsive attempters (Jiang, Perry, & Hesser, 2010). These findings are particularly alarming as they suggest that the presence of psychological symptoms or substance abuse cannot reliably predict suicide risk among adolescents.

Peer and family support. Social factors should also be considered in suicide prevention protocols, as interpersonal conflict or loss is the most common precipitant for suicide among adolescents (Adcock et al., 1991; Brent et al., 1999). Such conflict may be particularly relevant when assessing suicide risk, as Wagner et al. (1995) found that rural high school students who attempted suicide had greater family and social stress than their depressed peers who had not attempted suicide. Further, suicide risk is elevated among youth who lack strong connections to support systems such as school, work, and family (Gould, Fisher, Parides, Flory, & Shaffer, 1996). Conversely, school connectedness may be a protective factor against suicide risk among youth (Borowsky et al., 2001). School-based settings provide unique opportunities for providers to observe social behaviors and to collect collateral information from teachers, professional school counselors, and administrators regarding students' social interactions and school engagement, which should be incorporated when assessing suicide risk and developing safety plans.

Suicide clusters and contagion effects tend to be particularly pronounced among adolescents and young adults. Compared with depressed or suicidal youth with no history of a suicide attempt, adolescents who reported a suicide attempt may be more likely to know someone who completed suicide (Wagner et al., 1995). These effects also appear to generalize to other suicidal behaviors; one study found that having a friend who had attempted suicide in the past year doubled the likelihood than an adolescent who experience suicidal thoughts (Bearman & Moody, 2004). Such effects highlight the need for schools to implement prudent, evidence-based postvention measures in response to a suicide death of a student. These considerations are particularly important in rural areas and tight-knit communities where there is a high likelihood that students will have had some contact with the deceased.

A number of family variables are associated with suicide risk among youth. Perceived lack of parent support, family disruption, physical abuse, poor communication with parents, and being born to a teenage mother are associated with suicide attempts among adolescents (Bridge et al., 2006; Gould et al., 1996; Lewinsohn et al., 1994; Wagner et al., 1995). Additionally, youth who

engage in few activities with parents, perceive family communication as angry or aggressive, and perceive familial disorganization are more likely to endorse suicidal ideation (Bearman & Moody, 2004; Meneese & Yutrzenka, 1990). In contrast, family connectedness has been shown to reduce the risk of suicide attempts among youth and family support is a stronger protective factor than friend or peer support (Borowsky et al., 2001; Greening & Stoppelbein, 2002). Family relations may be particularly important in rural areas, where geographic isolation may limit other sources of social support (Hirsch, 2006).

Health-risk behaviors. Health-risk behaviors, such as physical fighting, weapon carrying, and sexual activity, are also associated with increased risk of suicidal behavior (Borowsky et al., 2001; Nickerson & Slater, 2009). Delinquency is also associated with suicidal ideation and attempts (Thompson, Kingree, & Ho, 2006), and legal or disciplinary problems have been identified as common precipitants of suicidal behavior (Adcock et al., 1991; Gould et al., 1996). However, these effects may be moderate-to-severe risk-taking; a 2003 study by Stanton, Spirito, Donaldson, and Boergers (2003) found that adolescents who had attempted suicide were no more likely to report stealing, sneaking out, breaking rules, and completing risky dares than youth who had never attempted suicide.

Exposure to violence. In addition to participating in fighting, violent victimization is also associated with suicide attempts. Youth who have experienced bullying, physical assault, and sexual assault are at increased risk of suicidality, and the risk of suicide among boys who have been sexually assaulted is particularly pronounced (Rosenberg et al., 2005). A nationally representative sample indicated that rural youth demonstrate similar levels of violent behavior and experience comparable rates of victimization to suburban and urban youth, suggesting that the effects of violence should not be underestimated in rural settings (Johnson et al., 2008).

A study of rural Appalachian adolescents found significantly increased suicide risk for females who reported experiencing physical interpersonal violence, sexual violence, or both (Martz, Jameson, & Page, 2016). Adolescent females reporting victimization were three to six times more likely than non-victims to report significant depression symptoms, two to four times more likely to report suicidal ideation and planning, and twice as likely to report making a suicide attempt. Contrary to the findings of Rosenberg et al. (2005), physical violence and rape were associated with higher rates of depression in males, but neither type of victimization was associated with increased risk for suicide planning or attempts.

