IMPLEMENTING SIGNS OF SUICIDE PROGRAM AND COLUMBIA-SUICIDE SEVERITY RATING SCALE IN A SCHOOL-BASED SETTING: A QUALITY IMPROVEMENT PROJECT

by

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ABSTRACT

In Montana, the youth suicide rate is more than double the national rate. Signs of Suicide (SOS) is one prevention program that is utilized within the school-based setting to educate middle and high school students. In a rural Montana school, the Brief Screen for Adolescent Depression (BSAD) is administered in conjunction with the SOS program to screen for depression; however, no focused suicide risk screening protocol exists. A Plan, Do, Study, Act cycle was implemented throughout 6 weeks to screen middle and high school students for depression, introduce subsequent suicide risk screening, and refer to mental health professionals as indicated. The school counselor (SC) performed SOS/BSAD, then subsequently collected Columbia-Suicide Severity Rating Scale (C-SSRS) scores, made referrals, and followed up as necessary. All data were de-identified and entered into an excel document before analysis and dissemination by the DNP-S. One hundred percent of high school and middle school students (n=144) participated in the SOS program and completed a BSAD. Of 20 identified as high-risk for depression, 11 completed the C-SSRS. Of those 11, three were identified as at-risk for suicide. All three students had completed referrals with a mental health professional. Follow-up C-SSRS indicated an ultimate reduction in suicide risk. The project effectively identified students at risk for depression and subsequently evaluated suicide risk and closely tracked completed referrals. Future research should evaluate long-term changes in C-SSRS scores over time post follow-up with mental health professionals.

CHAPTER ONE

INTRODUCTION, BACKGROUND, & LITERATURE REVIEW

Clinical Problem

In Montana, suicide, or the act of intentionally taking one's own life, is the leading cause of unnecessary death in youth and adolescents (Rosston, 2022). Any person, regardless of age, race, ethnicity, or gender, is at risk for suicide. Still, certain groups, such as youth, have higher and continually increasing rates compared to the general population, warranting a public health crisis. Nationally, among people aged 10–24 years, suicide is deemed the second leading cause of death (Centers for Disease Control, 2021). A 2019 survey by the Centers for Disease Control and Prevention indicated that approximately 9% of adolescents participating in the survey had made at least one suicide attempt in the previous 12 months (Centers for Disease Control, 2021). In Montana, between 2011–2020, the youth suicide rate was 11.9 per 100,000, more than double the national rate of 4.8 per 100,000 (Rosston, 2022).

These staggering statistics beg the question: if suicide is preventable, how can the issue be addressed on a national level? The school setting, particularly middle and high school, is unique in that implementing evidence-based policies regarding suicide prevention, intervention, and postvention is proven beneficial. Specifically, the execution of school-based suicide prevention programs demonstrates effectiveness identifying those at risk for suicide, ensuring appropriate intervention, and incorporating postvention strategies (Clark et al., 2021).

Background and Significance

Youth are considered a vulnerable population. Therefore, youth-targeted suicide prevention programs demand meticulous research and rigorous development. Within the school, mental health professionals play a crucial role in suicide prevention in a multitude of ways. First, by staying up to date on best practices, second, through extensive and thoughtful research into existing suicide prevention curriculums, and lastly by examining postvention strategies (Epselage et al., 2022). There are a multitude of suicide prevention programs that exist for the school-based setting. In general, most suicide prevention programs incorporate three components: gatekeeper training, student psychoeducation, and screening. Gatekeeper training is the act of teaching school staff, such as teachers, counselors, and administration, how to correctly and efficiently identify signs of suicidal ideation or behavior. Staff receive education on the benefits of direct and expedient referral to appropriately licensed mental health professionals (Singer et al., 2019). Similarly, student psychoeducation enhances students' understanding of suicidal ideation and behavior. However, psychoeducation additionally informs participants on how and when to seek help from others while stressing the importance of adaptive coping skills (Volungis, 2020). Screening is the act of encouraging students to participate in an evidence-based, targeted survey. Survey results ultimately help to identify risk (Singer et al., 2019). Most prevention programs involve isolated approaches. For example, the program may focus on just gatekeeper training or solely psychoeducation. Signs of Suicide (SOS) is one of the few school-based programs that incorporates all three components of gatekeeper education, student psychoeducation, and screening (Singer et al., 2019)

SOS is a school-based suicide prevention program backed by extensive research. SOS aims to ultimately reduce suicide rates among middle and high school students by reducing suicidal ideation and behaviors and enhancing student knowledge and attitudes about mental illness (Mindwise Innovations, 2022). SOS may contribute to a reduction in the stigma of mental illness, emphasizes the significance of help-seeking attitudes, and encourages positive mental health in the student population (Suicide Prevention Resource Center, 2022).

The SOS curriculum begins by infusing a video demonstration with a guided discussion performed by a mental health professional who has completed the gatekeeper training. Students are taught how to identify warning signs of suicide in themselves and their peers (Mindwise Innovations, 2022). SOS employs the Acknowledge, Care, and Tell (ACT) method, which involves acknowledging warning signs of suicide, demonstrating compassion, and engaging in help-seeking behaviors (Mindwise Innovations, 2022). Students then engage in a screening tool, the Brief Screen for Adolescent Depression (BSAD), self-evaluating their own risk for depression and warning signs of suicide. Those identifying themselves as experiencing depression or suicidal ideation receive swift and individualized follow-up with a mental health professional (Clark et al., 2022). Through a clinical interview, a mental health professional provides support and determines appropriate intervention (Clark et al., 2022).

Arguably the most essential component of the SOS training program is the evaluation of the BSAD. The BSAD tool is a 7-item questionnaire that prompts students to answer “yes” or “no” to questions regarding interests, energy levels, confidence, past or present suicidal thoughts, and mental activity (Columbia USA Academy, 2022) (Appendix A).

At the bottom of the questionnaire is an item regarding whether the student currently receives treatment for depression. Finally, there is a section where the student has an opportunity to identify trusted adults, one in the school and one out of the school. Upon completion of the assessment, students receive a score indicating their overall risk of depression. A "yes" answer correlates with 1 point, while a no equates to zero points (Columbia USA Academy, 2022). Zero to 2 points indicate it is "unlikely" the student has depression, 3 points represent that depression is "possible," and 4 to 7 points signify "likely" depressed (Columbia USA Academy, 2022). The instructions on the questionnaire then indicate that, if students check yes to questions four and five, regarding suicide, they should immediately seek aid from a mental health professional (Columbia USA Academy, 2022).

While the SOS program focuses on identifying depression within the student population using the BSAD tool and teaching about identifying those at risk of suicide, a focused suicide risk assessment is not incorporated to assess the severity of suicide risk. The Columbia Suicide Severity Rating Scale (C-SSRS) is a simple, six-question assessment tool that supports suicide risk assessment.

Local Problem

In a rural school in Montana, the SOS program, which offers screening for adolescent depression, is incorporated for grades 6 through 12. However, there is no focused suicide risk assessment utilized in the curriculum.

Methods

Search Strategies, Eligibility, Selection, and Quality Assessment

A systematic review of databases, including PubMed, Proquest, EMBASE, CINAHL, MEDLINE, PsychInfo, and CatSearch, was performed to ensure an adequate body of evidence was identified for articles discussing suicide prevention in the school setting, the C-SSRS, and school-based referral processes. Initially, limited data emerged due to inclusion criteria. Data on C-SSRS and suicide prevention in the rural setting are extremely scarce. Search criteria were expanded to ensure a diversified result. Studies were required to meet the following inclusion criteria: (1) original, peer-reviewed article, (2) earliest publication date 2015, (3) must apply to adolescent population, (4) outcome discussing suicide prevention impacts on adolescents.

Key search terms included single phrases such as SOS prevention program, C-SSRS, school-based prevention program, school-based psychiatric referral process. However, with further thought, key search terms were refined. Final key search terms included school-based suicide prevention programs, C-SSRS, SOS AND C-SSRS, C-SSRS AND adolescents, SOS AND school-based psychiatric referral process, and rural adolescents AND school-based psychiatric referral process.

Approximately 52 articles were considered and, ultimately, 11 met the criteria for inclusion. A variation of articles was included to highlight different perspectives, which is a strength of the review. Limitations include lack of long-term studies due to the vulnerable status of the population studied and lack of evidence pertaining to rural locations. Overall, studies included are appropriate and follow guidelines set for inclusion. However, more research on the long-term effectiveness and rural locations is necessary.

Results

Adolescent Suicide

Suicide often is associated with a ripple effect, impacting both schools and communities, especially within community-wide activities in which the student was directly involved. Estimation reports indicate that, for every one youth suicide, 135 people are impacted (Cerel et al., 2016). For every 135 people impacted, 25 report incredible and relentless distress, such as elevated rates of posttraumatic stress disorder and increased levels of suicidality (Cerel et al., 2016). Adolescents bereaving the loss of a friend to suicide are up to 3.7 times more likely to report suicidal ideation, and those bereaving an acquittance are 2.2 times more likely (Song, Kwon, & Kim, 2015).

Rural Communities & COVID-19 Impact

The COVID-19 pandemic occurring in 2020 and 2021 has undoubtedly affected all. However, as recent data emerge, it is noted that rural communities have significantly amplified impacts. Several dominant and predisposing factors, including consistent social isolation, reduced access to mental health services, and increased access to firearms, are heightened by the COVID-19 pandemic (Monteith et al., 2021). Further amplification of existing interpersonal risk factors due to geographic disparities for suicide include social isolation, interpersonal violence, and perceptions of decreased belongingness and burdensomeness (Monteith et al., 2021). Reduced accessibility to mental health services is primarily due to a lack of mental health providers in rural areas and heightened stigmatization of mental illness (Monteith et al., 2021). Finally, access to firearms, one of the leading means of suicidality in rural communities, was

further potentiated during the pandemic. As a response to fears of discontinuation/impending shortages in guns and ammunition, data depict previous gun owners acquired ammunition and additional firearms, many of which are stored within the home (Monteith et al., 2021).

