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Evidence-based Suicide Assessment and Prevention Training for Licensed Nursing Staff

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DNP Project:

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Section I: Abstract

Problem: Suicide is a major public health concern that kills over 45,000 people in the U.S every year. At a psychiatric hospital in Northern California, several suicide attempts occur every year.

Context: The aim of this DNP project was to train licensed nursing staff at a large safety net psychiatric hospital in Northern California on interventions and best practices in suicide prevention to improve suicide screening, assessment, and detection for an at-risk population.

Intervention: Interventions consisted of training on the appropriate use of (a) the organization's Evidence-based Suicide Screening and Prevention Protocol and (b) an evidence-based suicide screening tool, the Columbia-Suicide Severity Rating Scale (C-SSRS), used to conduct suicide assessment levels, and risk detection.

Measures: An author-developed instrument was used for assessment of nurses' knowledge, skills, and comfort level before and after training on the organization's Evidence-based Suicide Screening and Prevention Protocol and use of the C-SSRS. Patients' charts were audited after the training to check for accurate completion of the C-SSRS tool.

Results: Ninety-six percent of licensed nursing staff were trained on the use of the organization's suicide screening and prevention protocol and the C-SSRS. Knowledge, comfort level, and skills for screening, assessing, intervening, and planning care for patients at–risk for suicide improved post-training.

Conclusions: Training of Licensed Nursing Staff on how to follow the organization's Evidence-Based Suicide Screening and Prevention Protocol and use the C-SSRS was successful. Licensed nursing staff are prepared to provide successful suicide screening, assessment, detection and prevention, thus achieving better patient outcomes.

Keywords: *Suicide prevention, interventions,* and *suicide in adults.*

Section II: Introduction

Suicide is a major public health problem in the United States and affects people of all age groups and all socioeconomic levels. The rate of death by suicide is rapidly rising in the United States, with adults between 45 and 54 years of age recording the highest rate (19.72%) and those aged 85 or older recording the second-highest rate (18.98%) (American Foundation for Suicide Prevention, 2018).

Suicide is the 10th leading cause of death in the United States (CDC, 2016). Suicide was responsible for about 45,000 deaths in the U.S. in 2016, which translates into one suicide every 12 minutes (CDC, 2016). In California, there were 4312 deaths from suicide, and the suicide rate was 10.5 per 100,000 people in California (CDC, 2017).

The National Institute of Mental Health (2017) notes that for the last 15 years, suicide rates have increased by 24% in populations suffering from mental illness. Suicide attempts are common among individuals suffering from mental illnesses such as depression and bipolar disorder (Subica et al., 2016). The importance of evidence-based assessments and interventions for these at-risk individuals cannot be overstated. Owens, Fingar, Heslin, Mutter, and Booth (2017) reported that emergency department (E.D.) visits due to suicidal ideation doubled in the U.S. between 2006 and 2013. Despite the significant increase in ED visits related to suicidal ideation, there is still no systematic way to approach suicide prevention in the U.S.

Nurses are at the forefront when it comes to suicide prevention, given the significant amount of contact they have with patients (American Psychiatric Nursing Association (APNA, 2018). In their practice, licensed nursing staff have many opportunities to identify and intervene with those at risk of suicide. Lack of adequate training on how to thoroughly assess suicidal patients is a contributing factor to those at-risk of suicide being missed (APNA, 2018). Also, the

lack of standardization of the suicide risk assessment processes and management can contribute to challenges in managing this patient population. Therefore, there is a pressing need for facilities to engage frontline licensed nursing staff in education about suicide prevention.

The Joint Commission (TJC) defines suicide as a "never event" that is preventable (Williams at el., 2018). According to the TJC 2016, individuals whose death is by suicide, usually have within the year visited and seen a healthcare provider before their death. During the visit, providers can miss detecting suicidal thoughts or ideations of individuals who end up dying of suicide. Per TJC, 2016, most of these individuals who receive health care services within the last year and die by suicide, the reason for their care is not related to mental health or suicide. This highlights the importance of suicide screening, effective recognition of those at-risk, and prompt treatment.

The main aim of this Doctor of Nursing Practice (DNP) project was to improve suicide prevention at a psychiatric hospital in Northern California by providing education and training to licensed nurses about: (a) the organization's Evidence-based Suicide Screening and Prevention Protocol and (b) Columbia-Suicide Severity Rating Scale (C-SSRS). This was to improve the licensed nursing staff knowledge and proficiency on how to be skillful in following the organization's suicide screening and prevention protocol and using a universal suicide screening tool to assess, detect, and prevent suicide in at-risk populations. The goal was to reduce suicide attempts within the organization and achieve the zero-suicide goal.

Problem Description

A safety net psychiatric hospital in Northern California both tracks and reports annual suicide attempts and deaths by suicide. This facility consists of one Psychiatric Emergency Service Department (PES) and three inpatient acute psychiatric units. The PES currently sees

approximately 36 patients a day totaling to about 1,100 patients/month. The inpatient units have a total of 69 beds, with each unit capacity being 23 patients. Several suicide attempts occur every year both in the PES and on the in-patient units. On average, we have approximately three suicide attempts a year in our organization. One of the leadership priorities is patient safety, with the goal of achieving zero suicide attempts in the facility. As a result, data on suicide is collected to inform process improvement, advance nursing practices, and meet regulatory requirements.

Various risk factors related to mental illness such as social, physiological, and environmental risks may trigger suicidal feelings. Other common risk factors for suicide include substance abuse disorder, divorce, loss of a job, diagnosis of chronic illness, and death of a spouse or child (Heisel, Neufeil, & Flett, 2016). Those who die of suicide have often contemplated doing so over time. The person loses hope, thinking they are better off dead (Tait & Michail, 2014).

Every year, over 1,000,000 adults are reported to have made a suicide attempt. This is despite many of them having seen a healthcare provider during the year before their death (CDC, 2014). This means that our healthcare system failed to identify and treat these individuals in a timely manner, an intervention that could have prolonged their lives (Joint Commission, 2018). This fact is unacceptable, and it highlights the importance of screening that provides effective detection of those at-risk for suicide and prompt treatment. The licensed nursing staff should consider each patient's risk factors during screening and assessment. This is because early identification of individuals at risk and providing them with evidence-based clinical interventions can decrease morbidity and mortality by suicide. It is important that licensed nursing staff also assess stressors and feelings of hopelessness during suicide screenings. According to the CDC (2018), suicide is preventable.

Some license nursing staff shared that they are often focused on seeing, treating, and discharging patients quickly. Lack of time to thoroughly assess suicidal patients was a real threat to safe patient outcomes. A compromise solution included getting social workers involved to help licensed nursing staff identify patient-specific psychosocial needs and connect patients with appropriate and necessary resources as part of discharge planning. This helped to decrease patient stressors and removed the role of discharge planning from license staff, leaving them with more time to focus on thoroughly assessing suicidal patients.

The absence of standardized processes and lack of education and training on how to use the validated tool C-SSRS were perceived challenges. Hence, major process improvements needed to be made in the way help was being offered to patients who were vulnerable. Providing education and training to licensed nursing staff was necessary to improve staff knowledge and skills in using the validated suicide screening tool, the C-SSRS. Early identification of at-risk individuals and improved clinical management can reduce morbidity and mortality by suicide (Tait & Michail, 2014).

The goal was to improve the current level of care by adapting universal suicide screening to help in preventing suicide by not just focusing on the individual at-risk but also implementing safer suicide care by having an evidence-based change in practice at the hospital. According to the American Psychiatric Nursing Association (2018), the nurse's first role is to assess the patient's environment and ensure that it is always safe. The second role is while providing care directly to the patient; the nurse is expected to assess for suicide, provide specific interventions to at-risk patients, observe the patients, and evaluate the effectiveness of the interventions put in place. Evidence-based interventions and best practices for suicide prevention needed to be

implemented in the organization in order to achieve the national safety goal of suicide prevention as required by The Joint Commission (2016).

Available Knowledge

The PICOT question used for this project was: For adult psychiatric patients at-risk for suicide, how does universal suicide screening during every PES visit and inpatient psychiatric hospitalization compared to no standardized screening affect suicide assessment, detection, and prevention within a period of nine months?

Search Methodology. To find evidence to answer the PICOT question, the PubMed, DynaMed, Cochrane Database of Systematic Reviews, and CINAHL databases were searched using the following key words: *suicide risk factors, suicide awareness, suicide, suicide preventions and intervention, mental health illness in adults, suicide awareness*. The literature was reviewed for evidence-based interventions and best practices for suicide prevention.

Search outcome. The review generated over 6000 articles, which were narrowed to only peer-reviewed, English publications from the last ten years focusing on adults 18 and older. This narrowed the number of articles to 234. Abstracts of articles were reviewed, and those that did not mention *universal suicide screening* were excluded. Out of the 234 articles, eight were selected and analyzed based on their relevance to answering the PICOT question. All were critically appraised with the *Johns Hopkins Research Evidence Appraisal Tool and Non-Research Evidence Appraisal Tool (Dang & Dearholt, 2018).* The results of those appraisals are discussed below and displayed in the evaluation table (See Appendix A).

Incidence of suicides in hospitals. Williams et al. (2018) conducted a cross-sectional secondary analysis of data from 27 states that reported to the National Violent Death Reporting System (NVDRS) between the years 2014 to 2015 and the Joint Commission's Sentinel Event

(SE) database using data from 2010 to 2017. The inpatient national suicide rates were estimated using data from NVDRS reported in 2014 and 2015 as these two years had the largest reporting by the states. The study used the information provided by the occurrence reporter, including the method of suicide. A qualitative review with analysis was conducted of suicide events that occurred in these hospitals during inpatient hospitalization. This information was then used to identify and code suicide incidences.

From the hospitals reporting to the NVDRS, there were 139 incidents reported (Williams et al. 2018). Sixteen inpatient suicides occurred in 2014 and 30 in 2015. Eleven of the 16 inpatient suicides in 2014 and 23 of 30 in 2015 occurred in a psychiatric hospital. Thus 68.8% in 2014 and 76.7% in 2016 of the inpatient suicides occurred in a psychiatric hospital. When this data was analyzed, the percentage of suicides occurring on hospital inpatient units in the U.S. was approximately 48.5% to 64.9%, and 31.0% to 51.7% of these suicides occurred in a psychiatric hospital. The method of suicide most prevalent in the inpatient unit was hanging at a rate of 71.7% from NVDRS and 70.3% from SE databases.

According to the SE database, from 2010 to 2016, there were 505 suicide incidents reported by hospitals. The breakdown was 174 (34.5 %), of the 505 suicides reported during a six-year period, which happened during treatment on inpatient units. Of these 174 inpatient hospital suicides, 124 (71%) inpatient suicides happened in a psychiatric hospital. The yearly reported average of suicides on the hospital inpatient units was determined to be 24.9 and 17.9 on the psychiatric inpatient units. The most preferred method of committing suicide reported was hanging. The authors recommend regular suicide screening and assessment of those at-risk and staff training to improve efforts to reduce the incidence of inpatient suicides. Suicide prevention efforts should be aimed at making sure the environment where those at-risk of suicide is ligature

proof and has no ligature to mitigate hanging. Close monitoring of suicidal patients, improving discharge planning and disposition of those at-risk of suicide, and adapting strategies that mitigate risk is also required (Williams et al., 2018).

Staff training on suicide prevention. Health care providers need to focus on suicide prevention to reduce the risk of a mental health problem, becoming a crisis. For suicide prevention to be effective, it is vital to improve the staff's skills and competency by providing the necessary education and training. Trained frontline staff are better equipped to provide safe patient care, assess, detect, and intervene with those at risk of suicide.

Clark, Matthieu, Ross, and Knox (2010) examined the impact of a three-hour training for staff on the use of effective suicide prevention strategies. The training addressed how personal values and characteristics can impact or impede how staff responds to those at-risk for suicide and how best to overcome them by using non-judgmental behavior.

The results demonstrated that after training, there was improved staff awareness and understanding of suicide, knowledge of how to deter suicide, and how to best intervene when dealing with a suicidal person. Staff scores increased and indicated there was improved knowledge about suicide, the ability to intervene, and suicide prevention. There was a 78.5% increase in staff's ability to assess suicide risk, a 78% increase in their comfort to talk about suicide, and more than 90% of the participants stated that the training was important and that they would recommend it to someone else (Clark et al., 2010).

The training also improved staff sensitivity when dealing with those at risk of suicide. Staff must have a therapeutic presence that forms a good base for the nurse-patient relationship while doing screening so that patients can open up during the screening. This activity may improve how quickly those at-risk receive clinical care, thus reducing barriers to care in

vulnerable populations (Clark et al., 2010).

The researchers also concluded that health professionals have inadequate training on screening and treating mental illness to competently prevent suicide. Therefore, it is important to have annual training, after the initial training, to sustain on-going suicide prevention competency amongst licensed staff. It is imperative to continuously educate healthcare professionals on the most recent suicide prevention strategies using new evidence and best practices (Clark et al., 2010).

Training helps staff understand the value of suicide screening and that it is not just "another thing to do along with all of my other tasks" but that it can help save lives. It can do this by reducing the health disparities of the mentally ill and ensuring they have access to universal suicide screening (Clark et al., 2010).

Heyland, Delaney, and Shattell (2018) did a review of literature, including the opinions of authorities and reports from expert committees on conducting suicide screening on all patients that present to emergency rooms. They reviewed the barriers that impede universal screening and detection of suicide ideation in emergency departments (EDs) and how to overcome them. They found barriers that may affect successful universal screening and detection include how many providers of mental health services are available, healthcare providers' attitudes, personal beliefs about suicide, comfort level, and knowledge about suicide screening among the staff working in the ED. They found that a multilevel approach needed to be adopted.

Heyland et al. (2018) also reported that low levels of provider confidence and self-efficacy were significant barriers to their ability to assess and screen for suicide. The ED providers reported they could screen for suicide but did not feel as confident in assessing actual

risk levels, coming up with a safety plan, or counseling those at-risk. Interestingly, nurses were more confident that physicians in developing a safety plan for suicidal patients.