Access to means. From 2004 to 2014, nearly half of suicide deaths among males aged 10–19 were completed with firearms. In contrast, less than one-quarter of the suicides completed among females of the same age used firearms (CDC WISQARS). While the lethality of means cannot solely account for the elevated suicide rate among boys, access to highly lethal means such as firearms increases the likelihood that a suicide attempt will end in death (Hawton, 2007). Easy access to firearms has been shown to predict suicidal ideation and attempts among both boys and girls (Bearman & Moody, 2004; Borowsky et al., 2001) and the presence of any gun (handgun or long gun) in the home has been linked with suicide risk, and the presence of long guns is more closely associated with rural suicides than urban (Brent et al., 1993).

Firearm suicides are particularly concerning in rural areas, where gun ownership and hunting frequently are integral to the local culture and where youth may have ready access to firearms. In the United States, suicide by firearm has been shown to be 2.7 times higher for rural females and 3.3 times higher for rural males as compared to their urban counterparts (Fontanella et al., 2015). Similar disparities have been demonstrated in Australia in the 1990s, where a national decrease in firearm suicide rates concealed a rural-specific rising firearm suicide rate, particularly among boys and men (Dudley, Kelk, Florio, Howard, & Waters, 1998). More recent research has suggested that firearm suicides have dropped substantially in both rural and urban areas following the enactment of firearm restriction laws in 1996; however, young Australian males in rural areas with easy access to firearms remain a high-risk group (McNamara, 2012).

Several means of restriction interventions have been implemented internationally and have been associated with substantial reductions in suicide deaths. For example, during the 1990s Sri Lanka had one of the highest suicide rates in the world. Suicides were often completed using highly toxic pesticides, which were readily available to many in the rural, largely agricultural based country. Beginning in 1995 and continuing through the 1990s, bans on the most highly toxic pesticides were implemented. These restrictions coincided with a substantial reduction in suicide deaths by self-poisoning. From 1994 to 1996, self-poisoning accounted for the majority of suicide deaths (79%), and 2010 to 2012, self-poisoning accounted for less than half (48%; Knipe et al., 2014). Furthermore, from 1995 to 2005 the country experienced a 50% reduction in overall suicide rates, and method-specific suicide data suggests that this decrease can be primarily attributed to a reduction of self-poisoning suicides (Gunnell et al., 2007).

Similar reductions in suicide were evidenced in the Israeli Defense Force (IDF), the compulsory service force for all Israeli adults aged 18–21. Prior to 2006, many IDF soldiers took their firearms home with them on the weekends, and from 2003 to 2005, there were an average of 28 suicides per year, over 90% of which were completed using firearms. In 2006, the IDF implemented a policy mandating that soldiers leave their weapons at their bases when returning home for the weekend. Following the policy change, suicide rates dropped by 40%. Strikingly, most of the reduction in suicide deaths could be attributed to a decrease in suicides using firearms completed over the weekend, which dropped from an average of 10 per year from 2003 to 2005 to 3 per year from 2007 (Lubin et al., 2010).

Despite our growing understanding of the relationships between these numerous risk factors and suicide, a substantial proportion of variance remains unexplained. Moreover, these risk variables are not particularly powerful in distinguishing between those who consider suicide but do not make an attempt and those who do attempt (May & Klonsky, 2016). Thus, we suggest that SMH programs take a comprehensive approach to suicide prevention efforts and remain mindful of both identified risk factors and current limitations of the science in making accurate predictions about suicide risk.

Suicide Prevention Programs in Schools

For several decades, schools have been identified as a logical and efficient place to implement youth mental health and suicide prevention programs (Foster et al., 2005; Kalafat, 2003). Because youth in rural communities are at a higher risk of suicide (Eberhardt & Pamuk, 2004; Fontanella et al., 2015; Kann et al., 2016; Singh & Siahpush, 2014) and rural communities often lack mental health literacy, resources, and providers to implement prevention programs (Michael, Renkert, Wandler, & Stamey, 2009), schools are an even more appropriate setting to implement SMH and suicide prevention programs (SPP). Momentum for the development of school-based SPPs grew following the Surgeon General's call to action to reduce the growing public health concern of youth suicide (U.S. Public Health Service, 1999). However, these programs vary in effectiveness and there is little agreement on the most effective ways to implement them (Miller, Eckert, & Mazza, 2009). Additionally, since suicides that did not occur cannot be measured, the outcomes of SPPs are challenging to evaluate and are often rated as effective based simply on participants' increased knowledge about suicide and help-seeking behaviors (Cusimano & Sameem, 2011).