Furthermore, the COVID-19 pandemic has undoubtedly significantly impacted adolescent mental health. With the closure of schools and a shift toward virtual communication, students often felt the effects of social isolation coupled with difficulty accessing mental health services within the school-based setting. Interestingly, one study captured the shifting effects of COVID-19 distress on depressive symptoms, non-suicidal self-injury (NSSI), and suicide risk in a group of adolescents in rural Maine (Schwartz-Mette et al., 2022). Variables mentioned above were first measured pre-pandemic and remeasured in June 2020 (Schwartz-Mette et al., 2022). Overall, data identified loneliness as a critical factor in predicting depressive symptoms, with the most substantial effect on adolescents struggling in the pre-pandemic state (Schwartz-Mette et al., 2022).

Similarly, loneliness was associated with a dual rise in NSSI and risk of suicide for adolescents, particularly within the population who had reported NSSI and suicide risk pre-pandemic (Schwartz-Mette et al., 2022). Additionally, a rise in rates of NSSI occurred, likely due to the emergence of NSSI as a coping mechanism for those struggling to navigate such an unprecedented time (Schwartz-Mette et al., 2022). Fortunately, those who did not report pre-pandemic suicide risk did not identify a change in symptoms due to the COVID-19 pandemic (Schwartz-Mette et al., 2022). Overall, a reduction in peer support, closure of schools, and social isolation are linked to depressive symptoms, NSSI, and suicide risk, particularly in locations where higher restrictions exist due to COVID-19 (Schwartz-Mette et al., 2022).

School-Based Prevention

Historically, engagement in suicide prevention programs within the school-based setting has typically followed a student's unexpected and preventable death (Krueze, Stecker, & Ruggiero, 2017). However, due to the rise in youth suicide, states have recently begun mandating universal suicide prevention training (Krueze, Stecker, & Ruggiero, 2017). In the past 2 decades, mental health professionals have shifted towards implementing prevention approaches that aim to reduce risk factors, promote protective factors, and ultimately decrease the suicide rate at a population level (Singer, Erbacher, & Rosen, 2019).

The practical approach to suicide prevention in public health breaks down into universal, selected, and targeted programs (Singer, Erbacher, & Rosen, 2019). In school health, the literature has transformed into a multitiered approach of primary, secondary, and tertiary levels of prevention (Singer, Erbacher, & Rosen, 2019). Tier-one programs, like SOS, are universal and widely utilized, addressing all students within a population regardless of the deemed risk of suicide (Singer, Erbacher, & Rosen, 2019). Tier-two programs selectively identify and support students at risk of suicide (Singer, Erbacher, & Rosen, 2019). Tier-three programs target students with known mental illness or students with a history of suicidal ideation, behavior, or attempts (Singer, Erbacher, & Rosen, 2019).

Unfortunately, while school-based interventions have yet to effectively demonstrate decreased youth suicide deaths through randomized control trials, a few have shown a reduction in suicidal thoughts and behaviors (Singer, Erbacher, & Rosen, 2019). SOS, one of the notably recognized within prevention literature, has statistically demonstrated in a randomized control trial that middle and high school participants are less likely to report suicidal ideation and

behaviors as compared to controls (Singer, Erbacher, & Rosen, 2019). Middle school and high school students participating in SOS also demonstrate improved knowledge regarding suicide and suicide prevention (Schilling et al., 2014). High school students additionally showed a significant reduction in suicide attempts in those who participated in SOS versus those who did not (Schilling et al., 2016). Moreover, improvements in post-intervention efforts are a direct result of implementing SOS (Schilling et al., 2016). However, a study identified that, although the SOS method effectively screens for depression and educates students on suicidal ideation and behaviors, one major limitation exists regarding evaluating the progression of suicidal ideation and behaviors (Schilling et al., 2016).

Columbia Suicide Severity Rating Scale (C-SSRS)

The C-SSRS is a widely integrative tool that mental health professionals employ to screen, assess suicide risk, and trend suicide risk (MT Department of Health and Human Services, 2022). Initially, the C-SSRS was created and found to effectively target youth aged 11 or older during a study that was intended to reduce suicide risk (Cwik, 2020). The C-SSRS includes five yes/no items and inquiries about suicidal ideation and behavior in the last month (Cwik et al., 2020). If answered yes, further explanation is warranted (Appendix B). The C-SSRS identifies if individuals have suicidal thoughts, whether they have acted on those thoughts, if they have current plans to attempt suicide, and whether they have attempted in the past. Answers to the assessment tool determine whether a patient is a low-risk, moderate-risk, or high-risk of attempting suicide (Cwik et al., 2020).

In the last 2 decades, the properties of the standard version of the C-SSRS have undergone rigorous evaluation and resulted in statistical significance on all accounts (Columbia

Lighthouse Project, 2020). Psychometric properties include clinical utility, internal consistency, inter-rater reliability, internal structure, convergent validity and accuracy, divergent and discriminate validity, and cross-cultural validation (Columbia Lighthouse Project, 2022). Individual evaluation of questions 1 through 5 of the C-SSRS tool indicates a significant predictive value (Columbia Lighthouse Project, 2020).

Intent to act on suicidal ideation is the leading cause of suicidal behavior ($p<0.001$) (Griest et al., 2014). Additionally, Conway et al. confirmed that, in individuals less than 18 years old, a prior attempt is related to a re-attempt ($p<0.001$). Furthermore, an actual, interrupted, or aborted attempt is significantly associated with preparatory behavior ($p<0.001$) (Griest et al., 2014). Suicidal ideation, at baseline, is a risk factor for future suicidal behavior ($p<0.001$) (Griest et al., 2014). Finally, one study demonstrates predictive value after subjects scored in the high-risk category or suicidal ideation with high intensity, both associated with increased risk for new episodes of suicidal behavior ($p<0.01$) (Lindh et al., 2018).

Overall, the C-SSRS tool is demonstrated to correctly identify and classify those who are at risk of completing suicide, including adolescents. In conjunction with the SOS training program, this tool can help provide education on suicide as well as gather baseline data. A trend in baseline data can identify a worsening risk of suicide or an improvement in suicide risk over time.

School-Based Referral

A search for peer-reviewed, evidence-based articles on formalized referral systems from school-based licensed clinical professional counselors (LCPC) or psychologists to a higher level of care is minimal and dated. However, the Substance Abuse and Mental Health Administration

(SAMHSA) published a document called the School Mental Health Referral Pathways (SMHRP) Toolkit in September 2015. In the school-based setting, the SMHRP Toolkit serves as a comprehensive guide to help assess the current referral management approach, provide tips on how to build effective partnerships, discuss problem-solving to promote mental health in adolescents, and provide cultural and linguistic considerations (SAMHSA, 2015). SAMSA employs a multi-tiered approach to categorizing interventions according to the level of care provided. Tier one encompasses preventative intervention, such as the SOS program. Those with positive BSAD screening are then categorized in at least tier two, intended for students with mild or newly emerging mental health concerns (SAMHSA, 2015). Students in tier two may qualify for behavioral counseling performed by an LCPC or psychologist or may require a referral for more intense treatment. In these cases, the C-SSRS may provide additional information to determine if students qualify for tier three. In tier three, students with more advanced mental health concerns receive a referral to higher levels of care for intensified treatment (SAMHSA, 2015).

As a school-based LCPC, examining community resources and establishing relationships outside the school-based setting is essential to the referral process. For students to best match with a provider who can meet their needs, a comprehensive list of available providers and their areas of expertise should be provided to the parents and discussed at length (SAMHSA, 2015). Once parents and students choose a provider or specific community-based resource, implementation of a formalized referral, which may differ from site to site, may take place (SAMHSA, 2015). Finally, and arguably the most crucial step is to evaluate the effectiveness of the intervention. This stage is critical for ensuring confidence in the treatment plan and assessing

overall improvement in student mental health (SAMHSA, 2015). This quality improvement project aims to implement the C-SSRS tool alongside the SOS training program for middle and high school students in a school in rural Montana while tracking referral rates to other mental health professionals.

Implications for Practice

As the rates of youth suicide in Montana rise at an alarming rate, the demand for suicide prevention and awareness has also increased. School-based suicide prevention programs, like SOS, are proven to effectively screen for depression and educate middle and high school students on how to correctly identify warning signs of suicide and to report concerns to a trusted adult. However, there is no actual suicide risk assessment tool utilized within the SOS program. The C-SSRS is an evidence-based suicide risk assessment tool that categorizes students as low-risk, moderate-risk, or high-risk for attempting suicide. School counselors can ensure proper referrals to mental health professionals with the data obtained from the C-SSRS.

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CHAPTER TWO

PROJECT SETTING AND METHODS

Clinical Problem

Overall, the age-adjusted rate for all suicides in Montana is 25.05 per 100,000 (Rosston, 2022). The age-adjustment rate is calculated to compare counties with differing populations within the state. The five counties in Montana with the highest suicide rates experience age-adjusted suicide rates of 40.0+ per 100,000, nearly 1.6 times greater than average (Rosston, 2022). Considering the youth suicide rate in Montana is more than double that of the national population, the youth suicide rate within the top five age-adjusted counties projects rates to be nearly four times greater (Rosston, 2022). According to the age-adjusted rates, the school in this study is located in one of the top five counties for youth suicides (Rosston, 2022).

Additionally, studies show that, within the traditional high school classroom, there are likely three students, two females and one male, who have attempted suicide in the past year (Rosston, 2022). These staggering statistics alone plead the case for immediate school-based suicide prevention and suicide risk assessment in the middle and high school population.

Local Problem

In one rural Montana school, suicide prevention along with depression screening through the Signs of Suicide prevention program is implemented annually. However, no suicide risk assessment is completed at any point during the educational or screening processes. Furthermore, it is unknown how many students identified as being at high risk for depression in the past have

received higher-level follow-up through the current referral process. This project proposal intends to incorporate the Columbia Suicide Severity Rating Scale suicide risk assessment in students identified as “high risk for depression or otherwise display signs of suicidal ideation” after completing the SOS training program, while closely tracking follow-up and referral rates.