The authors also found that ED providers had a negative attitude towards patients who visited the ED with suicidal ideation. The ED providers had low hopes for successful intervention, and 60% of the time, ED providers did not provide counseling to those patients at-risk or ask them if they had access to lethal means and provide counseling. Instead, these ED medical providers believed it was not their responsibility and deferred to psychiatrists, social workers, or mental health nurses to do this assessment. These ED medical providers did not understand the regulatory requirement of suicide screening and viewed individuals with suicide ideation presenting to the EDs as competing for resources and time with patients with medical emergencies. The perception was that universal suicide screening would result in clinical care delays and add more constraints to their workflows and systems. In contrast, the ED nurses believed the workflow would be able to accommodate universal screening (Heyland et al., 2019).

To eliminate some of the barriers that may hinder universal screening, health care providers need to be trained. The education provided should emphasize prevention to reduce the risk of patients dying by suicide. Preventive measures should be in the form of screening with a validated tool, early assessment, and the identification and stratification of risk for suicide. These preventive measures will lead to proactive interventions and treatments for those at-risk. Also, education on regulatory requirements and regulations will also alleviate and address barriers to suicide screening (Heyland et al., 2019).

Additional measures are needed to enhance the focus of healthcare providers on screening for suicide when a patient presents to a healthcare setting. These measures include the use of safety plans with patients, streamlining workflow, facilitating referrals, improving

providers' attitudes and self-confidence about suicide screening, having a procedure in place to address positive screens, and making available psychiatric providers when further evaluation is needed (Heyland et al., 2019).

Nursing as a profession needs to focus on achieving universal suicide screening to help prevent suicides and thus decrease the rate. Regulatory agencies are supporting this goal by requiring that all patients in psychiatric or general hospitals be screened for suicide (Joint Commission, 2016).

Universal suicide screening program. Universal screening was the focus in Roaten, Johnson, Genzel, Khan, and North's (2018) study. The authors evaluated a universal screening program that was implemented to improve suicide prevention in the general population served by Parkland Health and Hospital System, a large safety-net hospital in Dallas, Texas. A screening tool and the universal screening program were implemented across the hospital system with patient safety as the focus. The screening process used the Colombia Suicide Severity Rating Scale (C-SSRS) tool, and it was rolled out to E.D., inpatient, clinic, and outpatient settings. The screening was successfully implemented, and the findings suggested that a universal suicide screening program should be considered for extension to new locations such as in medical settings and the ED and should not just be limited to psychiatric settings (Roaten et al. 2018). Universal screening in a variety of settings is necessary to enable early detection because suicide does not have to be related only to a mental health issue but can be triggered by life stressors and financial hardship. The study also supports the need to adopt measures to target the at-risk population by screening, identifying those at-risk, and offering treatment.

Clinical profiles and usage of healthcare services of individuals enrolled in the Ohio Medicaid program and who died by suicide between January 1st, 2008 and December 31st, 2013,

were examined by Fontanella et al. (2017). This study created awareness for the need for universal screening and improved suicide prevention efforts by shedding light on these clinical profiles for individuals whose death was by suicide. The methodology used included reviewing data from death certificates of the 1338 adults linked with Medicaid, aged 19 to 65, whose death was by suicide. The suicide incidences were calculated for various disorder categories such as "psychiatric, chronic general medical, substance use and combinations" (Fontanella et al., 2017, p. 675).

Fontanella et al. (2017) found that there were 18.9 suicides per 100,000 people enrolled in the Medicaid program. The least incidence of suicide occurred among participants with one diagnosis and was highest in participants with several comorbidities. Of the individuals whose death was by suicide, 83% had a health care visit within a year prior to their suicide, 50% visited the doctor 30 days before their expiry, and 27% saw a healthcare professional a week before their death. Twenty-seven percent of participants who committed suicide had a mental health disorder, substance abuse, or a chronic medical condition. The authors reported that these individuals were not screened, identified, or treated during their recent visit, which could have prevented their death by suicide.

In another study, patients in eight hospitals from seven states were screened for suicide (Boudreaux et al., 2017). The suicide screening was done using three phases: phase one, treatment as usual; phase two, universal screening; and phase three, universal screening with interventions. The hospitals assembled a team that used the best available evidence to create a screening tool (Patient Safety Screener-3, PSS-3) that could be implemented in the emergency setting. Of the 236,791 total Emergency Department (ED) visits reviewed, 10,625 patients screened positive for suicide. The documentation of screening improved from 26% to 73% from

phase 1 to phase 2, and 73% to 84% from phase 2 to phase 3. This increase in documentation represented more than a 300% increase from phase 1 to phase 3. The detection rate increased in phase one, from 2.9% to 5.2% in the second phase, and 5.7% in the third phase.

The researchers reported that the screening done by the providers during regular patient visits to the ED increased significantly, and there was an outstanding increase in risk detection. All this was made possible due to the implementation of universal screening. By identifying those at-risk, it enabled interventions to be applied as needed, thus decreasing successful suicidal behavior (Boudreaux et al., 2017).

A long-term controlled cohort study was conducted to examine the effectiveness of a universal screening intervention for suicide in older adults suffering from depression (Oyama & Sakashita, 2016). The participants were 60 years and older who participated in a two-year intervention period with six years between baseline and completion of follow-up. Interventions comprised of two years of mental health and regular health care, including support services and a public education program. Changes in suicide rates/incidence were measured at baseline, the end of the two-year intervention, and at the four-year follow up. There was a comparison of the rates of suicide between older adults screened and those participants in the control region.

The results of the study demonstrated a decrease in suicide rates by 48% in the region where interventions were applied, and this was significant compared to the three other areas. Also, participants' exposure to suicide screening reduced suicide risk over the four years following the exposure. This is because only six suicides occurred out of 16,822 participants in the four-year follow-up period. In addition, there were 20 suicides out of 32,062 persons among those who were not provided with the screening in the region where interventions were applied in comparison to 45 suicides among the 54,160 individuals in the control region. The researchers

summarized that universal screening and intervention reduced suicide rates in older adults and that preventive measures led to proactive interventions and treatments for those at-risk (Oyama & Sakashita, 2016).

Another study by Subica et al. (2015) examined 962 adults receiving care in an inpatient private psychiatric hospital who completed questionnaires upon admission. The questionnaires were used to determined depression and anxiety symptoms and how these symptoms related to self-harm behavior in these at-risk individuals. Bifactor solutions were used to analyze the data and calculate correlations with pre-hospitalization suicide history and behavior.

The authors reported they found an association of recent distress and depression symptoms with suicide attempts in adults but no association with prior suicide history. As a result, the authors concluded that general distress might have contributed to recent suicide attempts/incidences, and general distress usually underlies depression and anxiety. The authors concluded that a comprehensive screening and assessment could help identify stressors and appropriate interventions that should be implemented to prevent suicide.

Summary of the evidence. Based on the results of this literature review, training, and education of clinical staff at all levels is very important to improve outcomes for those at-risk for suicide. Also, screenings should be carried out on all patients at all points of entry into the healthcare system. The importance of screening with recognition of those at-risk and prompt treatment are keys to effective suicide prevention.

The research review also supports that care provided to those at-risk should be guided by evidence-based interventions and best practices. Several strategies need to be utilized and implemented to reduce death by suicide in adults age 18 and over. These strategies include clinical staff training, universal suicide screening using a validated tool such as the C-SSRS, and

effective identification and treatment of those at-risk in a timely manner. Also, providing a safe environment that is ligature proof, improving discharge planning and disposition of those at-risk, and identifying risk factors associated with suicide in staff training help staff better consider risk factors specific to a patient during assessment and interventions, which in turn promotes individualized care and prevents death by suicide. This literature guided this author in designing and implementing her DNP project and evaluating the project outcomes.

Rationale

The theoretical framework chosen to guide this evidenced-based change of practice project was Neuman's system model (NSM), (NSM, Inc., 2017). NSM, which has now been labeled a theory, guided the training content used to educate licensed nursing staff to be proficient in universal suicide screening, suicide assessment, detection, and prevention strategies using the C-SSRS.

NSM was first developed in 1972 by Betty Neuman (NSM, Inc., 2017). NSM adopts a holistic or "wholism" approach to care, which incorporates a concern for the whole person, thereby making care patient-centered. NSM focuses on how the client responds to apparent, real, or possible environmental stressors. The client can be defined as an individual, a group, a family, or a community system (Alligood & Tomey, 2006). NSM defines health as a state of system balance and describes it on a wellness-illness continuum (Young, Taylor & Renpenning, 2001).

Neuman's focus is on the relationships among stressors, the reactions of the client system to these stressors, and the rebuilding aspect within a general systems structure. The focus of nursing is the "client/client system," which is defined as an "open system in interaction and total interface with the environment" (Young et al., 2000, p. 188). Every client has five variables that interact with each other and with the internal and external environments of the client. These

variables consist of physiological, psychosocial, developmental, sociocultural, and spiritual elements (Alligood & Tomey, 2006). When the energy in the system is exhausted, the changes from wellness are revealed in the client's system. NSM theory extends beyond the illness and focuses on prevention using three levels--primary, secondary, and tertiary--to achieve stability in a client's life (Taylor & Renpenning, 2001). Thus, the nurse's role is to support the client in returning to system stability for optimum health.

This author's focus for this DNP Project is on best practices for suicide prevention, particularly universal suicide screening and staff training on evidence-based, comprehensive suicide assessment. NSM is helpful in determining a client's suicide risk, detection, and prevention strategies by including suicide risk stratification to determine client risk accurately. The care the suicidal client receives should consider all of the complex issues that affect their health. According to Young, Taylor, and Renpenning (2001), NSM is system-based and provides a detailed, flexible, and wholistic approach for nursing. Suicide is caused by multiple factors and not any single one (CDC, 2018); thus, a holistic model like NSM is appropriate to guide this project.

NSM guided the care, goals, interventions, and outcomes of this DNP Project. NSM extends beyond illness and focuses on prevention using three levels to achieve stability in a client's life. In addition, addressing stressors for each of the five client variables, and developing and implementing an evidence-based plan, will help restore client health with the goal of suicide prevention.

Purpose of the Project

This DNP project provided education and training to licensed nurses on the organization's Suicide Screening and Prevention Protocol and helped them improve their skills,

knowledge, and proficiency in using a universal suicide screening tool, the Columbia-Suicide Severity Rating Scale (C-SSRS). The C-SSRS is used to assess, detect, and prevent suicide in at-risk populations.

The purpose of implementing training on a universal suicide screening protocol and a validated suicide screening tool is to reduce the rates of suicide. Early identification of at-risk individuals and improved clinical management can reduce morbidity and mortality by suicide (Tait & Michail, 2014). Implementing universal suicide screening will help in preventing suicide by not just focusing on individual at-risk behavior changes but also implementing safer evidence-based suicide care and referrals.

Specific Aims

By September 2019, implement, and evaluate training an evidence-based suicide screening and prevention protocol and the correct way to use C-SSRS as a validated universal suicide screening tool on all units of a psychiatric hospital in Northern California. This is to improve nurse's knowledge, skills, and comfort level related to the identification and prevention of suicide.

Section III: Methods

All licensed nursing staff employed at a psychiatric hospital in Northern California were required to attend a mandatory three-hour class on the organization's Suicide Screening and Prevention Protocol and the C-SSRS. The intended outcome was for nursing staff to be able to effectively screen, assess, detect, and refer those at-risk for suicide. The goal was to make sure that every licensed nurse was trained so that every patient coming to our hospital receives a comprehensive suicide assessment from trained, licensed nursing staff, and the organization would achieve a zero-suicide goal. The importance of prompt interventions from medical

professionals cannot be overstated in rendering appropriate aid and support to these individuals when they are identified. The education provided staff with additional expertise and helped eliminate disparity in care by standardizing staff training on a validated tool, the C-SSRS and workflow. The work breakdown structure (Appendix B) outlined the project steps of this DNP Project and was shared with the staff during training. An outline of the project timeline was described in the Gantt chart (Appendix C), and the interventions were implemented by May 2020.

Context

Stakeholders. The stakeholders included: an executive sponsor in the organization who was the Director of Nursing, the participants who were the licensed nursing staff, and the project director who was a nurse manager of the Psychiatric Emergency Department (PES) within the organization and the author of this report. The hospital has a PES and three psychiatric inpatient units, and all were included in the project. The hospital consists of 125 fulltime and 23 part-time registered nurses, four licensed vocational nurses, three licensed psychiatric technicians, ten licensed assistant nurse managers, four nurse managers, and one director of nursing.

As the project director, it was imperative to create a sense of urgency for change in practice and inspire the stakeholders and rally them to support the change initiative. The project director involved as many stakeholders as possible in decision-making and other processes to enhance buy-in. Unit champions were recruited on a voluntary basis. This prevented the risk of resistance to change and promoted stakeholders to act as change champions. In addition, the executive team was aware of the problem at the psychiatric hospital in Northern California and was fully committed to improving the suicide assessment and intervention process and supported the project.

This change in practice was key to improve how we assess our patient population for suicide, and the stakeholders were ready for the change. This author had the support of the leadership team, as demonstrated by a letter of support (Appendix D). The stakeholders also reviewed the SWOT analysis (strengths, weaknesses, opportunities, and threats) and gave feedback (Appendix E). This helped identify the quick wins and the areas where we had more challenges. This also helped to effectively and efficiently allocate resources appropriately.

Interventions

The goal of implementing this change in practice project was to improve the professional practice of licensed nurses employed at a psychiatric hospital in Northern California, thus reducing patient suicides. Implementing this project across all units created a hospital system when every patient that presents to us is screened for suicide by trained staff.

An outline of the project is described in the Gantt chart (Appendix C), and the interventions were planned to be implemented beginning in July 2019. A description of each intervention is described in detail.