SPPs are typically designed and delivered according to a three-tier public health prevention model comprised of universal, selective, and indicated interventions (typically referred to as Tier 1, Tier 2, and Tier 3, respectively, when applied to the school setting; Brown-Chidsey & Steege, 2010; Walker et al., 1996). The majority of the research on SPPs in schools is on interventions that were implemented as a stand-alone intervention at Tier 1 level designed to be broad and preventative in nature. We will review the performance and evidence base of some widely

used school-based SPPs and make recommendations for implementing these interventions in schools in a rural setting. Because this review is not intended to be exhaustive, we focus on programs that have an evidence base of sufficient quality for inclusion on the National Registry of Evidence-based Programs and Practices (NREPP; SAMHSA, 2016; http://nrepp.samhsa.gov). NREPP is a repository of programs that address mental health or substance use and have one or more experimental or quasi-experimental studies that provide evidence of efficacy in preventing or reducing the target issue. Further, we review those programs that have been developed and evaluated in rural areas or hold particular promise for implementation in rural areas. Additionally, we review postvention guidelines for helping schools respond to the death of a student as well as some recommendations for implementing SPPs in rural areas. Finally, we review the emerging research on a multitiered system of suicide prevention that addresses suicide alongside other universal mental health issues such as bullying and substance abuse.

Tier 1: Gatekeeper trainings. In rural settings, where resources for Tier 2 and Tier 3 may be limited, universal interventions often hold the most appeal. A common type of Tier 1 school-based SPP, known collectively as gatekeeper trainings, are increasing in popularity, particularly after recent financial support for their use was offered by the Substance Abuse and Mental Health Services Administration (SAMHSA; Partain, 2014). The rationale for gatekeeper training is that the majority of suicidal youth will reach out to a peer or a trusted adult rather than seeking help from a mental health professional. However, the majority of teachers and school staff report feeling uncomfortable with identifying and referring suicidal youth (Stiffman, Pescosolido, & Cabassa, 2004). Therefore, it is important for anyone who interacts with youth to have training in how to intervene and make an appropriate referral (Barnes, Ikeda, & Kresnow, 2002; Kalafat & Elias, 1994).

Two gatekeeper programs that are widely used in schools and are listed on the SAMHSA NREPP are Question, Persuade, Refer (QPR) and Youth Mental Health First Aid (YMHFA). QPR is a basic gatekeeper training intended to teach laypersons to identify suicidal individuals, persuade them to seek help, and refer them to an appropriate mental health professional. QPR was designed to be implemented on a large scale and thus is economical in terms of both cost and time (QPR Gatekeeper Training for Suicide Prevention, 2016). Outcomes of school-based implementation suggested that QPR improved teachers' confidence in identifying and referring suicidal youth but did not lead to notable increases in referrals (Gould, Greenberg, Velting, & Shaffer, 2003; Wyman, Brown, Inman, & Pena, 2008). A randomized trial of staff from 32 schools revealed that the largest effects were found with staff who had the lowest sense of efficacy prior to the training (Wyman et al., 2008). Thus, while QPR shows effectiveness on several target variables such as knowledge and confidence, it is limited in scope and should be combined with other strategies.

Mental Health First Aid (MHFA) is another popular gatekeeper training often that is often offered by local agencies at a low cost. MHFA has developed a specific youth training called Youth Mental Health First Aid (YMHFA) that is an 8-h training that educates participants about risk factors of mental health concerns and suicidal behaviors in adolescents. YMHFA advocates early intervention and offers a five-step action plan by which to help an adolescent in crisis: (a) assess risk of suicide or harm; (b) listen nonjudgmentally; (c) give reassurance and information; (d) encourage person to get appropriate help; and (e) encourage self-help strategies (Jorm, Kitchener, Kanowski, & Kelly, 2007). MHFA/YMHFA applied in a rural setting in Australia with adults and adolescents achieved positive results overall, including increased recognition of psychological disorders, agreement across disciplines about interventions, decreased social distance from those with mental health concerns, and an increase in help provided. However, there were no changes in the amount of individuals the participants had contact with or the amount of people who were advised to seek professional help (Jorm, Kitchener,

O'Kearney, & Dear, 2004). These results were replicated in a recent study conducted in the United States (Mendenhall et al., 2013).