Microsystem Assessment

While no concrete data exist, during an interview with the school counselor, the specific identified need for suicide risk assessment in conjunction with school-based suicide prevention and close referral tracking was identified as a high priority. The school counselor has noticed an upward trend in suicide attempts and completions among middle and high school students in the last 5 years. This observation is consistent with national and state data regarding youth suicide.

Rationale & Framework

The overall aim of this project is to reduce the rates of suicide attempts and completions through education and screening, and improve referral rates to health professionals within the middle and high school population in a rural Montana school. Ultimately, the measured outcomes will be rates of suicide attempts and completions. Shorter term, the outcomes assessed will include reach of the suicide prevention education, rates of C-SSRS screening, and student attendance at referral appointments. The main driver for improvement will be implementation of the C-SSRS suicide risk assessment among students identified as high risk for depression, students with clinically diagnosed depression, or students who exhibit warning signs of suicide

during the SOS prevention program. The Plan, Do, Study, Act (PDSA) method will serve as the overall framework of this quality improvement project.

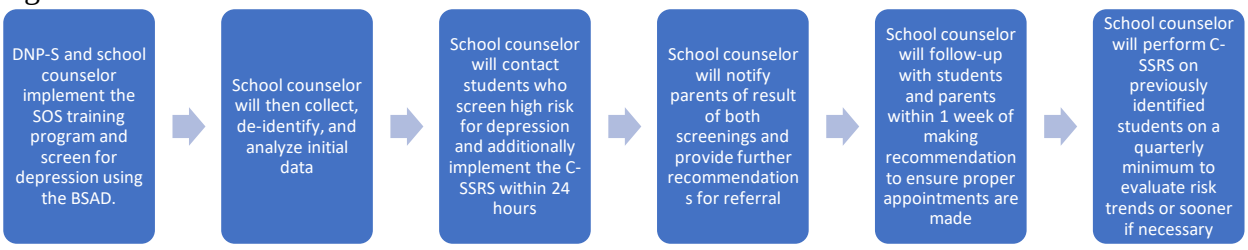
Phase One, the "plan," exists to answer the question: How can the current school-based suicide prevention intervention be improved? Research indicates that the C-SSRS is a validated suicide risk assessment tool with high sensitivity and specificity (Columbia Lighthouse Project, 2020). Implementing the C-SSRS can identify overall suicide risk and determine the overall course of action, including referral. Accomplishing buy-in from key stakeholders, including Montana State University, the rural school board, administration, staff, parents, and ultimately the students, is essential. To ensure approval, stakeholders will receive education on the importance of the topic and potential improvements that may result. Once approval is received from both the site and MSU IRB, the plan will be as shown in Figure 1.

Figure 1. Plan

Plan
Provide education to key stakeholders as to why this project is important, receive approval
School board, school administration, and all school staff express support and desire to improve current suicide prevention process by December 14th, 2022
School staff/ teacher(s) offer a classroom space and alloted time for approximately 2-3 total days for SOS training to take place by December 14th, 2022
Parents recognize importance of implementing a suicide prevention program and opt to have their child complete the Signs of Suicide (SOS) training and complete a C-SSRS if indicated by January 9th, 2023
School counselor will continue the annual implementation of SOS prevention program and Brief Screen for Adolescent Depression (BSAD)
School counselor will additionally incorporate the C-SSRS in students deemed high risk for depression, students with an existing clinical diagnosis of depression, and students who otherwise exhibit warning signs of suicide
School counselor will collect data regarding depression rates, suicide risk, and eventually referral rates
DNP student and school counselor will analyze de-identified data and evaluate results

During phase two, or the "do" stage, the plan will be implemented into practice during the 3rd and 4th weeks of January. While carrying out the process, there will be special attention to unexpected barriers and facilitators (Institute for Healthcare Improvement, 2022). These will be thoroughly documented. Phase two will be implemented as shown in Figure 2.

Figure 2. Do



It is important to note that if the C-SSRS is implemented, the school counselor will read questions aloud to the student and answers will be marked by the school counselor in efforts to promote honesty.

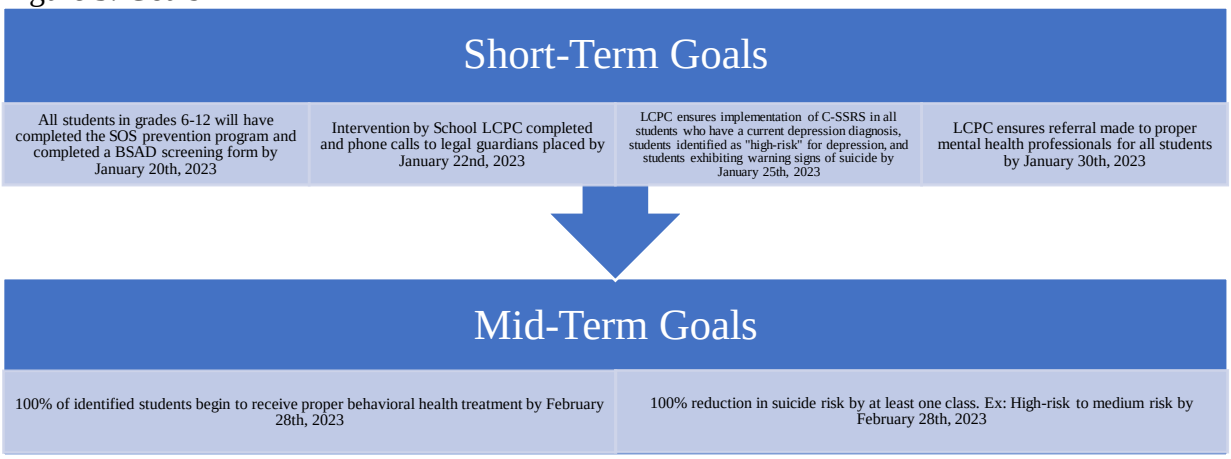
All data, including identifying data, will be entered into an excel sheet by the school counselor. Attendance and absenteeism will be recorded in one document as well as the date that absent students received training.

In a separate spreadsheet, individual BSAD scores will be documented as well as the initial C-SSRS risk assessment category, parent notification and referral, successful referrals (meaning the student attended the referral appointment and received guidance on treatment if indicated) and C-SSRS score and risk assessment as of February 28, 2023.

Brief Screen for Adolescent Depression (BSAD) scores, C-SSRS information, if indicated, parent, and referral rates will be de-identified by the school counselor and analyzed by the school counselor and the Doctor of Nursing Practice student (DNP-S) during phase three, the "study" phase. It is predicted that students who successfully schedule and attend referral appointments will depict a decrease in C-SSRS risk assessment and BSAD score. Actual data will be tracked within the excel documents and simple proportions will be calculated. Depression risk from the BSAD (low, moderate, and high) will be calculated by taking the number of students who fall into each respective category divided by the total number of students. The same will be done for C-SSRS risk assessment (low, moderate, and high), and for students who require parental notification and referral. Rates of successful referral will be calculated by taking the number of students who attend referral appointments divided by the number of students who are referred. Finally initial C-SSRS risk assessment will be compared to C-SSRS risk assessment on February 28th. Number of students who showed improvement by one category, number of students who stayed in the same category, and number of students who worsened by at least one category will be individually divided by the total number of students who received an initial C-SSRS risk assessment. The same proportions will be calculated for those who received follow-up at referral and those who did not. All data will ultimately be disseminated in a manner that is easily conveyed and understood (Institute for Healthcare Improvement, 2022). Finally, during phase four, the "act" phase, determinations of future modifications will be made, including permanent adoption of change into practice, retesting change, or abandoning change altogether (Institute for Healthcare Improvement, 2022). Implementing the PDSA cycle as described above

will help to achieve desired results. Short-term and mid-term goals are listed in Figure 3 with tentative correlating dates of completion.

Figure 3. Goals



Specific Aims

The upward trend in suicide rates at the local, state, and national levels is detrimental and alarming. Suicide is devastating local communities, families, and youth far too often. The overarching long-term goal is to improve processes to help identify middle and high school students at risk for suicide, expedite referral to mental health professionals, and reduce overall suicide attempts and completions to zero in the next 5 years.

Context

The proposed project will take place in one rural middle and high school in Montana with an approximate total enrollment of 150 students. This site was chosen after the school counselor requested help to strengthen current suicide prevention tactics. The school counselor, a licensed clinical professional counselor (LCPC), is the lead site representative. Involved stakeholders

include the local six-member school board, a superintendent and principal, a handful of teachers, and all grade 6–12 students and their parents. Parents of students will receive a letter regarding the intent to perform suicide prevention, information about the SOS training program, intended screening, and referral process. Parents will be invited to call the school counselor to discuss any questions regarding the program, intended screening tools, the referral process, or to simply view the screening tools; the BSAD and C-SSRS. Parents must return a signed refusal letter to the school counselor to opt their child out. The organizational culture is majorly supportive of suicide prevention. However, some believe "talking about suicide promotes suicide." The goal is for all enrolled middle and high school students to complete SOS training and be evaluated for suicide risk if necessary.

Intervention & Implementation

Overall, the fiscal budget for this project is very feasible. The SOS prevention program was purchased in 2021 and includes ample BSAD screening forms. The addition of the C-SSRS will require approximately 40 sheets of printer paper and an extra printer ink cartridge. Budgeted time will require 2 to 3 days of classroom time, which was previously donated by the History teacher and English teacher, who collectively teach all middle and high school students. The proposed intervention and implementation process is displayed in Figure 4.