Training for licensed nursing staff. The focus of this project was providing education to licensed nursing staff that work in the PES and on three-inpatient psychiatric units at a psychiatric hospital in Northern California. Staff were made aware of the training and survey via huddles, staff meetings, and during shift handoff reports. Also, the author rounded the units and met with staff individually to encourage them to take the survey and answer any questions they may have about this project. The training involved how to follow the organization's evidence-based Suicide Screening and Prevention Protocol that includes the correct use of an evidence-based suicide assessment tool and the Columbia-Suicide Severity Rating Scale (C-SSRS). The

tool C-SSRS is a valid tool with a reliability of 99% in suicide assessment (The Columbia Lighthouse Project, 2016).

After staff learned how to correctly use the C-SSRS, they were able to use the tool to screen, assess, detect, and help prevent suicide in this at-risk population. In addition, nursing staff education about universal suicide screening and patient safety needs helped them understand the value of screening and the importance of reducing health inequalities by integrating mental health into universal screening for suicide.

Pre and post-training assessment survey. The Suicide Assessment and Prevention Training Survey, an author-developed instrument, was administered to licensed nursing staff pre and post-training to assess their knowledge, skills, and comfort level using the C-SSRS and risk stratification. This survey was completed by staff two weeks before the class and again at the end of the intervention. The licensed nursing staff participants in this DNP Project remained anonymous. The staff were asked not to place any information on the questionnaires that could identify them.

Scenarios and case studies. This author designed the training on suicide prevention for licensed nursing staff using scenarios/simulations. This method of teaching is evidence-based, and it helps with the growth and development of skills (Waxman, 2010). The scenarios and case studies were matched with the learners' experience, skills, and knowledge about suicide prevention.

The training content included reviewing the organization's Evidence-based Suicide Screening and Prevention Protocol that outlined current suicide screening related policies and evidence-based practices as outlined in the project Gantt chart (Appendix C). The training also

included educating the licensed nursing staff about suicide assessment levels and risk stratification using the validated tool the C-SSRS.

Risk stratification is an essential component in universal suicide screening since it enables resources to be allocated appropriately. Early identification and interventions for high-risk patients in the emergency department have several benefits including the decreased need for a full evaluation and/or hospitalization for the low-risk patients since once identified during the assessment, the low-risk patients, outpatient services were utilized, and social workers helped licensed nursing staff to identify patient-specific psychosocial needs and connect patients with the appropriate and necessary resources. This reduced the need for mental health services and unnecessary healthcare costs.

Gap analysis. A gap analysis was conducted in the early stages of this project. A major gap identified in this analysis was licensed nursing staff in this organization had a widely different level of skills, knowledge, expertise, and educational backgrounds that might affect their readiness and comprehension of the proposed education. This information was utilized in designing the training so that it could be useful for licensed nursing staff with a variety of backgrounds in suicide prevention (Appendix F).

Another gap identified was the lack of research on effective methods for training licensed nursing staff on universal suicide screening. While there was little research found on methods for this educational intervention, the evidence supporting this use of a universal screening tool was strong and used to design this DNP Project.

Responsibility/Communication Matrix. The tool this writer used to guide the communication and data reporting strategy of this project was the plan-do-study-act (PDSA) model for quality improvement (Sylvia & Terhaar, 2014). The first step was to *Plan*, which was

achieved by defining the current problems and potential solutions to improve the quality of care within the organization. The problem was stated, and the opportunities for suicide prevention improvement were identified as the preliminary step. The *Do* phase was where communication focused on how to execute the plan created for improvement of the process that would help achieve the aim of the project. The next phase was the *Study* phase. This author evaluated the change in practice project using outcome data, organizational metrics, and process improvement indicators to determine if each outcome was successfully achieved. If an outcome was achieved, then the process was successful. The last phase was the "Act" phase. In this stage, if the outcome was attained by the changes applied, standardized processes were scaled and sustained. If only partial outcome was achieved, maintaining the changes with revision of the processes was done. If the process improvement was unsuccessful in achieving the outcome, changes were retracted. Regular updates and communication were ongoing with the director of nursing, unit managers, and this author provided progress reports to the leadership team on a weekly basis (Appendix G).

SWOT Analysis. This change in practice was key in improving how we assess our patient population for suicide. During planning for this project, this author shared with stakeholders the SWOT analysis (strengths, weaknesses, opportunities, and threats) to help them understand what was needed to successfully implement the DNP project. This also helped identify the quick wins and the areas we had more challenges to effectively and efficiently allocate resources appropriately. All stakeholders were engaged and involved in the process to prevent the risk of resistance to change and promote stakeholders to act as change champions.

During the implementation of the project, licensed nursing staff attended a two-hour class where the SWOT analysis was discussed to review where the focus needed to be and how to

achieve the intended outcomes. Different evidence-based interventions were also taught and incorporated into existing suicide prevention practices (Appendix E).

Budget. The primary cost of this DNP Project was for licensed nursing staff to attend the mandatory three-hour training. The cost of this training is detailed in a budget chart (Appendix H). There are additional costs for ongoing audits that were done post-training for a period of three months. Despite the immediate costs associated with the training being significant, the long-term benefits of the training outweighed the cost. This is because increasing nurse competence in suicide assessment skills led to better and much less costly patient outcomes. The training improved early detection of those at risk of suicide when they first present to our facility. This detection enabled earlier interventions to be implemented that resulted in reduced suicides and suicide attempts in our facility.

Cost/benefit analysis: The intervention was part of an expense-reducing, change of practice project. Cost savings included decreasing lawsuit related expenses for wrongful death due to suicide, regulatory fines for sentinel events, and unnecessary full psychiatric evaluations and inpatient psychiatric hospitalizations.

The average paid indemnity by malpractice insurance for each death by suicide is $31,000 (Slawson & Guggenheim, 1984). Regulatory fines to hospitals for placing patients in "immediate jeopardy" and negligence averages $75,000 for each suicide (California Department of Health, 2018). Other cost savings were anticipated from decreasing unnecessary full evaluations in the emergency department and inpatient psychiatric hospitalizations for low-risk patients and instead of using outpatient services. This reduced the need for unnecessary mental health services and decreased healthcare costs. Based on our organization's internal data, the average cost for one day of inpatient hospitalization is approximately $6000. On average,

inpatient length of stay is seven days. In a month, on average, two unnecessary hospitalizations will be avoided. So, for any unnecessary hospitalization of a patient that is avoided, the organization would save $1,008,000 a year. **(**Appendix I for detailed Cost/Benefit Analysis).

Return on investment: The return on investment was based on cost mitigation and avoiding unnecessary hospitalization of patients. The interventions for improvement resulted in cost avoidance of 123% for the $318,000 cost mitigation alone for one year and 392% for $1,008,000 by avoiding unnecessary hospitalization for one year. Return on investment (ROI) is anticipated to be 5 to 1 the first year. (Appendix J for ROI analysis).

Study of the intervention:

The interventions and change in practice discussed in training included: Improved awareness and competency of licensed nursing staff on the use of the universal suicide screening tool (the C-SSRS), and improved suicide screening, assessment, detection and prevention among licensed nursing staff on all four psychiatric nursing units. This improvement was to be evaluated by (a) comparing pre and post-training questionnaires that measured knowledge, skills, and comfort levels using the C-SSRS tool and (b) reviewing chart audits that measured accurate completion and compliance with C-SSRS tool with a targeted goal of 98% compliance rate.

Licensed nursing staff were informed of mandatory training titled Evidence-based Suicide Assessment and Prevention. The goal was that at least 95% of them would attend the training. As part of the preparation for this training, this author got approval from leadership for the organization's suicide protocol and the C-SSRS tool to be taught in the in-service. Then the author completed the evidence-based class curriculum and the PowerPoint presentation for the training. Written communication was received from the Lighthouse Project, stating the C-SSRS was free for anyone who wanted to use it, and no formal permission was required. Licensed

nursing staff were then prescheduled for the class, and care was taken to ensure that staffing was adequate, staff were released to attend the training, and patient care was not disrupted.

The training reviewed the desired outcome and goal of the interventions for improvement and how the interventions will change practice. Training and education utilized PowerPoint slides, handouts, discussion/interaction, and scenarios/simulations to teach the class. Materials taught included suicide risk factors, how to correctly complete the C-SSRS suicide screener and assessment, risk levels and risk stratification using the C-SSRS tool, and review of scenarios/simulations with the licensed nursing staff.

Review of the organization suicide policy and suicide prevention protocol was done, and the importance of risk stratification as an essential component in universal suicide screening, since it enables resources to be allocated appropriately, was discussed. The benefits of early identification and interventions to high-risk patients were also reviewed. Participants in the training were encouraged to complete a pre and post-training questionnaire.

All the unit managers were required to attend the class since they were the project managers, and they were responsible for monitoring the change process in their respective units while this author monitored the PES. The managers also ran weekly reports to monitor compliance and accurate completeness of suicide assessment in their units. There was a regular sharing of metrics with the staff post-implementation.

Data were entered into Qualtrics for this project and analyzed. There were also ongoing chart audits being done each shift by the licensed nursing staff. This author monitored the process and acted as a resource person for any questions from staff. There was a weekly report out using the PDSA model to the executive leaders on the post-implementation progress in evaluating the interventions.

Measures

Pre and Post-Training Suicide Assessment and Prevention Survey. The goal of the training was to improve the knowledge, skills, and comfort level of licensed nursing staff on the use of the C-SSRS universal suicide-screening tool. Progress toward this goal was evaluated by comparing pre to post-intervention survey results.

This author developed a pre-training survey (Appendix K) and a post-training survey (Appendix L) to assess licensed nurses' knowledge, skills, comfort level, and using the C-SSRS to assess patients at risk of suicide. Responses for eights questions on both surveys were 1 *excellen*t (*proficient*), 2 c*ompletely* (*good*), 3 *average* (*acceptable*), 4 s*omewhat* (*marginal*), and 5 *not at all* (*poor*).

The pre-training questionnaire included two demographic items the type of nursing license and the length of time employed within the organization. In addition, other questions were on how well the participant understood the C-SSRS, knowledge level of suicide prevention, overall comfort level in working with a patient at risk for suicide, skill level for screening and assessing patients at risk for suicide, skill level for intervening with patients at-risk for suicide, skill level for planning care for patients at risk for suicide, and familiarity with suicide risk factors.

The post-training questionnaire included items on knowledge of suicide prevention, comfort in working with patients at risk of suicide, skills level for screening patients at risk for suicide, skills level for assessing patients at risk of suicide using C-SSRS, skill level for intervening with patients at-risk for suicide, skills level for planning care for patients at risk for suicide, and knowledge in suicide risk factors, and three questions evaluating the training.

Audit Tool. There was a review and audit of patients' charts after the training to check for accurate completion and compliance with the C-SSRS tool by licensed nursing staff. This author developed the Audit Tool (see Appendix M). Daily audits were done by nursing staff using this tool. The intended use of the tool was to evaluate the training effectiveness in licensed nursing staff 's proficiency in using the C-SSRS. This tool also serves as a continuous quality improvement data collection tool because it helps track compliance and completion rate during chart audits.

MIDAS. Lastly, we continued to monitor suicide and suicide attempts in the hospital using the incident report software called MIDAS. The organization has used this software for over two years, and it helps track unusual events and sentinel events. MIDAS reports will demonstrate if there has been an increase or decrease in suicide attempts in the units post-training.

Analysis

Analysis of data was done post-intervention using Qualtrics to determine whether licensed nursing staff who attended the training had a change in pre and post-interventions scores for knowledge, skills, and comfort level using the C-SSRS tool. The project goal was at least 95% of the staff were to attend the training and demonstrate the improvement of self-reported nursing knowledge, skills, and comfort in post-intervention scores as compared to pre-intervention scores. Also, there was a daily audit of the charts, and reports were analyzed using electronic health record-EPIC to check for accurate completion and compliance with C-SSRS tool in suicide assessment. The targeted goal was a 98% compliance rate, and it was achieved. The weekly metrics were shared with staff on each unit.

Ethical Considerations

American Nurses Association's (ANA, 2015) *Scope and Standard of Practice and Interpretive Code of Ethics*, provision 3: "The nurse promotes, advocates for, and protects the rights, health, and safety of the patient" (p. 37) was important for this DNP Project. This provision states the nurse must ensure patient confidentiality, and that rights of privacy must be protected. This author discussed relevant parts of *The Nursing Scope and Standard of Practic*e (ANA, 2015), with staff in the training to review knowledge about their obligation to the patient and professional practice as a nurse. This promoted ownership of individual competency and continuing education to ensure the nurse is providing safe, quality care that is ethically-based.

ANA (2015) *Scope and Standard of Practice and Interpretive Code of Ethics*, provision 7: "The nurse, in all roles and settings, advances the profession through research and scholarly inquiry, professional standards development, and the generation of both nursing and health policy" (p. 37) was also relevant to this project. This provision calls upon nurses to use evidence-based interventions and strategies to achieve patient outcomes. It supports the importance of nurses as healthcare providers incorporating evidence and best practices in their everyday work to improve the nursing profession, patients' health, reduce costs, and provide timely and effective care. As professionals, we have an obligation to take the time to review the evidence available to improve our knowledge of evidence-based practice and use that knowledge to inform our clinical decisions and collaborate with patients for better outcomes.

Lack of proper screening, identification, and prompt treatment of individuals at-risk for suicide leads to many of them not receiving adequate help and some to death by suicide. It is unethical for licensed nursing staff to not do proper suicide screening and assessment. Universal screening (using a validated suicide detection tool) by trained, licensed nursing staff enables early intervention and prompt referral that can reduce the rate of suicide attempts and suicides.

Jesuit Values (USF, 2016) state that we should amplify the voices of the underserved, disadvantaged, and poor. This value was fulfilled by this change in practice because universal suicide screening helped reduce health disparities since the primary objective was to enable everyone presenting for care in our facility to be screened for suicide.