Tiers 1 and 2: Suicide awareness and response curricula. Two widely known suicide awareness and response curricula in American schools are Signs of Suicide (SOS) and Lifelines: A Comprehensive Suicide Awareness and Responsiveness Program for Teens (Underwood & Kalafat, 2009) that are comprehensive school-wide programs that comprise both universal and selective interventions. Some comprehensive SPP programs also develop an indicated SMH Tier 3 crisis response team (Kalafat, 2003).

SOS is one of the most recognized evidence-based SPPs implemented in schools. SOS Suicide Prevention is a 2-day school-based intervention that aims to reduce the incidence of suicide by two mechanisms: providing students with psycho-education about suicide and screening for suicidal risk and depression. Students are taught how to recognize signs of depression and suicide, how to respond appropriately, as well as how to reach out to tell an adult. Students are also screened for depression and suicide risk, referred to indicated treatment if needed. SOS offers training for "trusted adult" gatekeepers; however, it primarily focuses on teaching students how to recognize depression and suicidality in themselves and others and how to reach out for help (Aseltine & DeMartino, 2004; Aseltine, James, Schilling, & Glanovsky, 2007; Schilling, Aseltine, & James, 2016).

A 2011 review of SPPs suggests that SOS is the only program to date known to have documented decreases in suicide attempts among high school students and middle school students who participated in the program (Cusimano & Sameem, 2011). The results of three separate clinical trials suggest that students' suicidal behaviors and suicidal ideation were reduced and students' knowledge about depression and suicide was increased after participating in SOS. However, help-seeking behaviors were unchanged (Aseltine & DeMartino, 2004; Aseltine et al., 2007; Schilling et al., 2016). SOS has positive ratings from teachers and staff that reported that it was not burdensome to implement (Cusimano & Sameem, 2011). The Rural Youth Suicide Prevention Workgroup strongly recommends that rural communities have reviewed referral sources and procedures in place before implementing screenings (Workgroup, Rural Youth Suicide Prevention, 2008).

Another comprehensive suicide prevention program that schools might consider is Lifelines: A Comprehensive Suicide Awareness and Responsiveness Program for Teens.

Lifelines is comprised of three separate curricula in one program: prevention, intervention, and postvention. Lifelines was developed and piloted in largely rural school districts in Maine, and as of 2009, it has been implemented in 33 schools across the state. Lifelines' principal investigator, John Kalafat, passed away in 2007 while writing an unpublished report for SAMSHA's National Registry of Evidence-based Programs and Practice (Kalafat, Madden, Haley, & O'Halloran, 2007; Lifelines Curriculum, 2016); therefore, only the classroom curriculum is listed with NREPP as an evidence-based program. This review suggested that four preliminary studies by the developer had consistent positive outcomes of increased positive knowledge, and attitudes about suicide and help-seeking behaviors (Lifelines Curriculum, 2016).

The aim of Lifelines prevention program is to establish a culture of caring in which suicidal behavior is recognized and help-seeking behavior is promoted. The prevention program includes a psycho-education workshop for parents, classroom curriculum for students, and training for staff. Lifelines intervention reviews resources and establishes guidelines of how to identify a student with suicidal behavior and how to respond appropriately. Lifelines postvention includes guidelines for schools in responding to the death of a student by suicide (Underwood & Kalafat, 2009).

Tier 2: Selective interventions for identified at-risk youth. Reconnecting Youth (RY) is a school-based, semester-long curriculum that is offered to selected students in grades 9–12 who have demonstrated poor academic achievement and are at risk of dropout. RY has three goals: to increase school performance, decrease substance use, and decrease suicide risk factors. RY includes periodic suicide risk assessment and lesson plans include education

on managing suicidal ideation and behaviors (Eggert, Thompson, Herting, & Nicholas, 1995). A 2013 review of SPPs gave RY a "B" rating and suggested that the open trials conducted on RY had consistent findings such as a reduction of delinquency, substance abuse, and increased GPA (Katz et al., 2013). There is some evidence to suggest that RY reduced students' risk factors for suicide such as decreasing hopelessness and increasing social support (Eggert et al., 1995).