Figure 4. Intervention and Implementation

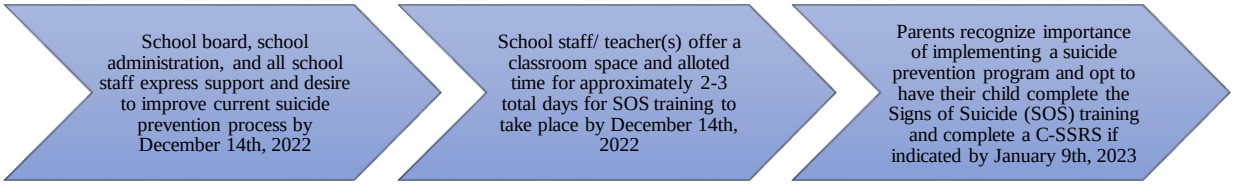
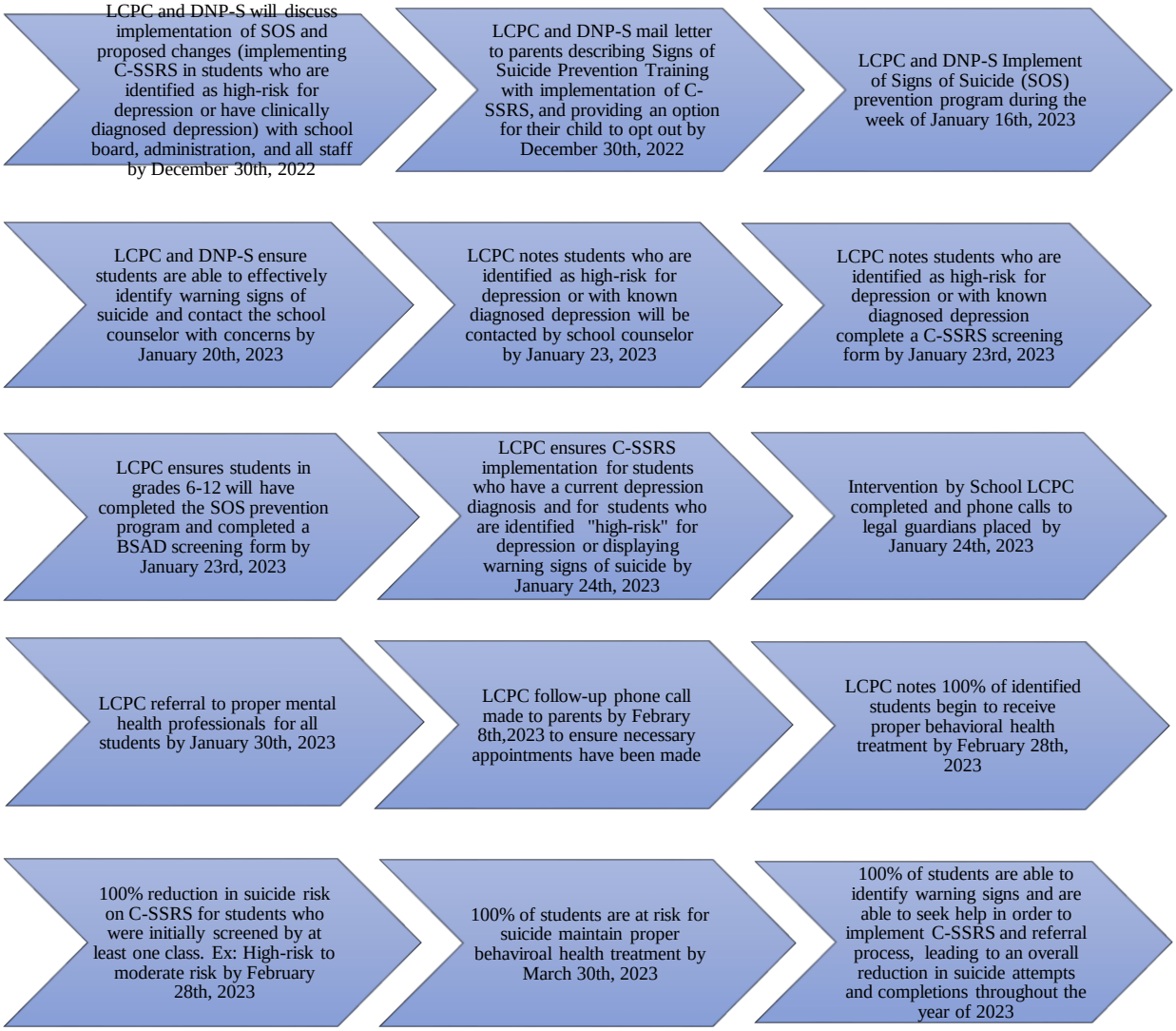


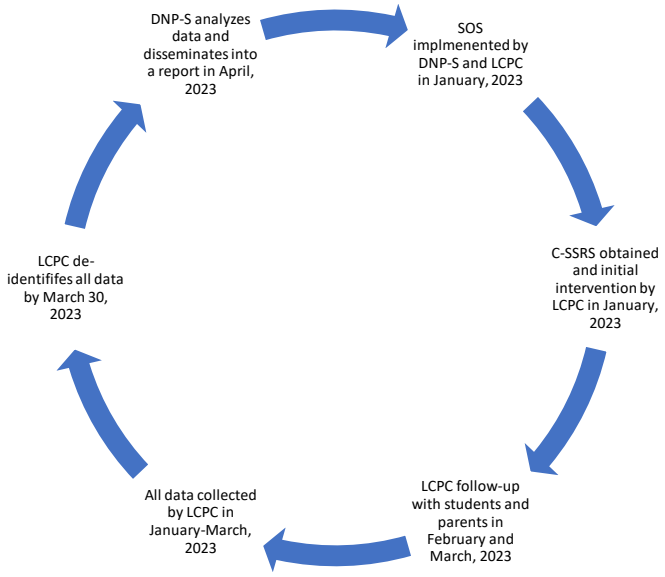
Figure 4. Intervention and Implementation Continued



All data will be collected and completely de-identified by the school counselor to protect the vulnerability status of the students. Once this process is completed, the DNP student and school counselor will work together to analyze data. Outcome measures are listed in Table 1 under the upcoming "Evaluation" heading. All analyzed data will then be disseminated into a report by the DNP student. A presentation of the final report to the school board, administration,

and staff will occur in late April or early May 2023. The process of data retrieval is depicted in Figure 5.

Figure 5. Data Analysis



Potential barriers will likely center around stigma related to mental health. Discussions centered around suicide in a vulnerable population may cause a degree of hesitancy from the school board, staff, parents, and students. There will undoubtedly be parents who are resistant to accept the need for a mental health referral based on cultural norms of mental toughness and ruggedness. To address this, the LCPC will meet with and provide counseling to students on a weekly to biweekly basis or more as needed as per standard protocol. Additionally, some staff may push back due to existing time constraints within the classroom. These barriers can be addressed through education on suicide prevention and the dire need for this project. Additional challenges may relate to long waiting periods, up to 3 to 6 months, for appointments with providers specific to mental health. To combat this, students may be referred to their primary

care providers or a family practice provider who may be able to coordinate with mental health providers to provide initial treatment or additional resources during the transition phase to expedite the process. Facilitators for this project will include an extensive support system within the school and the larger community. Unfortunately, the most significant facilitator is the undeniable upward trend in suicide attempts and completions serving as motivation for change. The prediction is that facilitators far outweigh barriers for this project.

Evaluation

This project was born out of a need for change. Change regarding current suicide prevention practices after several adolescent losses in the last 5 years. The main goal is to improve processes to help identify middle and high school students at risk for suicide, expedite referral to mental health professionals, and reduce overall suicide attempts and completions to zero in the next 5 years. Additionally, as these adolescents age, they will be provided with the necessary skills and knowledge to promote mental health, likely reducing the overall rate of suicide attempts and completions throughout the entire community. Further discussion related to goals is listed in Table 1.

Table 1. SMART Goals

SMART Goal #1: All students in grades 6–12 will have completed the SOS prevention program and completed a BSAD screening form by January 20, 2023 • This goal was set based on previous participation from the year 2021. All students participated—no parents opted their child out. Therefore, it is a reasonable goal to have all students complete training again. • Time set aside in LCPC schedule and in the classroom setting to implement training

Table 1. SMART Goals Continued

<table>
<tr><td colspan="3">Description of strategies to be utilized to accomplish goal including any needed resources.
Key stakeholders are educated on SOS training and an overview of the C-SSRS
Key stakeholders approve of implementing SOS in conjunction with C-SSRS in high-risk students
DNP-S and LCPC draft informative letter to send to parents
Parents receive letter in mail informing intent to perform suicide prevention program, screen for depression, and suicide risk if necessary. Encouraged to call with any questions. Parental approval is essential to obtain 100% participation.</td></tr>
<tr><td>Data to be collected</td><td>Method of Collection and who is responsible</td><td>Planned data analysis</td></tr>
<tr><td>Number count of students completing SOS prevention program

Number of enrolled in grades 6–12</td><td>BSAD screen; Excel spreadsheet; DNP-S and LCPC will collect all data from SOS training</td><td>LCPC will track all students by taking attendance in Excel spreadsheet. All those who are not in attendance will be contacted ASAP to receive training from LCPC
Proportion of number students completing SOS versus total number of students enrolled in grades 6–12</td></tr>
<tr><td colspan="3">SMART Goal #2: C-SSRS will be implemented in all students who have a current depression diagnosis and for students who are identified "high-risk" for depression by January 21, 2023
Performing C-SSRS within 24 hours allows for expedited or immediate intervention if necessary</td></tr>
<tr><td colspan="3">Description of strategies to be utilized to accomplish goal including any needed resources.
Student participation, cooperation, and honesty is required</td></tr>
<tr><td>Data to be collected</td><td>Method of Collection and who is responsible</td><td>Planned data analysis</td></tr>
<tr><td>C-SSRS screening</td><td>C-SSRS, LCPC
C-SSRS risk assessment entered into Excel spreadsheet</td><td>Evaluation of C-SSRS</td></tr>
</table>

Table 1. SMART Goals Continued

<table>
<tr><td colspan="3">SMART Goal #3: Intervention by School LCPC completed and phone calls to legal guardians placed by January 24, 2023</td></tr>
<tr><td colspan="3">Description of strategies to be utilized to accomplish goal including any needed resources.
Collection of BSAD scores after SOS training
C-SSRS implemented if student screens high-risk on BSAD
LCPC initial counseling session
LCPC notifies parents of evaluation. Guides referral by presenting the parents with a list of options for providers. Will additionally discuss further counseling.</td></tr>
<tr><td>Data to be collected</td><td>Method of Collection and who is responsible</td><td>Planned data analysis</td></tr>
<tr><td>Number count of students screening at high-risk for depression, C-SSRS suicide risk</td><td>Phone Call, LCPC Record in Excel spreadsheet</td><td>Comparing proportions of high-risk for depression with suicide risk