Since this is a change in practice, and the project did not include research or involve patients, this DNP Project did not require Institutional Review Board approval. However, this author did get approval from her DNP Committee for her Statement of Non-Research Determination (Appendix N) and adhered to the HIPPA policy for our organization.

Section IV:

Results

By the end of May 2020, this DNP candidate developed training for licensed nursing staff on the organization's suicide prevention protocol and the C-SSRS, an evidence-based suicide assessment tool, implemented the training, and evaluated the effectiveness of the training in educating nursing staff to be proficient in using the C-SSRS tool. The goal was to ensure that the compliance and accurate completion of the C-SSRS tool by license staff on all patients increased to 98%.

There were 170 staff members that met the criteria of being licensed, nursing staff. However, some of these staff were on leave, so they were exempted from the training leaving 164 available for training. Some staff attended the training (n=73, 45%) but did not complete the optional questionnaires. Of the 164 licensed nursing staff identified, n=91 (55%) attended the training and completed both the pre and post-training questionnaires. These 91 staff were the sample for this project. The results of this project are described each data collection instrument.

Demographic data results. Demographic data included both job title and length of service. Registered nurses accounted for 94% of the participants, 3% were licensed psychiatric nurses, and 3% were licensed, vocational nurses. Thirteen % of the participants were employed with the organization less than one year, 20% one to five years, 33% six to ten years, 24% 11 to 15 years, and 10% 16 or more years. (See demographic data chart Appendix O)

Pre and Post-Training Suicide Assessment and Prevention Survey results. Mean scores were calculated for each item on the pre-training and post-training surveys. These mean scores all illustrated improvements for licensed nursing staff in the knowledge of suicide prevention, comfort in working with patients at risk for suicide, skills for screening, assessing, intervening, and planning care for patients at risk for suicide, and familiarity with suicide risk factors in suicide prevention (See Mean score table Appendix P). The pre and post-training survey results are also displayed in pie charts in Appendices Q-W. These diagrams display pie charts that illustrate responses by category 1 “excellent (proficient),” 2 “completely (good),” 3 “average (acceptable),” 4 “somewhat (marginal)” and 5 “not at all (poor).” For example, comparing pre and post-training scores for the knowledge level of suicide prevention increased from 1% to 51%, and assessing patients at risk for suicide increased from 0% to 52% in the “proficient (excellent)” category.

One hundred percent of the licensed nursing staff stated they would recommend the training to someone else, that the training was necessary to achieve excellence in nursing practice in a psychiatric setting, and 90% of the participants rated the content of the presentation as good or excellent.

Audit reports. In addition, the chart audits were done every night by license staff, submitted to the unit manager who would review them, and come up with an action plan to

address any negative findings. This process was key in providing timely feedback to staff and hardwiring the process while sustaining the change in practice. This author created an audit tool that captures key metrics related to practice improvement. The audit results illustrated there was an improvement in suicide assessment, detection, and prevention in all four nursing units and that appropriate interventions were put in place and accurately documented in the patients' charts 99% of the time. This was obtained from audit reports.

Section V: Discussion

Summary. Suicide is the tenth leading cause of death in the U.S. and continues to be a major health concern per the CDC (2016). Lack of proper screening, identification, and prompt treatment of at-risk individuals for suicide leads to many of them not receiving adequate help and some to death by suicide. Universal screening by training licensed nursing staff with a validated suicide detection tool such as the C-SSRS reduces the rates of suicide and the cost of inpatient mental health services. The project's aim and desired outcomes were achieved. The project was also timely due to the regulatory requirement by The Joint Commission that restored the reduction of patient risk for suicide as a national patient goal for 2020. Ideas recommended by staff for improving the training were to have a variety of snacks, provide more training slots, and to have an annual refresher on suicide prevention.

Interpretation. When the C-SSRS, a universal suicide screening tool, was implemented and nurses were trained on how to use it, it improved nurses' proficiency in using an evidence-based suicide assessment tool to assess, detect and prevent suicide attempts and death by suicide in the PES and on the inpatient psychiatric units in one large safety net psychiatric hospital in Northern California. Suicide assessment was done using the validated tool C-SSRS, and the post-survey showed significant improvement in this area. To sustain the change, every new license

staff joining the hospital has to go through this training and complete three assessments using the C-SSRS tool before working on the floor. Also, the training will now become part of the annual competency for existing staff so as to refresh their knowledge, skills, and comfort using the C-SSRS.

The NSM theory was very useful in implementing and guiding this project since a holistic approach was used with each patient to formulate a clinical picture that included the risk factors, stressors, and protective factors. Once the patient risk was identified and stratified, then appropriate interventions were put in place that incorporates a concern for the whole person, thereby helping to create patient-centered care for patients at risk of suicide in this project.

Limitations. There were potential barriers to implementation of this project such at the cost of training, staff attitudes about the project, staff compliance with attending the training and answering both pre and post-training surveys, scheduling all three shifts, availability of per diem staff to come in for the training, and concerns about floor coverage during training. To mitigate these barriers, the author needed the support of the leadership team, and they were available to be present in the PES and on the three psychiatric inpatient units to meet the frontline staff in order to answer any questions they had, connect the dots for the staff, answer the question “why” this project was necessary, and share the metrics with the staff to promote transparency. After defining and articulating the purpose of the project, sharing the evidence guiding the project, and promoting patient safety philosophy as the guiding value, licensed nursing staff supported and promoted this change in practice.

One limitation of this project was that all licensed nursing staff were required to attend the training. Required attendance may have affected their willingness to complete the pre and post-training questionnaires for some staff and their responses for those who did complete them.

Also, the names of licensed nursing staff were on the audit tool, so that may have positively influenced them to do more accurate suicide assessments during the time that charts were being audited, but it may also have increased their anxiety about their ability to accurately assess patients for suicide. Lastly, as this was a change of practice project, results cannot be generalized to other psychiatric hospitals. Just like other universal screening programs, one of the limitations of this project was that it only involved one safety-net hospital and a unique population, which may limit the translation of the results to other settings. This study was not able to document what happened after each patient's disposition, which is the essential information and is a limitation of the project.

Conclusions. Training licensed nursing staff to use the organization's Evidence-based Suicide Screening, and Prevention Protocol and the C-SSRS, a validated tool for universal suicide screening, achieved significant advances in suicide prevention for this organization. Screening, incorporating risk factors, identifying stressors, and looking at the client as a whole should go hand in hand in suicide prevention programs. Nurses are key participants in helping to improve the care patients receive and improve patients' health outcomes. Therefore, this change in practice project empowered the staff to be the agents of change since they are at the frontline of providing patient care. Training the licensed nursing staff improved their confidence in providing safe care to patients at risk for suicide. Sharing metrics and data with staff allowed transparency and helped the staff own the process since they can saw the impact that their evidence-based nursing care had on patient outcomes.

Recommendations. Licensed staff training on universal suicide screening is one of the strategies that were the focus of this DNP Project. Once those at-risk for suicide were identified by trained, licensed nursing staff, those at-risk could more easily access help and support in a

timely manner to reduce death by suicide. In addition, offering interventions with more than one focus, including pharmacological and non-pharmacological methods such as exercise, nutrition, pharmacotherapy, and psychotherapy, must be utilized to achieve effective treatment of those at-risk for suicide (Van der Feltz-Cornelis et al., 2011).

Based on the successful implementation of this project and given that some suicides can be preventable, different strategies targeting populations at-risk that involve several levels and layers of interventions within healthcare systems should be considered. For example, some of the enhancements and interventions that can be adapted include offering co-located mental health services within primary care, facilitating a warm handoff from primary care to mental health services, and creating openings in the schedules of mental health providers for outpatient visits without lengthy wait times.

Section VI: Other information

Funding

This DNP Project had no outside funding.

Section VII: References

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Section VII: Appendices

Evidence Evaluation Table: Appendix A

Citation	Conceptual Framework	Design/ Method	Sample/Setting	Variables Studied and their Definitions	Measurement	Data Analysis	Findings	Appraisal: Worth to Practice
Clark, Matthieu, Ross, & Knox, (2010).	Well-designed case control study.	This qualitative study used a descriptive research design.	Training Outcomes from the Samaritans of New York Suicide Awareness and Prevention Program Among Community- and School-based Staff	Three-hour training provided to staff. A pre and post training survey was conducted. Most variables compared were statistically significant at p value of less than 0.0001 and the odd ratio was done.	Pre/post training surveys. Paired t-test, Bivariate correlations computed	Statistical Package for the Social Science (SPSS) statistical tool The data was summarized and analyzed using counts, proportions, means, standard deviation, and medians.	The results demonstrated that there was a significant impact on the staff that received training. The scores increased after training was conducted.	<u>Strengths:</u> Participants completed the surveys. Training was comprehensive. Training procedure was well-established. Study was approved by an IRB. <u>Limitations:</u> Selection bias of participants, Lack of generalization of results to other training. Lack of control group. <u>Critical Appraisal Tool & Rating:</u> Using John Hopkins Tool Research Evidence Appraisal Tool was Level III, Quality B.

Citation	Conceptual Framework	Design/ Method	Sample/ Setting	Variables Studied and their Definitions	Measurement	Data Analysis	Findings	Appraisal: Worth to Practice
Roaten, Johnson, Genzel, Khan, & North, (2018).	Well-designed case control study.	Qualitative study used a descriptive research design.	Parkland Hospital System in Dallas, Texas.	A total of 328,064 adults were screened, 42% of the screening completed in the ED, 50% from clinics and outpatient, 5% from inpatients. Overall, 96.1% of all patients screened were negative, men screened higher than women.	Mean, standard deviations, odd ratio, p-value, confidence limit,	The data was summarized and analyzed using Statistical Package for the Social Science (SPSS) statistical tool	Universal screening should be implemented in psychiatric and non-psychiatric medical setting so as to identify, provide treatment to those at-risk for suicide. This is in an effort of suicide prevention and promoting patient safety.	<u>Strengths:</u> Adequate sample size and diversity. Adequate clinical resources available to do the study. Specific screening procedures used. <u>Limitations:</u> Expensive system. Single hospital involved reducing generalizability of findings. <u>Critical Appraisal Tool & Rating:</u> Using John Hopkins Tool Non-Research Evidence Appraisal Tool was Level V, Quality A

Citation	Conceptual Framework	Design/ Method	Sample/ Setting	Variables Studied and their Definitions	Measurement	Data Analysis	Findings	Appraisal: Worth to Practice
Fontanella, et al. (2017).	Retrospective study-Review of death certificates-retrospective.	The type of research was quantitative, and the design was descriptive	Ohio Medicaid program	The total number of participants was 1338 aged 19 to 65. There were 18.9 suicides per 100,000 people enrolled. At least 83% had a health care visit within a year prior to their suicide, 50% visited the doctor 30 days before their expiry, and 27% saw a healthcare professional a week before their death. These 27% of enrollees had a mental health disorder, substance abuse, or a chronic medical condition.	p-values, logistic regression analyses, chi-square analysis and a multivariate multinomial logistic regression analysis.	Suite of analytics (SAS) 9.4 Software (12)	Study found these individuals were not treated during their recent visit in effective and timely ways to prevent death by suicide.	<u>Strengths:</u> Findings shed light to the clinical profile of those who died of suicide and inform suicide prevention strategies. <u>Limitations:</u> Possible number of suicides was understated in death certificates. Data from a single state may not be generalized to other states using Medicaid program. <u>Critical Appraisal Tool & Rating:</u> Using John Hopkins Tool Research Evidence Appraisal Tool was Level III, Quality B.

Citation	Conceptual Framework	Design/ Method	Sample/ Setting	Variables Studied and their Definitions	Measurement	Data Analysis	Findings	Appraisal: Worth to Practice
Boudreaux et al. (2017)	Quasi-experimental design. A Three phase interrupted time series design study.	This qualitative study used a descriptive research design.	Involved eight hospitals from seven states	A screening tool, the Patient Safety Screener-3 (PSS3) was used to screen patients. The team also used a continuous quality improvement cycle, i.e. the Plan-Do-Check-Act, to improve the process. Screening logs extracted data from medical records and data was analyzed. 236,791 Emergency Department (ED) visits were reviewed, 10,625 patients screened positive for suicide, and the documentation of screening improved from 26% in phase 1 to 73% in phase 2 and 84% in phase 3 detection. The detection rate increased from 2.9% in phase 1 to 5.2% in phase 2 and 5.7% in phase 3.	Chi-Square test and generalized estimating questions were calculated.	Stata version 13.1, using chi-square tests, with 95% CI and medians with interquartile ranges. The p-values are two tailed, with $p<0.05$ considered statistically significant	There was an outstanding and robust increase in screening by clinicians during regular care in EDs and an increase in risk detection.	<u>Strengths:</u> Sample size was adequate. Outcomes being measure were clearly defined. Increase in screening, detection, and documentation by clinicians. <u>Limitations:</u> EDs may not represent nation's EDs in terms of diversity. Protocols may not be successfully translated to other EDs. <u>Critical Appraisal Tool & Rating:</u> Using John Hopkins Tool Non-Research Evidence Appraisal Tool was Level V, Quality A.

Citation	Conceptual Framework	Design/ Method	Sample/ Setting	Variables Studied and their Definitions	Measurement	Data Analysis	Findings	Appraisal: Worth to Practice
Oyama & Sakashita (2016).	Controlled cohort study	This was a quantitative, long-term controlled cohort study.	Long-Term Effects of a Screening Intervention for Depression on Suicide Rates among Japanese Community-Dwelling Older Adults	The participants were 60 years and older who participated in a two-year intervention period with six years pre and post interventions. Interventions comprised of two years of care and support service and a public education program. The measurements were from the six-year baseline, the two-year intervention, and the four years follow up.	Mixed -effects negative binomial regression models, confidence intervals of 95%.	Mixed-effect negative binominal regression models.	The suicide rate in the intervention region lessened by 48%. The study found out that universal screening reduced suicide rates in older adults.	Strengths: There was a control group. Program had long term effects. Limitations: Suicide rates may have been influenced by changes in mental health and socioeconomic condition during the time of the study. Critical Appraisal Tool & Rating: The quality of the evidence found using the Johns Hopkins Tool Research Evidence Appraisal Tool is Level II, Quality B.