A replication of RY reported some adverse effects such as strengthening relationships with deviant peers (Cho, Hallfors, & Sánchez, 2005; Hallfors et al., 2006), and the principal investigator of RY responded to these findings by providing evidence that the results were largely due to problems with program fidelity (Hallfors et al., 2009). However, these potentially iatrogenic effects are consistent with other researches that suggest that there may be unintended negative effects of group-delivered interventions for at-risk youth (Arnold & Hughes, 1999). Schools in rural settings might consider that if it is not feasible to implement RY with fidelity, they run the risk of adverse outcomes.

Tier 3: Indicated psychotherapy and crisis intervention. While it is documented in the literature that psychotherapy is effective for child and adolescent psychopathology, less is known about effective individual treatments for suicidal children and adolescents (Kalafat, 2005). Dialectical behavior therapy (DBT) is a type of cognitive behavioral therapy known as the most effective treatment for adults with borderline personality disorder and suicidal and self-harming behaviors (Crowell, Beauchaine, & Linehan, 2009; Linehan et al., 2006), and emerging research indicates that DBT may be an effective treatment for suicidal and self-injuring adolescents (Miller, Rathus, & Linehan, 2007; Rathus & Miller, 2002). A recent meta-analyses reviewed 14 studies on cognitive behavioral (CB) treatment (including DBT) for adolescents and suicidal behaviors. While the studies had less than optimal methodology due to ethical limitations restricting the use of RCTs with minors with suicidal behaviors, they found statistically significant reductions in suicidal ideation and self-harming behaviors, particularly for the treatments that targeted those behaviors (Labelle, Pouliot, & Janelle, 2015).

In spite of emerging support in favor of individual treatment for adolescents with suicidal behaviors, referrals often lack follow-through due to fragmented community mental health systems as well as this population's high rate of treatment dropout and lack of compliance (Gould et al., 2003; Kalafat, 2005). Adolescents in rural settings face additional barriers to treatment such as lack of transportation, lack of qualified providers, and stigma (Owens, Murphy, Richerson, Girio, & Himawan, 2008; Owens, Watabe, & Michael, 2013). Finally, since research suggests that effective crisis intervention involves a timely response and referral (Gould et al., 2003) school mental health (SMH) programs that offer direct individual services on-site have become a viable and relevant solution (Farmer, Burns, Phillips, Angold, & Costello, 2003).

An example of such a SMH program that has been implemented effectively in a rural setting is the Assessment, Support and Counseling (ASC) Center. The ASC Center is a SMH directed through partnership between a university and local school system. The ASC center offers individual cognitive behavioral therapies to students referred by their school counselor and provides treatment on school premises, during school hours. Over the past 10 years, the program has documented positive treatment outcomes such as reduction of reported psychological symptoms (Albright et al., 2013) as well as modest effects on academic outcomes (Michael et al., 2013).

In 2012, when the program expanded to a new school district with a high volume of crisis incidents, a protocol called the Prevention of Escalating Adolescent Crisis Events (PEACE) was developed (Sale, Michael, Egan, Stevens, & Massey, 2014). ASC clinicians and school staff quickly recognized and responded to the need for a set of systematic procedures to assess suicide (or, more rarely, homicide) risk, respond appropriately, and communicate clearly among school personnel and supervisors. PEACE is a color-coded system (green, yellow, orange, red) intended to guide clinical decision making, response, and follow-up. Each level of risk is

defined by the presence of sets of behaviorally anchored risk and protective factors to improve clinical decision making in times of stress. The protocol was implemented and used during the 2012/2013 school year with 33 crisis events and has been used in a total of 181 individual crisis interventions over four consecutive school years (2012–2016). During evaluation, no students assessed died by suicide or homicide (Lichiello et al., 2016). The PEACE protocol is associated with prompt referrals to outpatient treatment (preventing hospitalization) and works well within the framework of a school. PEACE is used as a tool to manage crisis response, not a prevention program to detect suicide ideation among the student body. It is recommended that it be used along with universal suicide prevention protocols (Michael et al., 2015).