Record in Excel spreadsheet</td></tr>
<tr><td colspan="3">SMART Goal #4: Referral made to proper mental health professionals for all students by January 30, 2023
Time set aside to make phone calls, provide education, answer questions, encourage referral
Upon intervention and evaluation from LCPC, referral to appropriate mental health professional e.g., Psychiatrist, Psychologist, Licensed Clinical Practice Counselor, Psychiatric and Mental Health Nurse Practitioner, Physician Assistant, Family Practice Physician, or Family Practice Nurse Practitioner stressing suicidality and not depression diagnosis</td></tr>
<tr><td colspan="3">Description of strategies to be utilized to accomplish goal including any needed resources.
Comprehensive list of available providers in the area
Parent cooperation with making referral appointment
LCPC may follow-up on referral if patient does not receive appointment in a timely manner (Ex: if they cannot see provider for 3–6 months)</td></tr>
<tr><td>Data to be collected</td><td>Method of Collection and who is responsible</td><td>Planned data analysis</td></tr>
</table>

Table 1. SMART Goals Continued

Number count of parents who verbally commit to establishing care Number count of parents who do not verbally commit to establishing care	Phone call, LCPC Record in Excel spreadsheet	Proportion of number of parents who verbally commit to establishing care versus number of parents who do not verbally commit to establishing care Record proportions in Excel spreadsheet
SMART Goal #5: 100% of identified students begin to receive proper behavioral health treatment by February 28, 2023 • Based on follow-up calls made by LCPC to parents		
Description of strategies to be utilized to accomplish goal including any needed resources. • Time set aside during the LCPC schedule to make phone calls		
Data to be collected	Method of Collection and who is responsible	Planned data analysis
Number count of students who received follow-up after referral Number count of students who did not receive follow-up after referral	Phone call, LCPC Record in Excel spreadsheet	Calculate proportion number of students who were referred vs how many received follow-up Calculate proportion number of students who were referred vs how many did not receive follow-up Record in Excel spreadsheet
SMART Goal #6: 100% reduction in suicide risk on C-SSRS for students who were initially screened by at least one class. Ex: High-risk to medium-risk by February 28, 2023		
Description of strategies to be utilized to accomplish goal including any needed resources. • C-SSRS complete at initial evaluation and again by February 8, or sooner if deemed necessary by LCPC • Time set aside to meet with those who received initial evaluation		
Data to be collected	Method of Collection and who is responsible	Planned data analysis

Table 1. SMART Goals Continued

C-SSRS suicide assessment risk	LCPC, C-SSRS scores Record in Excel spreadsheet	Individualized initial risk vs risk on February 28 Record in Excel spreadsheet

Conclusion

Suicide prevention and risk assessment are critical to combat increasing rates of suicide in adolescents. School is the ideal setting to initiate changes as it presents an opportunity for many adolescents in the community to gain exposure to necessary education. After the initiation of the SOS prevention program in one school in 2021, rates of attempts and completions continued to climb. The addition of the C-SSRS results in more specific data regarding actual risk and can be used to expedite referral or warrant immediate treatment, thus resulting in lowered rates of suicide attempts and completions.

Chapter Two References

Columbia Lighthouse Project. (2020). The Columbia suicide severity rating scale. https://cssrs.columbia.edu/wp-content/uploads/CSSRS_Supporting-Evidence_Book_2020-01-14.pdf

Institute for Healthcare Improvement. (2022). Science of improvement: Testing change. https://www.ihi.org/resources/Pages/HowtoImprove/ScienceofImprovementTestingChanges.aspx

Rosston, K. (2022). Suicide in Montana. Montana Department of Health and Human Services. https://dphhs.mt.gov/assets/suicideprevention/SuicideinMontana.pdf

CHAPTER THREE

QUALITY IMPROVEMENT MANUSCRIPT

Clinical Problem

In Montana, suicide, or the act of intentionally taking one's own life, is the leading cause of unnecessary death in youth and adolescents (Rosston, 2022). Any person, regardless of age, race, ethnicity, or gender, is at risk for suicide. Still, certain groups, such as youth, have higher and continually increasing rates compared to the general population, warranting a public health crisis. Nationally, among people aged 10–24 years, suicide is the second leading cause of death (Centers for Disease Control, 2021). In 2019, approximately 9% of adolescents had made at least one suicide attempt in the previous 12 months (Centers for Disease Control, 2021). In Montana, between 2011 and 2020, the youth suicide rate was 11.9 per 100,000, more than double the national rate of 4.8 per 100,000 (Rosston, 2022).

Most adolescents who attempt suicide have been previously diagnosed with depression (AACAP, 2021). According to the National Institute of Mental Health (2022), major depression disorder (MDD) is among the top commonly diagnosed psychiatric disorders, with a prevalence of approximately 4.4% (CDC, 2020). Additionally, in 2018–2019, 15.1% of adolescents overall had a major depressive episode, 18.8% seriously considered suicide, and 15.7% had made a suicide plan (CDC, 2020). Finally, statistics show that nearly 8% of adolescents with MDD have completed suicide by young adulthood (Mullen, 2018). Following an adolescent suicide completion, survivors often voice that the intention was hidden from them; however, experts indicate that, often, warning signs were not recognized or were overlooked (NDBHP, 2023).

Suicide can be prevented through early recognition of warning signs and with swift intervention by a mental health professional (NDMHP, 2023).

Background & Significance

Previous research has demonstrated effectiveness of school-based suicide prevention programs to identify students at risk of suicide, ensure appropriate intervention, and incorporate postvention strategies (Clark et al., 2021). Because youth are considered a vulnerable population, youth-targeted suicide prevention programs demand meticulous research and rigorous development. Within the school, mental health professionals play a crucial role in suicide prevention in a multitude of ways: (1) by staying up to date on best practices, (2) through extensive and thoughtful research into existing suicide prevention curriculums, and (3) by examining postvention strategies (Epselage et al., 2022). There are multiple suicide prevention programs that exist for the school-based setting. In general, most suicide prevention programs incorporate three components: gatekeeper training, student psychoeducation, and screening. Gatekeeper training is the act of teaching school staff, such as teachers, counselors, and administration, how to correctly and efficiently identify signs of suicidal ideation or behavior. Staff receive education on the benefits of direct and expedient referral to appropriately licensed mental health professionals (Singer et al., 2019). Similarly, student psychoeducation enhances students' understanding of suicidal ideation and behavior. However, psychoeducation additionally informs participants on how and when to seek help from others while stressing the importance of adaptive coping skills (Volungis, 2020). Screening is the act of encouraging students to participate in an evidence-based, targeted survey. Survey results ultimately help to

identify risk (Singer et al., 2019). Most prevention programs involve isolated approaches. For example, the program may focus on just gatekeeper training or solely psychoeducation. Signs of Suicide (SOS) is one of the few school-based programs that incorporates all three components of gatekeeper education, student psychoeducation, and screening (Singer et al., 2019).

Signs of Suicide Prevention Program

According to research found by the Suicide Prevention Resource Center (2022), Mindwise Innovations (2022), and Clark et al. (2022), the effectiveness of SOS, a school-based suicide prevention program, is demonstrated. SOS aims to ultimately reduce suicide rates among middle and high school students by reducing suicidal ideation and behaviors and enhancing student knowledge and attitudes about mental illness (Mindwise Innovations, 2022). SOS may contribute to a reduction in the stigma of mental illness, emphasizes the significance of help-seeking attitudes, and encourages positive mental health in the student population (Suicide Prevention Resource Center, 2022).

The SOS curriculum begins by infusing a video demonstration with a guided discussion performed by a mental health professional who has completed the gatekeeper training. Students are taught how to identify warning signs of suicide in themselves and their peers (Mindwise Innovations, 2022). SOS employs the Acknowledge, Care, and Tell (ACT) method, which involves acknowledging warning signs of suicide, demonstrating compassion, and engaging in help-seeking behaviors (Mindwise Innovations, 2022). Students then engage in a screening tool, the Brief Screen for Adolescent Depression (BSAD), self-evaluating their own risk for depression and warning signs of suicide. Those identifying themselves as experiencing depression or suicidal ideation receive swift and individualized follow-up with a mental health

professional (Clark et al., 2022). Through a clinical interview, a mental health professional provides support and determines appropriate intervention (Clark et al., 2022).

While the SOS program focuses on identifying depression within the student population using the BSAD tool and teaching about identifying those at risk of suicide, a focused suicide risk assessment is not incorporated to assess the severity of suicide risk. However, the addition of a suicide-severity screening tool is warranted.

Columbia-Suicide Severity Rating Scale (C-SSRS)

The Columbia-Suicide Severity Rating Scale (C-SSRS) is a simple, six-question assessment tool that supports suicide risk assessment. The C-SSRS is a tool that mental health professionals employ to screen, assess suicide risk, and trend suicide risk (MT Department of Health and Human Services, 2022). Initially, the C-SSRS was created and found to effectively target youth aged 11 or older during a study intended to reduce suicide risk (Cwik, 2020). The C-SSRS includes five yes/no items about suicidal ideation and behavior in the last month (Cwik et al., 2020). If any item is answered yes, further explanation is warranted (Appendix B). The C-SSRS identifies if individuals have suicidal thoughts, whether they have acted on those thoughts, if they have current plans to attempt suicide, and whether they have attempted in the past. Answers to the assessment tool determine whether a patient is a low-risk, moderate-risk, or high-risk of attempting suicide (Cwik et al., 2020).

Overall, the C-SSRS tool is demonstrated to correctly identify and classify those who are at risk of completing suicide, including adolescents. In conjunction with the SOS training program, this tool can help provide education on suicide as well as gather baseline data. A trend

in baseline data can identify a worsening risk of suicide or an improvement in suicide risk over time.