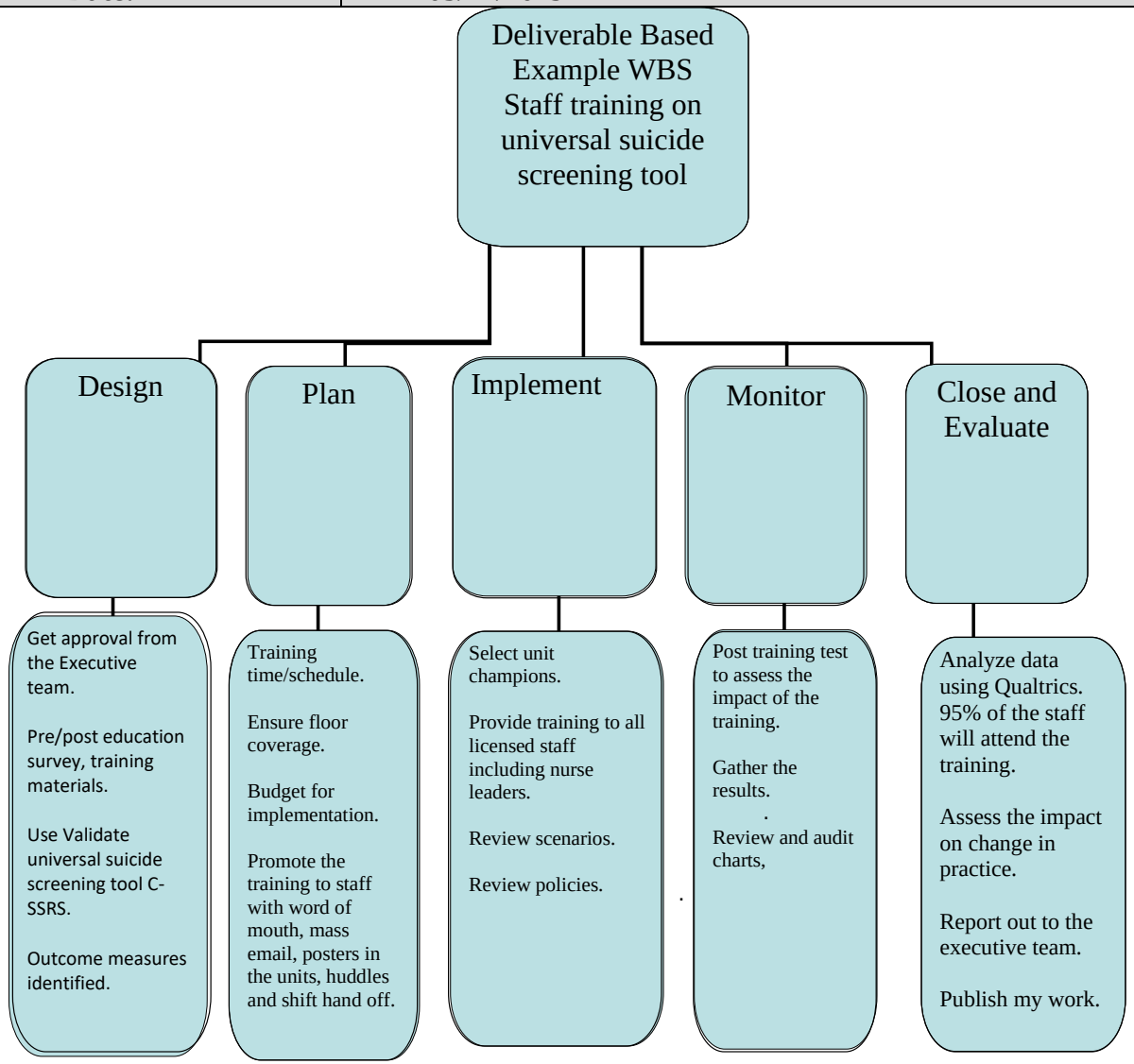
Citation	Conceptual Framework	Design/ Method	Sample/ Setting	Variables Studied and their Definitions	Measurement	Data Analysis	Findings	Appraisal: Worth to Practice
Williams et al. (2018)	Qualitative review of event narratives	The study is designed as a cross-sectional analysis study	General and Psychiatric hospitals reported suicide events to National Violent Death Reporting System (NVDRS) between 2014 to 2015 and The Joint Commission's Sentinel Event (SE) data base from 2010 to 2017	Data from 27 states reporting to the National Violent Death Reporting System (NVDRS) for 2014–2015, and from hospitals reporting to The Joint Commission's Sentinel Event (SE) Database from 2010 to 2017.	Categorical variables and qualitative reviews of event narratives were used to identify and code suicide events occurring during hospital inpatient treatment.	Confidence Interval (CI) was calculated using estimated rate as the means of a Poisson distribution, upper and lower CI were set at 95%.	On average, it was determined that approximately 48.5 in 2014 and 64.9% in 2015 suicide incidents happen each year in the inpatient units in the U.S. Of these, 31.0 to 51.7 happen in inpatient units in a psychiatric facility. The method of suicide most prevalent in the inpatient unit was hanging at a rate of 71.7% from NVDRS and 70.3% from SE databases.	Strengths: Results provided reliable bench-mark of national inpatient suicide rates that can be used for policy, research, regulations etc. to prevent suicide in inpatient. Limitations: National estimates are taken from NVDRS data reported by 27 states, but this study made no attempt to validate the data reported by the hospitals. Critical Appraisal Tool & Rating: The quality of the evidence found using the Johns Hopkins Tool Research Evidence Appraisal Tool is Level III, Quality B.

Citation	Conceptual Framework	Design/ Method	Sample/ Setting	Variables Studied and their Definitions	Measurement	Data Analysis	Findings	Appraisal: Worth to Practice
Heyland et al. (2018)	Review of evidence	Evidence from the opinion of authorities and/or reports of expert committees	Long-Term Effects of a Screening Intervention for Depression on Suicide Rates among Japanese Community-Dwelling Older Adults	Barriers that may affect successful universal screening and detection include availability of providers of mental health services, healthcare providers attitude, personal beliefs about suicide, comfort level and knowledge about suicide screening among the staff working in the ED.	Reports Opinions Study	Opinion of authorities and/or reports of expert committees	Training and education to increase healthcare personnel knowledge on how to care for those at-risk for suicide in the EDs, regulatory requirement and regulations will alleviate and address barriers to suicide screening. Increasing the availability of screening tools, using safety plan with patients, streamline workflows, facilitating referrals, improving providers' attitude and self-confidence, having a procedure in place to address positive screens, availability of psychiatric provider when further evaluation is needed, and continuing education classes, will promote suicide screening and prevention.	<u>Strengths:</u> Strong evidence reviewed. Recent articles used for review. <u>Limitations:</u> Limited research in universal suicide screening. <u>Critical Appraisal Tool & Rating:</u> The quality of the evidence found using the Johns Hopkins Tool Non-Research Evidence Appraisal Tool is Level V, Quality C.

Citation	Conceptual Framework	Design/ Method	Sample/ Setting	Variables Studied and their Definitions	Measurement	Data Analysis	Findings	Appraisal: Worth to Practice
Subica et al (2016)	Case control	Quantitative study. Adults totaling 962 receiving inpatient care at a private psychiatric hospital completed questionnaires at admission	Inpatient care at a private psychiatric hospital	The 962 participants were asked to complete questionnaires at admission to determined depression and anxiety symptoms and how these symptoms related to self-harm behavior in these at-risk individuals.	Checked correlation with pre-hospitalization suicide history and behavior	Bifactor solutions was used to analyze the data and.	The results demonstrated there was an association of recent distress and depression symptoms associated with suicide attempt in adults but no association with prior suicide history. As a result, the study results concluded that general distress may contribute to recent suicide attempts/incidences and it usually underlies depression and anxiety.	Strengths: It is the first study to look at symptoms of anxiety and depression and how they contribute to self-harm in clinical setting in adult inpatient. Limitations: The sample was compromised mostly by White and this limits generalization, also the study did not examine other factors relating to anxiety. Critical Appraisal Tool & Rating: The quality of the evidence found using the Johns Hopkins Tool Research Evidence Appraisal Tool is Level III, Quality B.

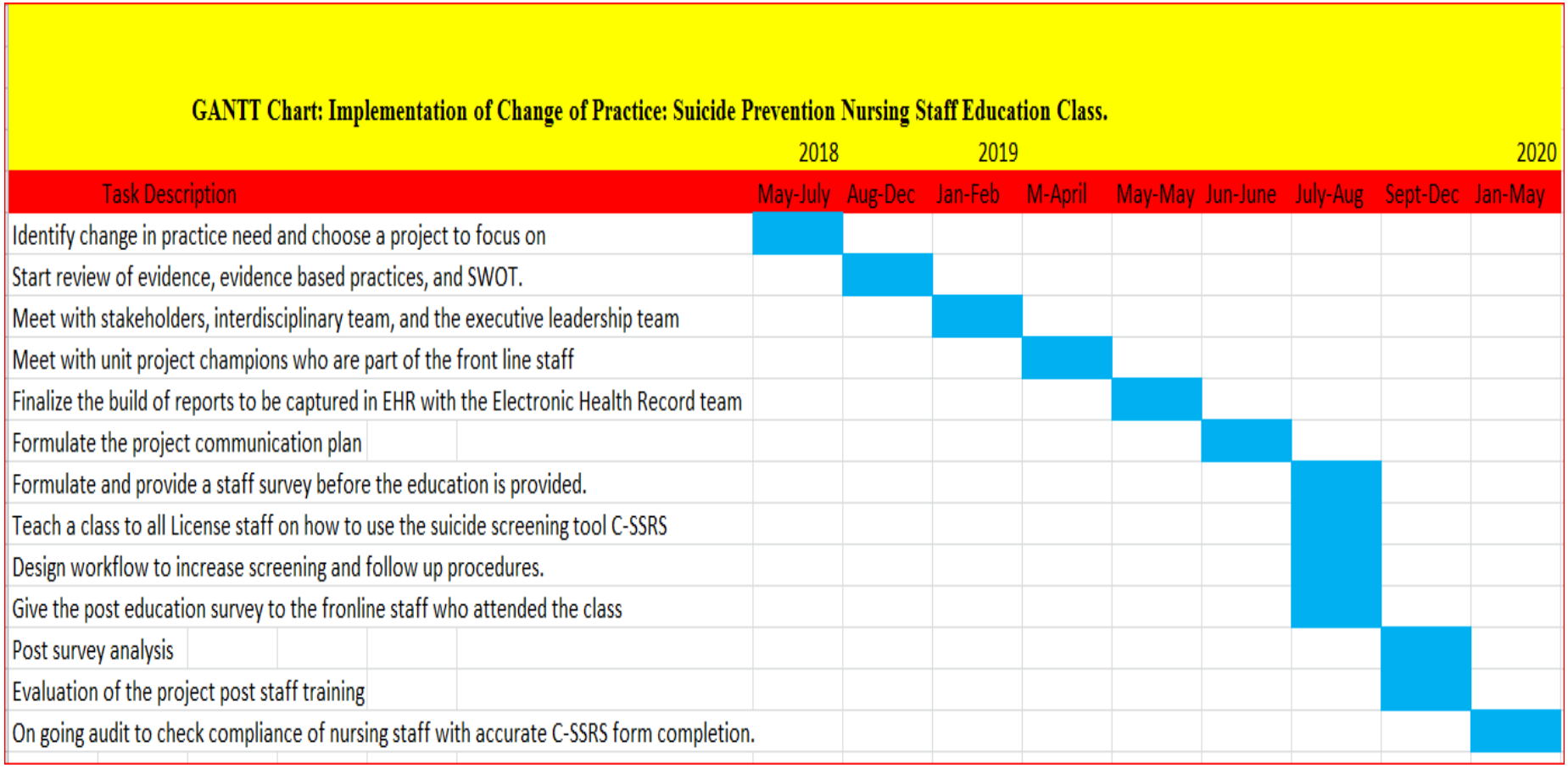
Appendix B
Work Breakdown Structure

Project Name:	Staff training module on universal suicide screening tool
Project Manager:	Rose Zhang
Date:	03/14/2019



Appendix C

Gantt Chart



Appendix D

Letter of Support from Organization

RE: Letter of Support for DNP Project

March 12, 2019

To Whom It May Concern:

This is a letter of support for Rose Zhang, to implement her DNP project "Evidenced-based Suicide Screening and Prevention Protocol for Licensed Nursing Staff at [redacted] Psychiatric Hospital.