Tier 3: Means restriction programs. Given the highly lethal nature of firearms and dangerous medications (e.g., opioids), suicide prevention protocols are more frequently incorporating measures to restrict lethal suicide methods from persons in crisis. One such program is Counseling Access to Lethal Means (CALM; Johnson, Frank, Ciocca, & Barber, 2011). CALM aids clinicians in collaborating with students and parents to identify a safe, locked location to temporarily store firearms and medications where they cannot be accessed by the suicidal person. If possible, out-of-home storage should be arranged, and counselors should engage in problem-solving conversations with students and families to identify potential locations. Options include a trusted friend or family member, storage facility, and some gun stores, police stations, or pawn shops. If an off-site location cannot be arranged, an agreement to store guns in locked safes or equipped with gun locks should be established, as well as a plan for who will maintain possession of the key; hiding firearms or keys is not recommended.

Conversations about means restriction are often challenging, particularly in rural areas where guns are considered a way of life. SMH professionals must be mindful of the cultural significance of guns and avoid perpetuating the misunderstanding that means restriction is a form of gun control. Instead, SMH professionals should frame these measures as elements of firearm safety and emphasize the temporary, voluntary nature of the arrangement, and concerted efforts should be made to demonstrate respect for individuals' relationships with guns.

Means restriction interventions should be tailored to meet the needs of individual students. It is advisable that access to firearms be restricted for all suicidal persons; however, additional considerations should be made based on the person's suicide plan. Medications and sharp objects may be removed from the student's possession and locked away and adult supervision may be required. Interventions should reflect careful assessment of the student's plan as well as lethal methods that may be available in the home. Given that psychopathology cannot reliably predict impulsive suicide attempts, means restriction interventions may be critical for comprehensive suicide prevention protocols.

Postvention. Following the tragedy of a student's death by suicide, many schools conduct a postvention. Postventions typically have two goals: offer support to the bereaved and reduce the adverse effect of the loss on the school including further suicide attempts. Postventions are a common practice for schools due to the phenomenon that suicides have been known to occur in clusters (Gould & Davidson, 1988), and evidence that suggests that the risk of imitative suicide is substantially higher among adolescents (Gould, Wallenstein, & Kleinman, 1990; Gould, Wallenstein, Kleinman, O'Carroll, & Mercy, 1990). While suicide epidemics have been known to exist throughout history, they are still the exception, not the norm (Gould et al., 1990), and suicide contagion is more likely to occur following a celebrity suicide than a noncelebrity suicide (Wasserman, 1984).

While there is theoretical support that suicide imitation may occur through behavioral contagion (Gould, Jamieson, & Romer, 2003), the construct of suicide contagion has been disputed. It is possible that what appears to be "imitation" actually occurs by a different mechanism: a convergence of associated risk among a social group and a shared life stressor of loss (Joiner, 1999).

Additionally, there are some instances of postvention practices associated with paradoxical increases in instances of clusters (Callahan, 1996; Callahan, Meripolski, Rosen, Sattem, & Tierney, 1999). Therefore, when implementing a postvention, schools should remember to first "do no harm" by being cautious that their practices do not inadvertently increase the intensity of the students' reaction or "glorify" suicide.

For standard guidelines on conducting a postvention, a free, comprehensive suicide response toolkit for schools is available from the American Foundation for Suicide Prevention (AFSP) and the Suicide Prevention Resource Center (SPRC, 2011; http://www.sprc.org/resources-programs/after- suicide-toolkit- schools). This toolkit includes recommendations for crisis response, helping students cope, working with the community; guidelines for talking about suicide; and sample death notification statements for classrooms, families, and media. According to these materials, the primary aim when responding to a student suicide is to treat all deaths the same way. This is particularly important in memorializing the student who died, as approaching suicides differently than other deaths may inadvertently glamorize or stigmatize the deceased. Nevertheless, to reduce risk among vulnerable adolescents, schools should provide information about the relationship between mental health disorders and suicide, as well as availability of treatment and resources. Further, schools should make efforts to identify youth who may need additional support (e.g., close friends, family members, classmates, and teammates of the deceased; those who were witness to the death or received communication from the deceased prior to the suicide; youth who have mental health problems, have a history of suicide attempts, have been exposed to prior suicides, or are coping with stressful life events) and connect them with appropriate resources as necessary (SPRC, 2011).