School-Based Referral

A search for peer-reviewed, evidence-based articles on formalized referral systems from school-based licensed clinical professional counselors (LCPCs) or psychologists to a higher level of care is minimal and dated. However, the Substance Abuse and Mental Health Administration (SAMHSA) published a document called the School Mental Health Referral Pathways (SMHRP) Toolkit. In the school-based setting, the SMHRP Toolkit serves as a comprehensive guide to help assess the current referral management approach, provide tips on how to build effective partnerships, discuss problem-solving to promote mental health in adolescents, and provide cultural and linguistic considerations (SAMHSA, 2015).

As a school-based LCPC, examining community resources and establishing relationships outside the school-based setting is essential to the referral process. For students to best match with a provider who can meet their needs, a comprehensive list of available providers and their areas of expertise should be provided to the parents and discussed at length (SAMHSA, 2015). Finally, and arguably, the most crucial step is to evaluate the effectiveness of the referral through follow-up implementation of the C-SSRS. This stage is critical for ensuring confidence in the treatment plan and assessing overall improvement in student mental health (SAMHSA, 2015).

Local Problem

In one rural Montana school, suicide prevention along with depression screening through the Signs of Suicide prevention program is implemented annually; however, no suicide risk

assessment is completed at any point during the educational or screening processes. Furthermore, it is unknown how many students identified as being at high risk for depression in the past have received higher-level follow-up through the current referral process. The aim of this quality improvement project was to incorporate the Columbia-Suicide Severity Rating Scale suicide risk assessment among students identified as "high risk for depression or otherwise displaying signs of suicidal ideation" who have completed the SOS training program, while closely tracking referral rates and follow-up.

Methods

Quality Improvement Process

The project site, a small rural school in Montana, has 144 students enrolled in middle and high school. Per anecdotal evidence, the school counselor reports there has been an increase in suicidal ideation, suicide attempts, and suicide completions over the last 5 years—averaging about one suicide completion per year. In efforts to increase awareness and promote prevention practices, the school counselor initiated an annual implementation of the SOS training program in 2020. Although students are screened annually for adolescent depression through the BSAD, the rate of suicidal ideation, attempts, and completions does not seem to be decreasing per the school counselor.

The overall goal of this project was to reduce the rates of suicide attempts and completions through education and screening, and improve referral rates to health professionals within the middle and high school population in a rural Montana school as demonstrated by decreased rates of suicide attempts and completions.

Shorter term, the intermediate outcomes assessed included reach of the suicide prevention education, scores of C-SSRS screening, student attendance at referral appointments, and follow-up C-SSRS scores. The main driver for improvement was implementation of the C-SSRS suicide risk assessment among students identified as high risk for depression, students with clinically diagnosed depression, or students who exhibited warning signs of suicide during the SOS prevention program.

Intervention & Implementation

Finalization of the design of the intervention plan occurred 2 weeks before project implementation. The intervention was performed over 6 weeks between January and February 2023 in a rural Montana middle and high school. The Plan, Do, Study, Act (PDSA) method served as the overall framework of this quality improvement project. Throughout the project, a single PDSA cycle was performed in three distinct phases, preintervention (plan phase), intervention (do phase), and postintervention (study and act phases). Detailed descriptions of each phase is displayed in detail in Table 1. Phase I, the "plan" phase, occurred during the 2 months prior to the implementation. Montana State University provided guidance on how to effectively communicate and facilitate a quality improvement project within an organization. Phase II, the "do" phase was coordinated by the DNP-S and carried out by the school counselor. During this phase, the history teacher offered a classroom space for 2 days for SOS training to be completed. The SOS training was completed over 1 day and follow-up ensued within 24 hours. To ensure inclusion of all students, the school counselor followed-up in her office within 1 to 2 days with students who were absent during initial SOS program and BSAD screening. During

Phase III, the “study” and “act” phases, the school counselor gathered and de-identified all initial data and then transferred data to the DNP-S for further dissemination.

Table 2. PDSA

Project Step	Project Activities
PLAN Phase (2 months)	
School Engagement & Approval	• School board, school administration, and school staff contacted DNP student (DNP-S) with desire to improve current suicide prevention process at school. • School counselor proposed implementation of C-SSRS alongside current use of SOS. • DNP-S performed extensive literature review on SOS training and C-SSRS. • DNP-S received approval from superintendent and school board for project implementation.
Parental Approval	• Parents received a mailed letter informing them of SOS program, BSAD screening, and follow-up C-SSRS screening when indicated. Parents were given 2 weeks to review the screening tools and opt their child out of the program if desired.
DO Phase (6 weeks)	
Preparation	• School counselor prepared for implementation by re-subscribing to SOS program for middle and high school students, printing and organizing BSAD forms, allotting time in schedule to implement the C-SSRS, discuss results with students and their parents, and refer to mental health professionals.
SOS Prevention Program	• School counselor implemented the SOS program and screened for adolescent depression with the BSAD over 1 day in eight 50-minute sessions with each grade of students in grades 6–12. • School counselor collected all BSAD screening forms and reviewed results at the end of the school day. • School counselor performed SOS training and screening in her office for any students who were absent during the initial training.

Table 2. PDSA Continued

Initial C-SSRS	• School counselor met with students who screened high likelihood for depression, and those who have a known clinical diagnosis of depression, on an individualized basis in the immediate 3 days following the SOS program. • School counselor performed initial C-SSRS by reading each question to the students and not allowing student visualization of the form in efforts to promote honesty and dissuade response bias that may occur due to coloring of C-SSRS (see Appendix B). • School counselor informed students of results, immediately contacted parents with results and referral recommendations per the C-SSRS (see Appendix B).
Referral	• School counselor discussed local options for mental health providers with parents at length, providing them with an extensive list of options. • School counselor performed follow-up call to parents 1 week after making suggestion for referral to answer any further questions/ensure appointments have been scheduled/attended.
Follow-Up C-SSRS	• School counselor performed a second, follow-up C-SSRS by reading off all C-SSRS questions and marking answers, ensuring no student visualization of the actual screening tool, in all students who were initially screened 4 weeks post initial screening and post completed referral. • Students, parents, and each student's mental health professionals informed of result.
STUDY Phase (2 weeks)	
Data Collection	• All data were collected and de-identified by the school counselor. • DNP-S provided table (see Table 2.0, results) via Excel to school counselor to enter data regarding the following: grade level. • School counselor returned data to DNP-S for further evaluation approximately 5 weeks post SOS program implementation.

Table 2. PDSA Continued

Data Evaluation	DNP-S organized data by grade and calculated: 1. Total students who participated 2. Total number of students by gender 3. Percent of students who screened positive on the BSAD 4. Number of referrals 5. **Percent of referrals completed** 6. Trends in suicide risk calculated by comparing initial and follow-up number of students in each C-SSRS category (low, moderate, high)
ACT Phase	
Future Practice	• School counselor opted to repeat project by implementing annual PDSA cycles over the next 2 years to obtain additional data before considering permanent adoption of change into practice.

Ethical Considerations

Due to the vulnerability of the subjects and research topic, the project underwent full committee review by the Montana State University Institutional Review Board and received approval. Approval was also solicited from the school board, administration, and staff. Passive parental consent was obtained consistent with school district procedures and student participation was voluntary and considered to be of minimal risk. Data collected was de-identified, and a summative report was presented.

Results

The project's primary outcome was reduced suicide risk in students who screened at high risk for depression and subsequently screened at risk for suicide. If a student had a positive BSAD, meaning they scored at high risk for depression, they were additionally screened with the C-SSRS and referred to a mental health professional. After a referral was completed, meaning

the student attended their appointment with a mental health professional, a follow-up C-SSRS was conducted. Initial versus follow-up C-SSRS scores were compared to evaluate trends in suicide risk assessment reduction.

A total of 20 out of 144 middle and high school students met the criteria for high risk for depression through the BSAD screening. Of those 20, 12 completed the C-SSRS; of those 12, three students received a referral and swift follow-up with a mental health provider. Of the three students, two were identified as high-risk for suicide and one as moderate-risk on their initial C-SSRS. The two high-risk students had current clinical diagnoses of depression and upcoming scheduled appointments with mental health providers. One high-risk student was able to see a local mental health provider within hours of the initial C-SSRS, and the second high-risk student had an appointment within 3 days. The third student with moderate risk was able to establish with a mental health provider within 1 week. Following the completed referral, the C-SSRS scores decreased to two students at moderate risk and one at low risk (see Table 2.0). All three students who were referred to a mental health professional were evaluated, making the referral completion rate 100%.

Of the 20 identified as high-risk for depression, 11 had a current clinical diagnosis of depression and were actively receiving care from a mental health professional. These 11 students all scored low-risk for suicide on the initial C-SSRS and, for this reason, did not receive a new referral, and a post-referral C-SSRS was not completed. The other nine students who initially screened high-risk for depression reported that they did not have current signs or symptoms of depression and were either recalling past events (greater than 1 year ago) or misinterpreting the

questions. For these reasons, they did not receive a referral or a post-referral C-SSRS at the school counselor's discretion.

Percent of positive BSAD scores, initial C-SSRS scores, referrals made, percent of referrals completed, and follow-up C-SSRS scores were broken down by grade (see Table 2.0). Overall, out of 144 total students, 73 male and 71 female, rates of positive BSAD scores indicating a high likelihood of depression ranged from 0.0–30.77% and averaged approximately 11.15% across all seven grades. The prevalence of students with existing clinical diagnoses of depression was 8.3%, compared to the national average of 4.4% (CDC, 2020).

Anecdotal Data

Several students reported to the school counselor that they were worried about a friend following the SOS program. Interestingly, the identified students of concern were the three students who received a referral and follow-up C-SSRS, indicating that, following the SOS program, students could effectively identify warning signs of suicide in their peers. Additionally, the school counselor reported that, without implementing the C-SSRS, she does not feel confident she would have correctly identified the suicide risk in the three students. Because of this, the school counselor reports that she intends to repeat the PDSA cycle over the next 2 years and will likely adopt the change into permanent practice.