Thank You

Pius [redacted], RN, PhD | Director of Nursing

Behavioral Health Services

Appendix E
Strength, Weakness, Opportunities and Threats (SWOT) Analysis

Strengths	**Weaknesses**
1. The organization is committed to universal suicide screening. 2. There is availability of expertise and subject matter expertise given we are a Psychiatric Hospital. 3. The project is evidence-based and best practice. 4. Ability to collect and analyze data. 5. Hard working staff with good experience. 6. Upgrade of our electronic medical record (EHR) to EPIC so we can incorporate the screening tool as part of the EHR to facilitate workflow.	1. Ensuring staff attend. 2. Budget constraint due to cost associated with paid staff training 3. Lack of time to provide undivided attention during assessment due to competing priorities.
Opportunities	**Threats**
1. Joint Commission has a requirement of the hospital to provide safe care with a goal to prevent suicide. This is a National safety goal. 2. We must use a validated suicide screening tool like Colombia Suicide Severity Rating Scale (C-SSRS) with great reliability and the tool is readily available. 3. We serve a diverse population and we are a key Psychiatric facility in the Bay Area providing Psychiatric services. 4. Given the expertise and SME in our facility, share, and consult with neighboring facilities in the Bay area to help implement universal suicide screening. 5. Publish our work to share with other institutions that may be interested in implementing similar project. 6. Better communication and collaboration between staff.	1. Lack of universal suicide screening in the nearby facilities hence being a missed opportunity in population management approach. 2. Staff attitudes and beliefs may impact universal suicide screening. Negative attitude towards those who present with self-harm may reduce staff willingness to provide help. 3. Lack of resource in the community to those at-risk of suicide

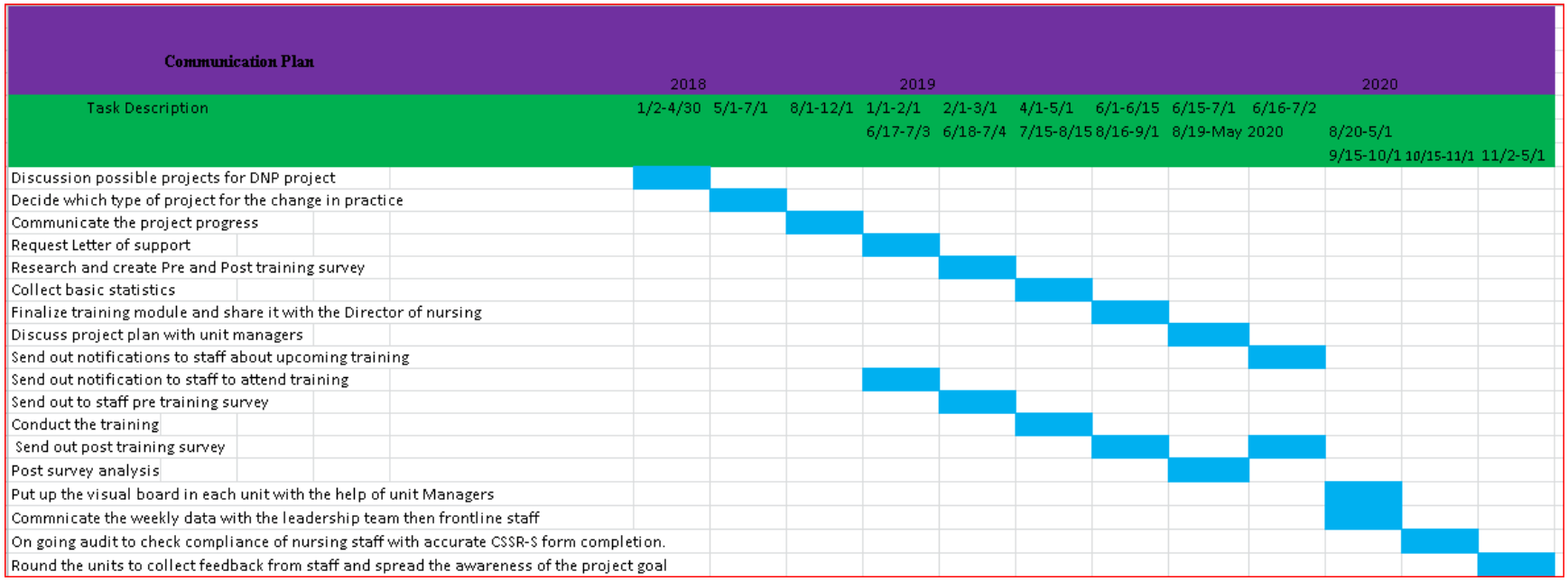
Appendix F

Gap Analysis

Gap Analysis						
Rating	**1**	**2**	**3**	**4**	**5**	**GAPS**
Competency/ Skills	**Poor**	**Marginal**	**Acceptable**	**Good**	**Excellent**	
Proficiency of licensed staff in using C-SSRS tool.	**X**					Education and training needed for licensed staff to be proficient in universal suicide screening using C-SSRS and Suicide prevention protocol
Staff understanding of suicide screening protocol and policy	**X**					Clear Written Suicide prevention protocol needed, and education provided.
Staff awareness of suicide risk factors and staff role is suicide prevention		**x**				Education needed on suicide risk factors and staff role is suicide prevention

Appendix G

Responsibility/Communication Matrix



Appendix H

Budget

Start Up Expenses: Total Nurses to be trained in all units =150 Length of the training class =3 hrs. Average hourly wage for a license staff = $75 **Total Cost of training front-line staff**= 150x75x3 **= $22,500,** 4 managers for each unit +10 supervisors =Total 14, Average hourly wage for management = $80 **Total management training cost** $80x3X14 **= $3,360** Materials and supplies for the training = **$650** Water and snacks = **$2,500** **Project owner/Lead associated labor cost for the training** = 20hrs a week x $80/hr. x 8 weeks = **$12,800**
Total cost for the training= $22,500+$3,360+$650+$2,500+$12,800 **=$41,810**
Ongoing internal audits for 90 days post training= 1 nurse/day= 8hr shift X 90 days X $75 X 4 units (3 inpatient units and 1 ED) =**$216,000**
Total cost for change in practice =41,810+$216,000=$257,810

Appendix I

Cost Benefit Analysis/Return on Investment

Financial analysis/Proforma (cost/benefit analysis) **Year 1**
Cost saved: Average paid indemnity per suicide $31000,
Cost saved: Average regulatory fines per suicide $75,000,
TOTAL average cost saved per suicide $31,000+$75,000=$106,000
Average Number of suicides prevented each year=3.
Total cost saved=3x$106,000= $318,000
Cost saved from preventing unnecessary hospitalization per patient= Average LOS is 7 days x Cost of inpatient hospitalization per day $6,000= **Total 7x$6000=$42,000**
Number of unnecessary hospitalizations avoided per year= 2 per month on average x 12 months=**24**
Total cost saved by avoiding unnecessary hospitalization= 24x42,000=$**1,008,000.**
TOTAL average cost saved: $318,000+$1,008,000=$,1,328,000.
Year one net total savings=$1,328,000 (Total average cost saved) -$257,810 (Total cost for change in practice training) =$1,070,190
Return on Investment=$1,328,000/$257,810= 5 to 1 ROI

Appendix J

Return on Investment Plan

Total average cost saved for change in practice: $1,328,000.
Total cost for change in practice training: $257,810
Year one net total savings=$1,328,000 (Total average cost saved) -$257,810 (Total cost for change in practice training) =$1,070,190
Return on Investment=$1,328,000/$257,810= 5 to 1 ROI

Appendix K

Pre-Training Suicide Assessment and Prevention Survey

1. What is your professional nursing license classification?
   A. Registered Nurse (RN) B. Licensed Psychiatric Nurse (LPN) C. Licensed Vocational Nurse (LVN)

2. How long have you been employed with the Alameda Health System (AHS)?
   A. Less than 1-year B. 1 to 5 years C. 6 to 10 years D. 11 to 15 years E. 16 or more years

3. What unit is your main unit (cost center)?
   A. Psychiatric Emergency Services (PES) B. Unit B C. Unit C D. Unit D

4. Rate how well you understand the Columbia Suicide Severity Rating Scale (C-SSRS).
   A. Excellent
   B. Completely (Good)
   C. Average (Acceptable)
   D. Somewhat (Marginal)
   E. Not at all (poor)
5. Rate your knowledge level of suicide prevention.
   A. Excellent
   B. Completely (Good)
   C. Average (Acceptable)
   D. Somewhat (Marginal)
   E. Not at all (poor)
6. Rate your overall comfort level in working with a patient at risk for suicide
   A. Excellent
   B. Completely (Good)
   C. Average (Acceptable)
   D. Somewhat (Marginal)
   E. Not at all (poor)
7. Please rate your skill level for screening patients at risk for suicide.
   A. Excellent
   B. Completely (Good)
   C. Average (Acceptable)
   D. Somewhat (Marginal)
   E. Not at all (poor)
8. Please rate your skill level for assessing patients at risk for suicide.
   A. Excellent
   B. Completely (Good)
   C. Average (Acceptable)
   D. Somewhat (Marginal)
   E. Not at all (poor)
9. Please rate your skill level for intervening with patients at risk for suicide.
   A. Excellent
   B. Completely (Good)
   C. Average (Acceptable)
   D. Somewhat (Marginal)
   E. Not at all (poor)
10. Please rate your skill level for planning care for patients at risk for suicide.
    A. Excellent
    B. Completely (Good)
    C. Average (Acceptable)
    D. Somewhat (Marginal)
    E. Not at all (poor)
11. How familiar are you with suicide risk factors?
    A. Excellent
    B. Completely (Good)
    C. Average (Acceptable)
    D. Somewhat (Marginal)
    E. Not at all (poor)

Appendix L

Post-training Suicide Assessment and Prevention Survey

1. How did this training increase your knowledge level of suicide prevention?

   A. Excellent B. Completely (good) C.Average (Acceptable) D. Somewhat (Marginal) E.Not at all (Poor)

2. Did this training increase your comfort level in working with a patient at risk for suicide?

   A. Excellent B. Completely (good) C.Average (Acceptable) D. Somewhat (Marginal) E.Not at all (Poor)

3. Did this training increase your skills level for screening patients at risk for suicide.?

   A. Excellent B. Completely (good) C.Average (Acceptable) D. Somewhat (Marginal) E.Not at all (Poor)

4. Did this training increase your skills level for assessing patients at risk for suicide using C-SSRS.?

   A. Excellent B. Completely (good) C.Average (Acceptable) D. Somewhat (Marginal) E.Not at all (Poor)

5. Did this training increase your skills level for intervening patients at risk for suicide.?

   A. Excellent B. Completely (good) C.Average (Acceptable) D. Somewhat (Marginal) E.Not at all (Poor)

6. Did this training increase your skills level for planning care for patients at risk for suicide.?

   A. Excellent B. Completely (good) C.Average (Acceptable) D. Somewhat (Marginal) E.Not at all (Poor)

7. How mum did this training increase your understanding of suicide risk factor?

   A. Excellent B. Completely (good) C.Average (Acceptable) D. Somewhat (Marginal) E.Not at all (Poor)

8. Please rate how well the content was presented overall?

   A. Excellent B. Completely (good) C.Average (Acceptable) D. Somewhat (Marginal) E.Not at all (Poor)

9. Would you recommend this training to your co-workers? Y/N

10. What do you like best about the training?

11. How could the training have been improved?

Appendix M

Audit Tool

Today's date	**Auditor's Name and Shift Worked**	**Shift being audited:** **Day, PM, NOC**	**Nurse's name who completed the assessment if there are discrepancies**	**Patient Medical Record Number** **_____**
	YES	**NO**		**Comments**
Initial C-SSRS assessment done?				
All questions on the initial C-SSRS assessment completed?				
Initial C-SSRS assessment questions completed accurately?				
If indicated (positive screening for suicide on the initial assessment), C-SSRS Q-shift reassessment done?				
C-SSRS Q-shift reassessment questions completed accurately?				
When completed, please put the form in the manager's box.				

Appendix N

Statement of Non-Research Determination

UNIVERSITY OF SAN FRANCISCO | School of Nursing and Health Professions

DNP Statement of Non-Research Determination Form

Student Name: Rose Zhang

Title of Project:

Evidence-based Suicide Screening and Prevention Protocol for Licensed Nursing Staff

Brief Description of Project:

This project involves providing education and training to licensed nurses to improve their skills, knowledge, and proficiency in using a universal suicide screening tool, the Columbia-Suicide Severity Rating Scale (C-SSRS). The C-SSRS is used to assess, detect, and prevent suicide in at-risk population.

The purpose of implementing a universal suicide screening protocol with a validated suicide detection tool, completed by staff trained in early intervention and prompt referral, is to reduce the rates of suicide and the costs of inpatient mental health services. Early identification of at-risk individuals and improved clinical management can reduce morbidity and mortality by suicide (Tait & Michail, 2014).

A) Aim Statement:

By September 2019, develop, implement, and evaluate implementation of an evidence-based suicide screening and prevention protocol (C-SSRS) and a staff toolkit.

B) Description of Intervention:

- Educate licensed nursing staff on four nursing units in a psychiatric inpatient facility in Northern California about the suicide screening policy.
- Educate the licensed nursing staff about suicide assessment levels and risk stratification using the C-SSRS. This will include reviewing scenarios/simulations with the licensed nursing staff.

C) How will this intervention change practice?

- This intervention will improve awareness and competency of licensed nursing staff on use of the universal suicide screening tool- the C-SSRS.

- Improve suicide screening, assessment, detection and prevention among licensed nursing staff on all four psychiatric nursing units. This will be demonstrated by pre to post-intervention increases in knowledge, skills, and comfort levels using the C-SSRS tool.

D) Outcome measurements:

- Author develop questionnaire pre/post for assessment level that measures nurses' knowledge, skills, and comfort level using the C-SSRS.

- Review and audit charts after the training to check for accurate completion and compliance with C-SSRS tool. Goal is 98% compliance rate. Every shift and daily audits will be done by nursing staff using a C-SSRS audit tool.

- Analyze data using Qualtrics to determine whether license staff who attended the training had a change in pre and post-interventions scores in knowledge, skills, and comfort level of using the C-SSRS tool. Goal is at least 95% of the staff will attend the training and demonstrated by an improvement in post-intervention scores.

To qualify as an Evidence-based Change in Practice Project, rather than a Research Project, the criteria outlined in federal guidelines will be used:
(http://answers.hhs.gov/ohrp/categories/1569)

x☐ This project meets the guidelines for an Evidence-based Change in Practice Project as outlined in the Project Checklist (attached). Student may proceed with implementation.

☐ This project involves research with human subjects and must be submitted for IRB approval before project activity can commence.