The school may seem an appealing location to host funeral or memorial services, particularly in rural areas where schools may be perceived as central community hubs with ample meeting space. However, it is strongly advised that schools do not host these services and instead remain a neutral location that is focused on its regular structure and routine. Schools should, however, offer opportunities for youth to express their emotions and identify coping strategies. Such conversations should be facilitated in small-group settings; large-scale assemblies should be avoided. Spontaneous memorials may arise on school grounds and should be permitted. While some limitations on informal memorials may be necessary (e.g., a location that is avoidable for those who do not wish to participate, monitoring for concerning or inappropriate behavior), they should be consistent with those for any other student death (SPRC, 2011). The devastating impact of suicide may be particularly pronounced in rural areas, where community members may have long-standing connections with one another. Partnering with community agencies, including mental health providers, clergy, and government and/or law enforcement, may equip schools with valuable resources in the wake of a suicide death.

Recommendations for SPP Implementation in Rural Communities

As a matter of course, we recommend that school-based suicide prevention plans be comprehensive and provide intervention on multiple tiers. Plans should not only consider responses to acutely suicidal students through clinical management and means restriction, but also address both proximal and distal suicide risk factors and increase students' knowledge of and access to potentially lifesaving services. However, given the heterogeneity of rural communities and their available resources, we are unable to provide prescriptive recommendations that will work for all rural schools. Instead, we suggest that districts maximize the effects of suicide prevention programming by systematically considering their available resources and strengths, both within the schools and from the community. Asset-mapping procedures such as those outlined by Kretzmann and McKnight (1993) can be a very useful starting place for determining the fit between the various programs available and the needs and strengths of the school.

Additionally, schools interested in developing a suicide prevention strategy might consider the following recommendations of the Rural Youth Suicide Workgroup (a partnership between the SPRC and the State and Territorial Injury Prevention Directors Association [STIPDA]; STIPDA, 2008). Because, rural communities often have fewer health providers than urbanized areas, it is particularly important that referral sources and procedures be established before implementing program. Schools should be sure that all listings of services, helplines and providers are current and up to date. This is of particular importance when implementing a SPP that includes screening. Since schools often have limited resources to allocate toward SPPs, the school should reach out to state organizations, local agencies, and behavioral health programs and ask for resources and recommendations. Additionally, specific audience for gatekeeper trainings should prioritize those most likely to interact with at-risk youth. A frequent strength of rural communities is that they tend toward strong social networks. Thus, when considering gatekeeper trainings, schools should build upon this resource by appealing to adults in the community beyond the school such as coaches, faith community leaders, and primary care providers as well as youth in the community. To increase sustainability, schools should consider a train-the-trainer model by which they invest in a school employee who can offer repeated trainings as needed.

In addition to the guidelines provided by the Rural Youth Suicide Workgroup, several other pragmatic considerations must be addressed when implementing a multitiered suicide prevention plan. Firstly, schools and districts should identify champions for suicide prevention that have both the access and skills necessary to organize the various elements of the program. This individual or group of individuals should be responsible for facilitating communication among stakeholders, informing school personnel of program initiatives, coordinating with classroom teachers for the delivery of programming, and evaluating outcomes, among other responsibilities. Secondly, school systems should think strategically about how available resources should be allocated to support the three tiers of prevention. Schools must ensure that adequate response is available if a suicide crisis is discovered. For this reason, we recommend that selective and indicated interventions be implemented and/or memoranda of agreement be developed with local agencies to ensure adequate capacity for response prior to implementing universal gatekeeper training interventions. Identifying students with significant suicide risk and not having adequate support to assist these students is a dangerous position in which schools can find themselves. Thirdly, educating all stakeholders about the importance of suicide prevention and eliminating myths around the discussion for suicide is critical to the sustained success of any school-based suicide prevention program. Parents, teachers, administrators, students, and staff may wrongly believe that the discussion of suicide could lead to increased suicidal behavior among students. Allaying these fears and creating buy-in from all involved are necessary steps to implementing a successful prevention approach.

Conclusions

Suicide is a serious public health problem among rural students, and despite the identification of numerous risk factors, it remains exceedingly difficult to predict. There are several evidence-based prevention programs available to rural schools for little or no cost. However, the implementation of a single strategy is unlikely to be effective. Instead, effective suicide prevention is likely to be dependent on a multitiered approach that increases knowledge and access to services, addresses both proximal and distal risk factors, helps school personnel respond to students in distress, and reduces access to lethal means of suicide for students in crisis. Implementing and sustaining these complex initiatives require both dedication from school personnel and buy-in from all stakeholders. However, the results can save the lives of children and adolescents in rural areas. Moving forward, research investigating the cumulative impact of bundled programs can help schools develop more effective solutions to this serious problem.

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