Table 3. Results

Grade Level	# Male Students	Positive BSAD Score	Initial C-SSRS Score	Referrals Made	Referrals Completed	Follow-Up C-SSRS
6 **n=26**	12	30.77%	Low: 0 Moderate: 1 High: 2	3	100%	Low: 1 Moderate: 2 High: 0
7 **n= 21**	14	4.76%	Low: 0 Moderate: 0 High: 0	0	N/A	Low: 0 Moderate: 0 High: 0
8 **n=31**	18	12.90%	Low: 1 Moderate: 0 High: 0	0	N/A	Low: 0 Moderate: 0 High: 0
9 **n=24**	11	16.67%	Low: 4 Moderate: 0 High: 0	0	N/A	Low: 0 Moderate: 0 High: 0
10 **n=26**	12	3.85%	Low: 1 Moderate: 0 High: 0	0	N/A	Low: 0 Moderate: 0 High: 0
11 **n=22**	8	9.10%	Low: 2 Moderate: 0 High: 0	0	N/A	Low: 0 Moderate: 0 High: 0

Table 3. Results Continued

12 **n=20**	10	0%	Low: 0 Moderate: 0 High: 0	0	N/A	Low: 0 Moderate: 0 High: 0
TOTAL **144**	73	Average: 11.15%	Low: 8 Moderate: 1 High: 2	3	N/A	Low: 1 Moderate: 2 High: 0

Discussion

In Montana, a state where the adolescent suicide rate is more than double that of the national rate, there is a dire need for improvement in current suicide prevention efforts (Rosston, 2022). In the rural Montana school in this project, the evidence-based SOS program was implemented on an annual basis; however, no focused suicide risk assessment was completed (Clark et al., 2022; Mindwise Innovations, 2022; Suicide Prevention Resource Center, 2022). The addition of the C-SSRS, a validated tool to evaluate and trend suicide risk, (MT Department of Health and Human Services, 2022), successfully identified suicide risk and created an informed referral to mental health professionals in this setting. The information gathered through the C-SSRS spurred information sharing, fostered discussion, and provided an opportunity to discuss suicide risks that may not have otherwise occurred. For example, the school counselor reported that the three students determined to be at risk of impending suicide might have been otherwise overlooked, and their parents said they were previously unaware of the seriousness of the situation regarding their child. Following a completed referral, there was an observed risk reduction, demonstrating the efficacy of the intervention by a mental health professional in the outpatient setting.

Challenges and Limitations

Stigma centered around mental health issues proved to be a barrier in this project. Montana culture is centered around ruggedness and mental toughness, and students may often view mental health issues as “weaknesses.” This thought was substantiated by comments or gestures made by a few students during and after the SOS training program. Additionally, as the

SOS has been performed over the past 3 years, students are aware that a positive BSAD score will result in a visit with the school counselor and a call to their parents. For some, this may result in increased feelings of shame or embarrassment, leading to dishonesty during the screening process. Montana culture is undoubtedly a significant contributor to the more than doubled rate of completed suicide rates as compared to the national rate (Rosston, 2022). Continual education through SOS may improve student knowledge and attitudes about mental illness and, in turn, reduce stigma and enhance help-seeking attitudes (Mindwise Innovations, 2022; Suicide Prevention Resource Center, 2022).

Unforeseen limitations arose related to misinterpretation of the BSAD form during the SOS program. Upon positive BSAD follow-up, results indicate that 40% of students misunderstood the questions. Misinterpretation was primarily seen in younger students, indicating the need for more clarity and time allotted to complete the screening. In the future, the school counselor may consider reading questions out loud and taking additional time to explain and address questions.

Strengths

Facilitators for this project included an extensive support system within the school and the larger community, as evidenced by a 100% participation rate in this study. The school counselor served as a hugely positive advocate for practice change. Parents of students identified as at risk for suicide proved to be cooperative and supportive of the need for immediate mental health evaluation. Parental support was further confirmed through voiced gratitude towards the school counselor for her identification of suicide risk in their adolescent. Unfortunately, the most

significant facilitator is the anecdotally reported upward trend in suicide attempts and completions within the school system serving as motivation for change.

Recommendations for Future Practice

Early identification of students who are at high risk for depression and, consequently, suicide is necessary in any setting; but in rural MT, where the rates are more than double that of the national population, it is absolutely critical. Considering the lack of information regarding suicide prevention practices in rural settings, it is essential to encourage further PDSA cycles to ensure accuracy and improved identification of students who are at high risk for suicide. As the screenings pertain primarily to the past 2 weeks, perhaps incorporating an additional SOS refresher, BSAD, and C-SSRS if necessary, midway through the year would improve the identification process. Additionally, to reduce stigma and promote facilitation of discussion regarding mental health, the school counselor could hold either an in-person or virtual information session for parents in the weeks leading up to the SOS training. Furthermore, the school counselor could provide information on adolescent depression and suicide during parent-teacher conferences in the fall. Future research should be focused on creating a sustainable and standardized process of school-based suicide prevention practices and reduction of mental health stigma in rural settings, with long term goals of drastically reducing the overall adolescent suicide rate.

Conclusion

This quality improvement project aimed to implement the C-SSRS tool alongside the SOS training program for middle and high school students in a rural Montana school while

tracking referral rates to other mental health professionals. Despite a culture conducive to stigmatizing mental health, 100% of middle and high school students underwent the SOS program and the BSAD. During this project, the school counselor identified 20 students at high risk for depression and three at risk for suicide. A quick referral to mental health professionals was achieved at a rate of 100%. Ultimately, a reduction in suicide risk was evident in the follow-up C-SSRS, indicating a successful intervention. The long-term goal for this practice change is to improve the identification of adolescent depression and suicide risk and increase the number of referrals to mental health professionals, which, hopefully, will reduce the overall adolescent suicide rate.

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CHAPTER FOUR

DOCTOR OF NURSING PRACTICE ESSENTIALS

Introduction

In 2006, The American Academy of Colleges of Nursing (AACN) produced a detailed list of eight core essentials serving as the foundation for all Doctor of Nursing Practice (DNP) programs regardless of specialty (AACN, 2006). Montana State University (MSU) carefully crafted its curriculum to adhere to these essentials closely. In this final chapter of my quality improvement project, I will discuss how each essential was incorporated into coursework and the quality improvement (QI) project and state how each essential will enhance or relate to my future practice.

Essential I: Scientific Underpinnings for Practice

Essential I discusses scientific underpinnings for practice. Science-based theories transform nursing leadership, healthcare informatics, ethics law and policy, pharmacology, quality improvement, design of healthcare systems, and clinical practice overall. The DNP program at MSU truly encompasses the core traits of nursing science through careful course selection. Early in the program, in Evidenced-Based Practice (EBP) I and II, students are taught how to identify and perform quality research over two semesters. EBP serves as a solid foundation for the entirety of the program and the QI project. I practiced my skills in various assignments throughout each semester and finally during the quality improvement project. Due to a previously established foundation, I could identify a community need, effectively search for

quality research related to that need, and propose a potential solution. This solution was carried out, data was analyzed, and outcomes discussed in my quality improvement project. As a DNP, I will strive to continue to use science to inform and guide my personal practice and remain current on ever-changing medical research to ensure my patients receive top-notch care and improved health outcomes.

Essential II: Organizational and System Leadership for Quality Improvement and Systems Thinking

Essential II highlights organizational and system leadership for quality improvement and systems thinking. In the DNP curriculum, specialty courses concentrate on the design of healthcare systems and program planning, evaluation, outcomes, and quality improvement. In the design of healthcare systems, students had to identify organizational processes and ways to improve them. I created a value stream map to decrease door-to-electrocardiogram time in patients presenting with chest pain in a rural Emergency Department. This system has proved beneficial and is still in place today. In my DNP project, I recognized and evaluated existing systems policies, implemented changes, and considered outcomes. In practice, I will continue to assess policies and procedures and use my expertise and research abilities to improve the overall quality of care.

Essential III: Clinical Scholarship and Analytic Methods for Evidence-Based Practice

Essential III discusses clinical scholarship and analytic methods for evidence-based practice. These two concepts go hand-in-hand. In the statistical analysis and EBP courses, DNP

students learned how to analyze research correctly to evaluate overall research quality. In statistical analysis, sample data were created and thoroughly assessed. Students practiced taking different measurements each week and discussed the outcome in a discussion post. In EBP, I discovered how to successfully search a library database for research on a particular topic. This skill carried over into my QI project as I researched for high-quality, recent evidence that pertained to suicide prevention in the school setting. In future practice, I will be able to identify journals and databases with information regarding the vast array of clinical practice questions I will undoubtedly have.

Essential IV: Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care

Essential IV focuses on information systems and technology for the improvement and transformation of healthcare. In healthcare informatics, graduate students learn to value the tremendous amount of artificial intelligence and technology used in healthcare to enhance patient outcomes. As technology advances, DNP students must be able to adapt and be willing to overcome challenges related to process improvement. In my QI project, I utilized my computer, the internet, Excel, and a calculator to evaluate results—the project would not have been possible without technology.

As a nurse practitioner, utilizing technology will be part of my daily practice. To start, I will access and appropriately use the electronic medical record. I will review interpretations of medical tests and images and compare them with my interpretations. I may even create ways to enhance the use of artificial intelligence or aid in developing algorithms. Most importantly, I will

remain open-minded regarding artificial intelligence as it is a part of our current healthcare system and will only evolve into taking on a more significant role as time goes on.

Essential V: Health Care Policy and Advocacy in Health Care

Health care policy and advocacy is the heart of Essential V. Policy and advocacy are foundational for the nursing profession as a whole. In the ethics, law, and policy course, students had to draft a letter advocating for a worthy cause. Throughout this challenging assignment, I learned I am uncomfortable putting myself first. Through my passion for aiding others and the dwindling spirit of my coworkers in mind and through passionate mind, this letter was birthed. I performed a thorough analysis of current policies at Northern Montana Hospital. All policies that apply to the following clinical staff were included in the review: physicians, nursing, respiratory therapy, laboratory, environmental services, and buildings and grounds. The policies regarding COVID-19, or lack thereof, were compared with policies from similar institutions at the local, state, and federal levels. Next, the letter was submitted to the hospital CEO and the local chapter of the Montana Nurses' Association (MNA), of which I am an active member. Finally, the local MNA presented the letter at a meeting where hospital board members and administration were in attendance, and as a result, negotiations ensued. Nursing staff working in the Medical, Surgical, Critical Care, and Emergency departments were granted hazard pay. Additionally, employees within Respiratory Therapy received hazard pay as well. As a result, a new policy containing specific guidelines on hazard pay was formed.