Comments:

EVIDENCE-BASED CHANGE OF PRACTICE PROJECT CHECKLIST *

Instructions: Answer YES or NO to each of the following statements:

Project Title:	**YES**	**NO**
The aim of the project is to improve the process or delivery of care with established/ accepted standards, or to implement evidence-based change. There is no intention of using the data for research purposes.	**x**	
The specific aim is to improve performance on a specific service or program and **is a part of usual care**. ALL participants will receive standard of care.	**x**	
The project is **NOT** designed to follow a research design, e.g., hypothesis testing or group comparison, randomization, control groups, prospective comparison groups, cross-sectional, case control). The project does **NOT** follow a protocol that overrides clinical decision-making.	**x**	
The project involves implementation of established and tested quality standards and/or systematic monitoring, assessment or evaluation of the organization to ensure that existing quality standards are being met. The project does **NOT** develop paradigms or untested methods or new untested standards.	**x**	
The project involves implementation of care practices and interventions that are consensus-based or evidence-based. The project does **NOT** seek to test an intervention that is beyond current science and experience.	**x**	
The project is conducted by staff where the project will take place and involves staff who are working at an agency that has an agreement with USF SONHP.	**x**	
The project has **NO** funding from federal agencies or research-focused organizations and is not receiving funding for implementation research.	**x**	
The agency or clinical practice unit agrees that this is a project that will be implemented to improve the process or delivery of care, i.e., **not** a personal research project that is dependent upon the voluntary participation of colleagues, students and/ or patients.	**x**	
If there is an intent to, or possibility of publishing your work, you and supervising faculty and the agency oversight committee are comfortable with the following statement in your methods section: *"This project was undertaken as an Evidence-based change of practice project at X hospital or agency and as such was not formally supervised by the Institutional Review Board."*	**x**	

ANSWER KEY: If the answer to **ALL** of these items is yes, the project can be considered an Evidence-based activity that does NOT meet the definition of research. **IRB review is not required. Keep a copy of this checklist in your files.** If the answer to ANY of these questions is **NO**, you must submit for IRB approval.

*Adapted with permission of Elizabeth L. Hohmann, MD, Director and Chair, Partners Human Research Committee, Partners Health System, Boston, MA.

STUDENT NAME (Please print):

Rose Zhang, MSN-FNP, RN

Signature of Student: *Rose Zhang* **DATE:12-09-2018**

SUPERVISING FACULTY MEMBER (CHAIR) NAME (Please print):

Robin Buccheri, PhD, RN, FAAN

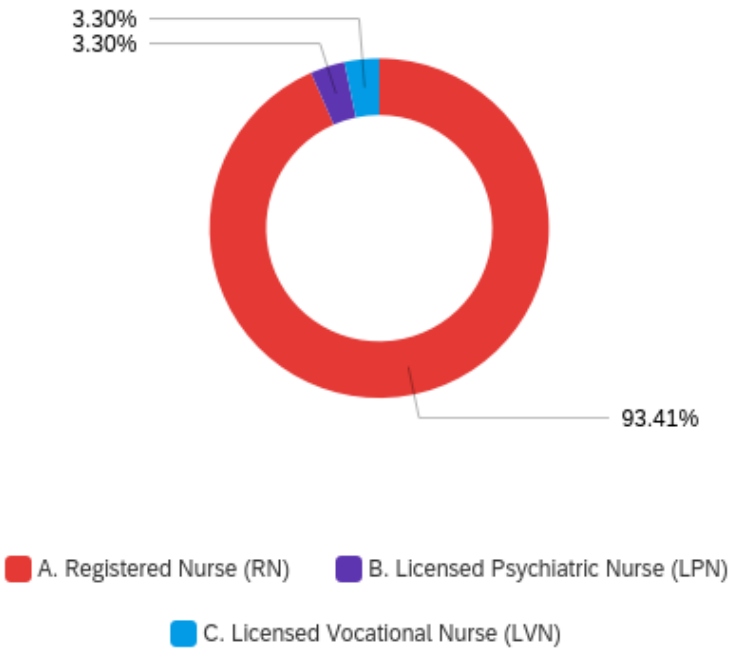
Signature of Supervising Faculty Member (Chair):

Robin Buccheri **DATE: 12-9-18**

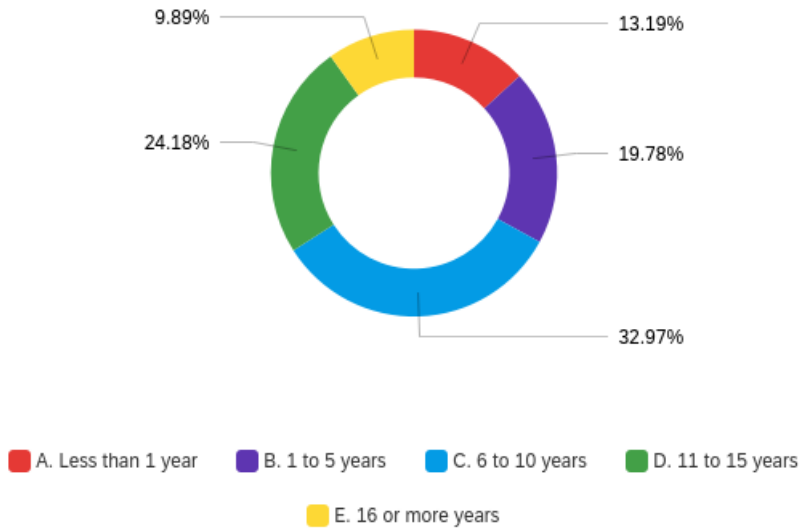
Appendix O

Demographic Data

License of participants



Length of hire



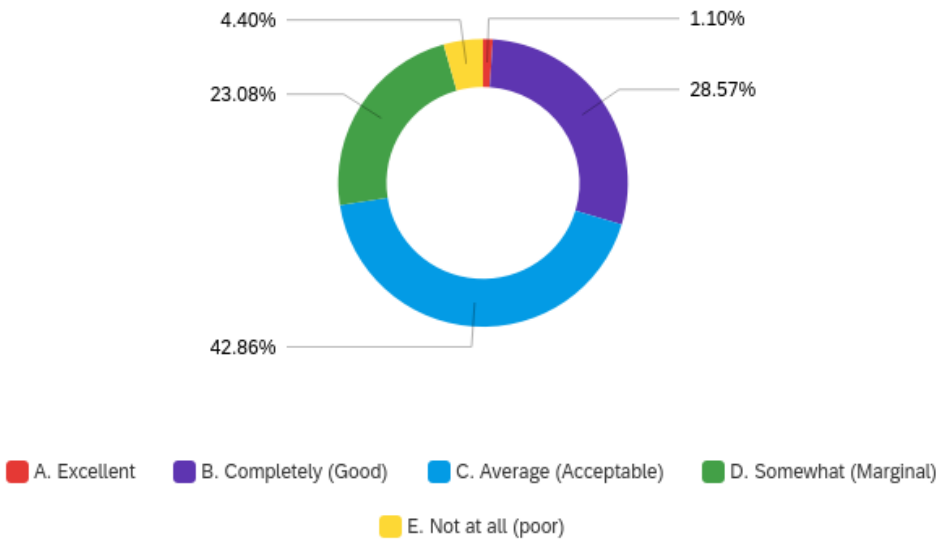
Appendix P
Pre & Post-Training Mean Scores for Licensed Nursing Staff
(n=91)

Pre and Post Training Questionnaire Questions	Pre-Intervention Mean Scores	Post-Intervention Mean Scores
Knowledge level of suicide prevention	1.54	3.01
Comfort level in working with a patient at risk for suicide	1.58	3.18
Skill level for screening patients at-risk for suicide	1.53	3.21
Skill level for assessing patients at-risk for suicide	1.56	3.26
Skill level for intervening with patients at-risk for suicide	1.52	3.22
Skill level for planning care for patients at-risk for suicide	1.59	3.31
Familiar are you with suicide risk factors	1.57	3.15

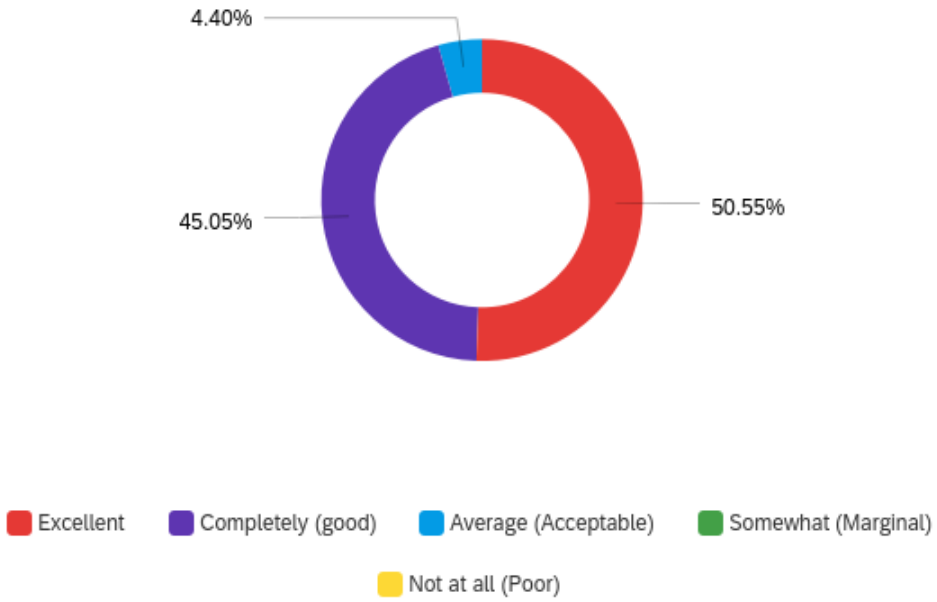
Appendix Q

Pre & Post-Training Knowledge Level of Suicide Prevention

Pre-training on knowledge level of suicide prevention

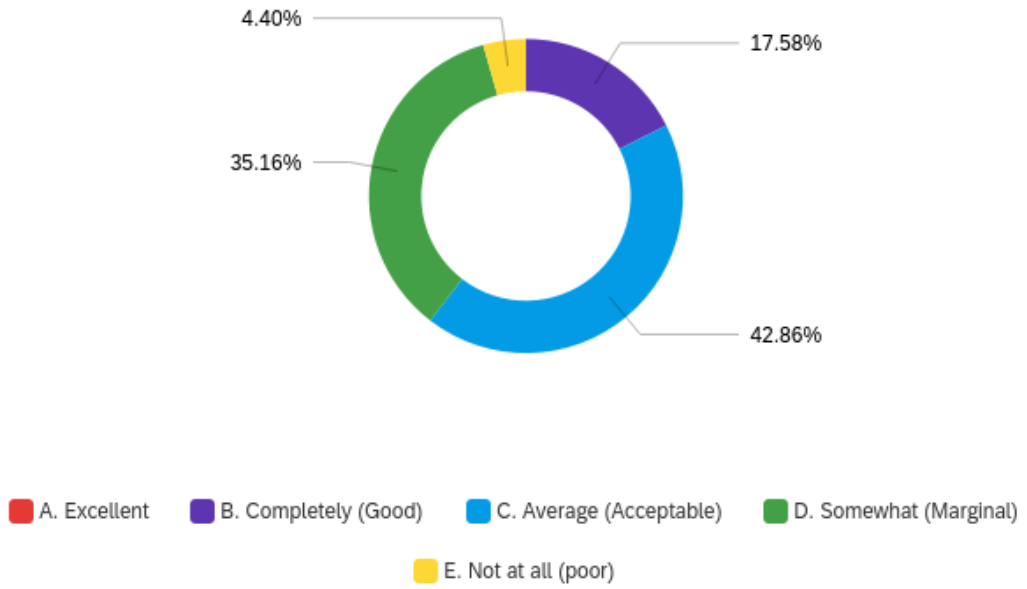


Post-Training on knowledge level of suicide prevention.

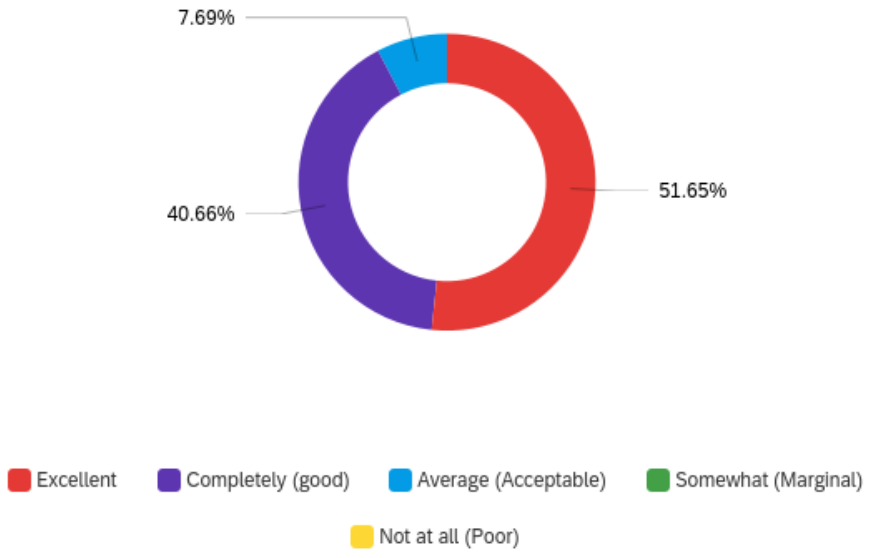


Appendix R
Pre and Post-Training Skill Level Assessing Suicide Risk

Pre-training skill level assessing suicide risk



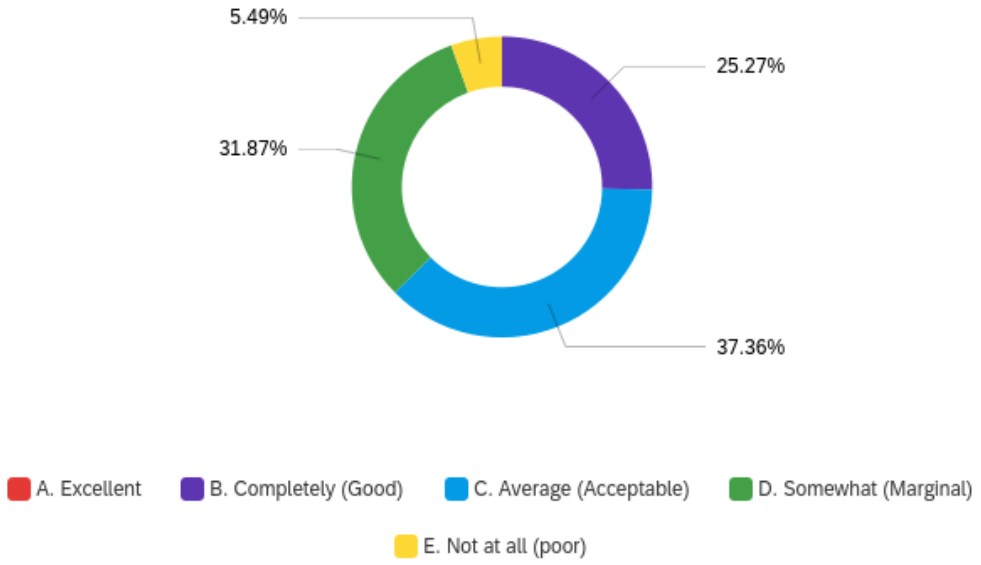
Post-training skill level assessing suicide risk