Similarly, within my QI project, I acted as an advocate to promote access to mental health education and suicide prevention in adolescents in a rural school setting. After the need

was identified, I proposed the project to the school superintendent, advocating for the dire need to expand access to mental health resources. With advocacy and policy adoption, change is possible. Identifying an issue, applying knowledge, formulating a plan, and advocating for the implementation of the project can make a significant impact within an organization. As a Doctor of Nursing Practice, I will continue to advocate for issues affecting vulnerable populations.

Essential VI: Interprofessional Collaboration for Improving Patient and Population Health Outcomes

Essential VI, Interprofessional Collaboration for Improving Patient and Population Health Outcomes, highlights the team aspect required in healthcare. Collaborative teamwork always provides an opportunity for learning and growth. In healthcare informatics, a team of two DNP students and two dietetic students coordinated to capture data relating to quality measures in an electronic health record. The team provided suggestions on improving the current health record and proposed advice on which tactics could be implemented to strengthen future documentation. However, the true importance of this assignment was related to the environment in which it was created. Collaborating, communicating, and developing leadership skills within an interprofessional team are crucial aspects of healthcare.

In my QI project, I worked alongside a licensed certified professional counselor (LCPC) to create a project. The LCPC gathered and de-identified all data according to the methods we had established prior to the start of the project. Without the LCPC's help, this project would absolutely not have been possible. This project and the assignment discussed above sharpened my confidence by allowing me to practice the vital ability to lead an interdisciplinary team. This aspect will significantly impact my role as a DNP in the future.

Essential VII: Clinical Prevention and Population Health for Improving the Nation's Health

Clinical prevention and population health could not have been a more relevant topic throughout 2020–2023. Each semester, DNP students were required to complete a module on the impacts of COVID-19. The module provided insight into the pandemic, the basics of SARS-Cov-2, understanding contagion, public health measures, and viral mutation. Additionally, the module addressed disparities in health care for American Indians/Alaska Natives. Section two discussed non-vaccine and vaccine infection control. In section three, we evaluated the impacts on an overwhelmed healthcare system, moral distress and residue, and building resilience as a career skill.

Similarly, my project addressed adolescent suicide, a continually rising issue in Montana and throughout the United States. Focusing on suicide prevention may help fill gaps in practice and hopefully reduce the overall suicide rate. Overall, prevention is critical to improving the nation's health. As a DNP, I will proudly emphasize the importance of health promotion, and prevention will serve as a first-line strategy in promoting the nation's health.

Essential VIII: Advanced Nursing Practice

Essential VIII, Advanced Nursing Practice, was met through didactic coursework and clinical hours. The didactic coursework laid the foundation for the development of clinical practice skills. I refined my skills throughout clinical hours. I worked with a preceptor to form therapeutic relationships with patients, evaluate their history, perform assessments, diagnose, and make evidence-based recommendations to patients to improve their overall health. Furthermore,

in my QI project, I could take the skills I learned, apply them to a clinical issue, and use that research to inform and shape future practice. As I step out into this world as a new DNP, these skills will prove undoubtedly beneficial as I take care of patients and perform research to contribute to the nursing profession.

Conclusion

Throughout the 3 years in the DNP program at MSU, I am confident that I have met all eight objectives listed by the AANC. The curriculum is designed perfectly to meet objectives and produce exceptionally competent nurse practitioners who will contribute to and help mold the future of the nursing profession. I am proud to be a soon-to-be MSU graduate and a DNP, and I will strive to adhere to the eight essentials throughout my career.

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APPENDICES

APPENDIX A

BRIEF SCREEN FOR ADOLESCENT DEPRESSION

SOS Signs of Suicide® Prevention Program

Student Screening Form

- Age: _____
- Gender: ☐Female ☐Male
- Grade in School:
  ☐6 ☐7 ☐8 ☐9 ☐10
  ☐ 11 ☐12 ☐GED Program
  ☐ Other: _____
- Ethnicity: ☐Hispanic/Latino ☐Not Hispanic/Latino
- Race: *(Check all that apply)*
  ☐ American Indian/Alaska Native ☐Asian
  ☐ Native Hawaiian/Other Pacific Islander ☐White
  ☐ Black/African American ☐Other/Multiracial
- Are you currently being treated for depression? ☐Yes ☐No

Brief Screen for Adolescent Depression (BSAD)*

These questions are about feelings that people sometimes have and things that may have happened to you. **Most** of these questions are about the ***LAST FOUR WEEKS***.

Read each question carefully and answer it by circling the correct response.

1. In the last four weeks, has there been a time when nothing was fun for you and you just weren't interested in anything?	**Yes**	**No**
2. Do you have less energy than you usually do?	**Yes**	**No**
3. Do you feel you can't do anything well or that you are not as good-looking or as smart as most other people?	**Yes**	**No**
4. Do you think seriously about killing yourself?	**Yes**	**No**
5. Have you tried to kill yourself ***in the last year?***	**Yes**	**No**
6. Does doing even little things make you feel really tired?	**Yes**	**No**
7. In the last four weeks has it seemed like you couldn't think as clearly or as fast as usual?	**Yes**	**No**

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Identifying Trusted Adults

List a trusted adult you could turn to if you need help for yourself or a friend (example: "My English teacher," "counselor," my mother," "uncle," etc.)

In School: _____

Out of School: _____

SOS Signs of Suicide
Scoring Instructions and Interpretation for Parents

The Brief Screen for Adolescent Depression (BSAD) is a depression screening tool for teens and adolescents. In the Parent Version, you are asked to answer questions about your child. The BSAD **does not** diagnose a teen or adolescent as depressed, but it does give an indication of whether they should be referred to a healthcare professional (medical doctor, psychiatrist, psychologist, nurse, counselor or social worker) for further evaluation.

The score on the BSAD is achieved by adding up the number of "Yes" answers to the 9 questions on the scale.The following guidelines are ***estimates*** of the likelihood that your child may be depressed:

SCORE	MEANING
0-2	Scores of 2 or lower (two or fewer "Yes" answers) indicate that it is unlikely that a teen is depressed.
3	Scores of 3 (three "Yes" answers) indicate that a teen may be depressed, and your child might benefit from further screening by a mental health professional.
4-9	Scores of 4 or higher (four or more "Yes" answers) indicate that it is likely that a teen is depressed. Your child probably has some significant symptoms of depression and would benefit from talking to a mental health professional about these feelings.

Questions 4 and 5	These two questions are about suicidal thoughts and suicide attempts. If you answered "Yes" to *either* of these questions, it is ***strongly recommended*** that your teen see a mental health professional for further evaluation, ***regardless of their score***.

If you are worried about yourself or someone else,
call the National Suicide Prevention Lifeline, at 1-800-273-TALK (8255).

APPENDIX B

COLUMBIA-SUICIDE SEVERITY RATE SCALE (C-SSRS)

Columbia-Suicide Severity Rating Scale (C-SSRS)

*Screen with Triage Points for **Primary Care***

Ask questions that are in bold and underlined. **Past month**

Ask Questions 1 and 2	**YES**	**NO**
1) Have you wished you were dead or wished you could go to sleep and not wake up?	☐	☐
2) Have you had any actual thoughts of killing yourself?	☐	☐
If YES to 2, ask questions 3, 4, 5, and 6. If NO to 2, go directly to question 6.		
3) Have you been thinking about how you might do this? e.g. "I thought about taking an overdose but I never made a specific plan as to when where or how I would actually do it….and I would never go through with it."	☐	☐
4) Have you had these thoughts and had some intention of acting on them? as opposed to "I have the thoughts but I definitely will not do anything about them."	☐	☐
5) Have you started to work out or worked out the details of how to kill yourself? Do you intend to carry out this plan?	☐	☐
6) Have you ever done anything, started to do anything, or prepared to do anything to end your life? Examples: Collected pills, obtained a gun, gave away valuables, wrote a will or suicide note, took out pills but didn't swallow any, held a gun but changed your mind or it was grabbed from your hand, went to the roof but didn't jump; or actually took pills, tried to shoot yourself, cut yourself, tried to hang yourself, etc.	**Lifetime** ☐	☐
	Past 3 Months	
If YES, ask: Was this within the past 3 months?	☐	☐

Response Protocol to C-SSRS Screening (use protocol in accordance with clinical judgment)

Risk Level	Suggested Interventions
High Risk Suicidal ideation with intent or intent with plan in past month (C-SSRS Suicidal Ideation #4 or #5) ***or*** Suicidal behavior within past three months (C-SSRS Suicidal Behavior)	Call 911 for transport to the emergency room or contact community crisis line in your area to provide on-site evaluation. Place individual in a room that is away from exits but close to staff where patient is observed at all times until help arrives.
Medium Risk Suicidal ideation WITHOUT plan, intent or behavior in past month (C-SSRS screen #2 or #3) ***or*** Suicidal behavior more than three months ago (C-SSRS Suicidal Behavior)	If patient is already receiving mental health treatment, get release of information. If not, refer to mental health provider for further assessment (within one week). Consider pharmacological treatment. Provide education on safe fire arms storage, suicide warning signs and 1-800-273-TALK (8255) and local contacts.
Low Risk Wish to die (C-SSRS Suicidal Ideation #1) without plan, intent or behavior ***or*** Suicidal ideation more than one month ago WITHOUT plan, intent or behavior (C-SSRS screen #2 or #3)	Assess for any other mental health or substance use conditions and consider behavioral health and/or pharmacological treatment. Provide education on safe fire arms storage, suicide warning signs and 1-800-273-TALK (8255) and local contacts.

Ensure that you have a clear and simple office protocol in place for patients who are suicidal. Explore the following resource for guidance http://www.sprc.org/sites/default/files/Section 1 Getting Started.pdf

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