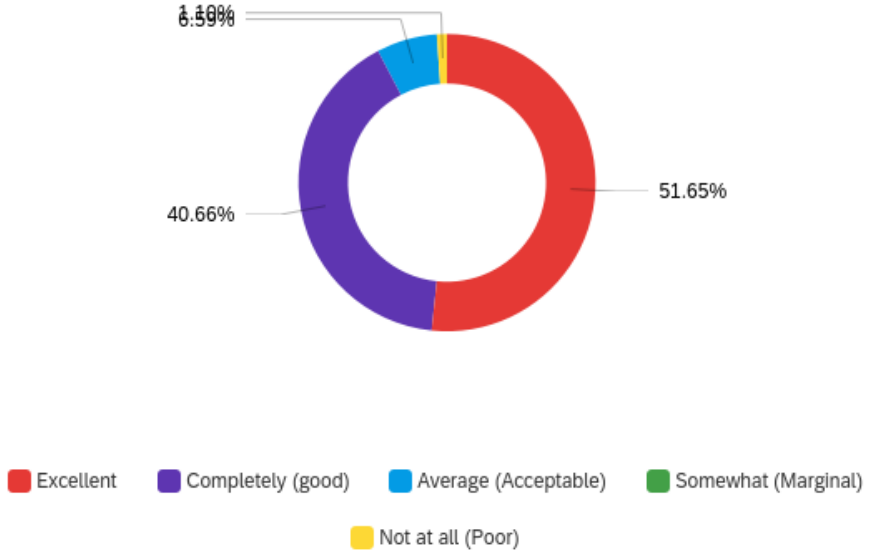
Appendix S

Pre & Post-Training Overall Comfort Level Working with a Patient At-risk for Suicide

Pre-training on overall comfort level in working with a patient at risk for suicide.



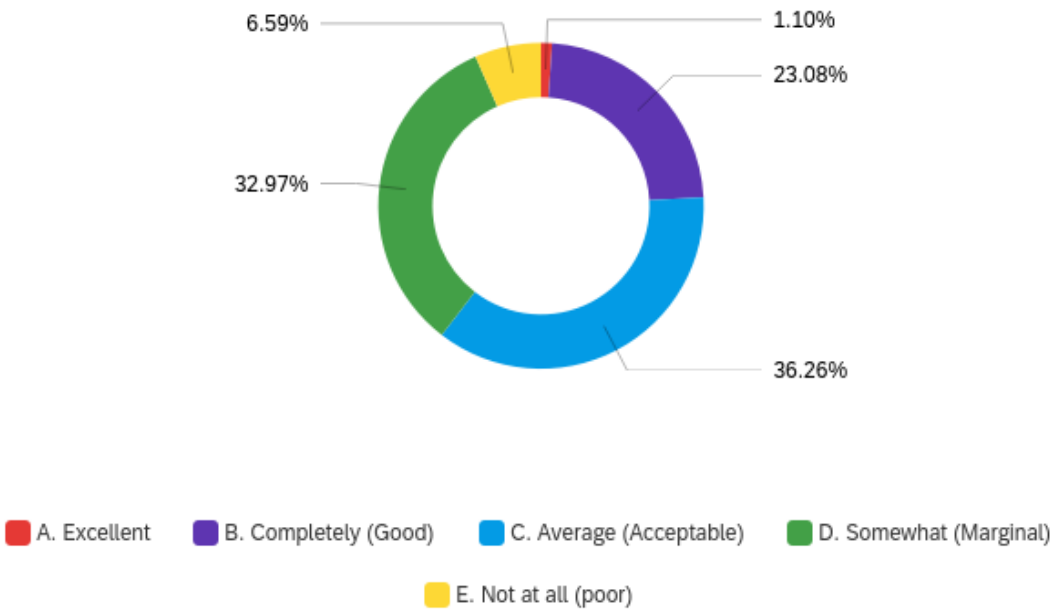
Post-training on overall comfort level in working with a patient at-risk for suicide



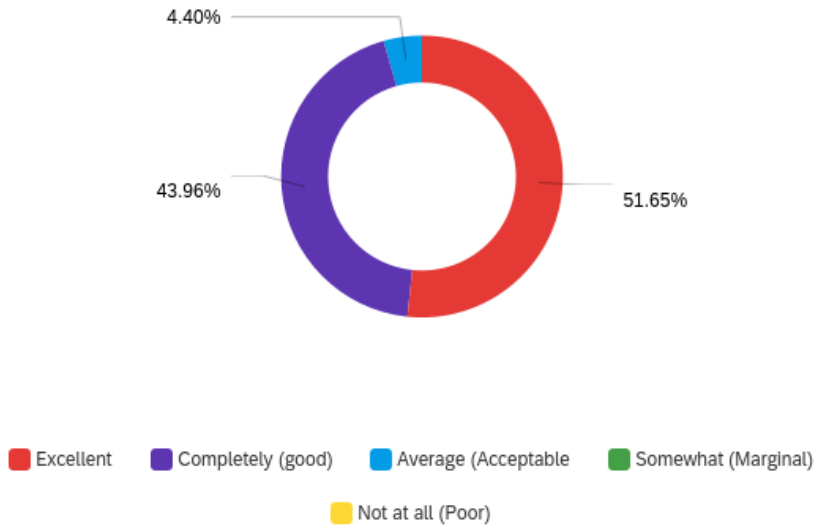
Appendix T

Pre & Post-Training Skill Level Screening Patients At-risk for Suicide

Pre-training skill level for screening patients at risk for suicide.



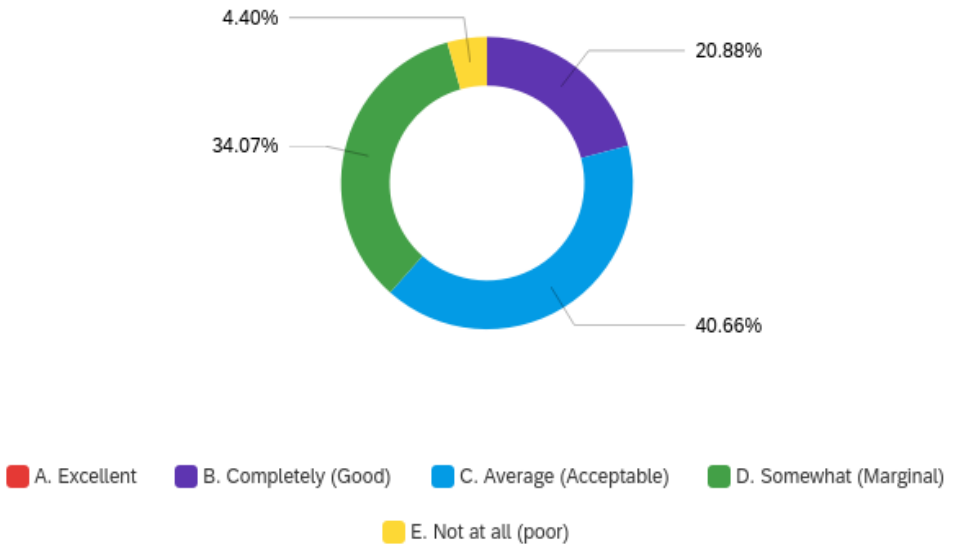
Post-training skill level for screening patients at risk for suicide.



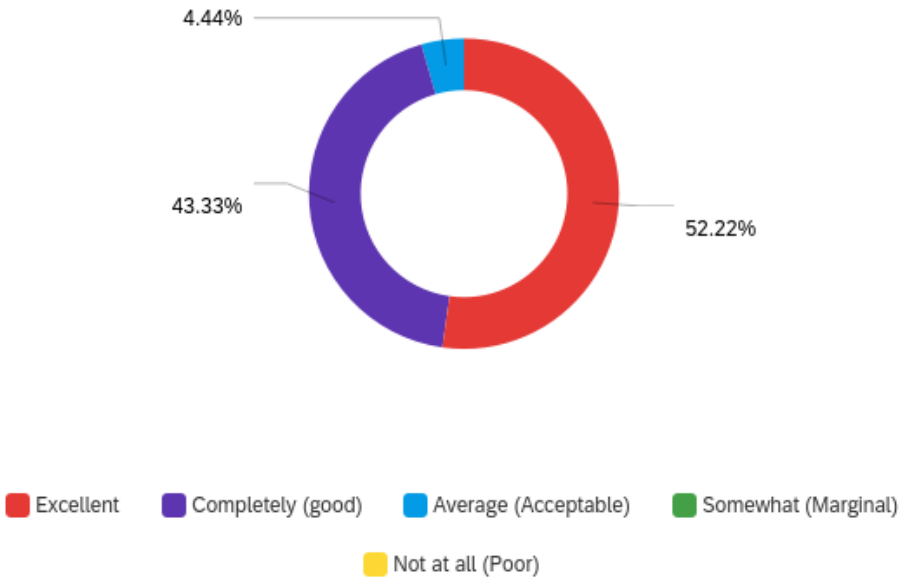
Appendix U

Pre & Post-Training Skill Level Intervening with Patients At-risk for Suicide

Pre-training skill level for intervening with patients at risk for suicide



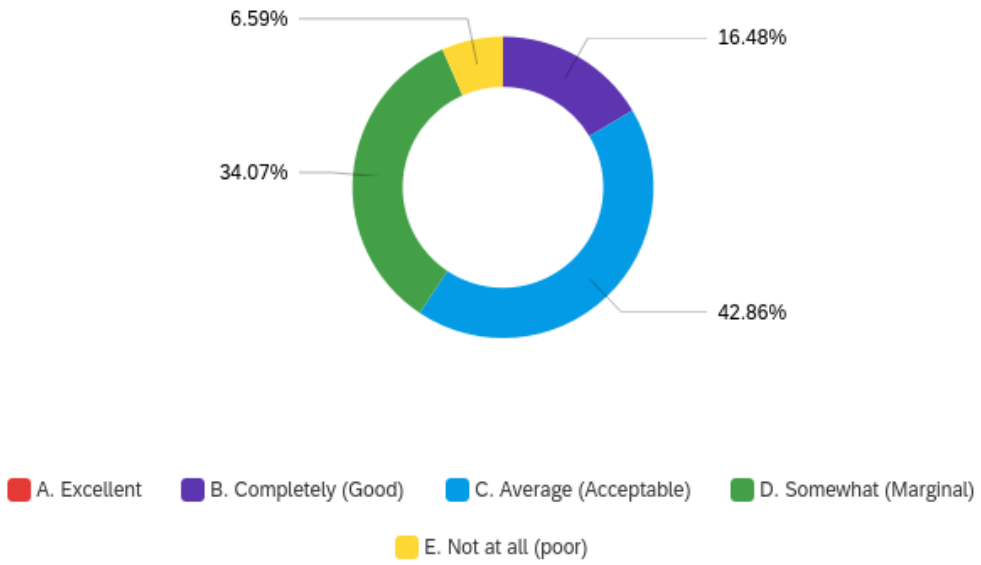
Post-training skill level for intervening with patients at risk for suicide



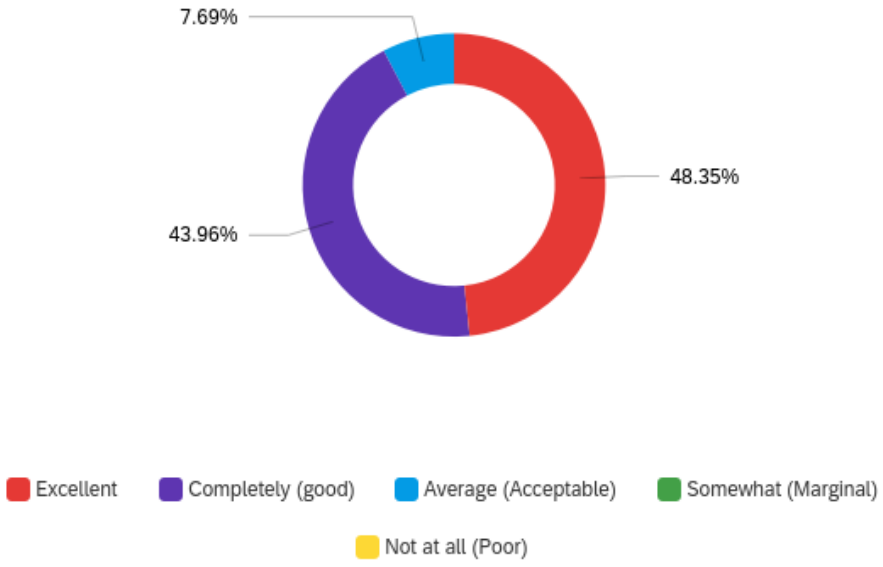
Appendix V

Pre & Post-Training Skill Level Planning Care for Patients At-risk for Suicide

Pre-training skill level for planning care for patients at risk for suicide



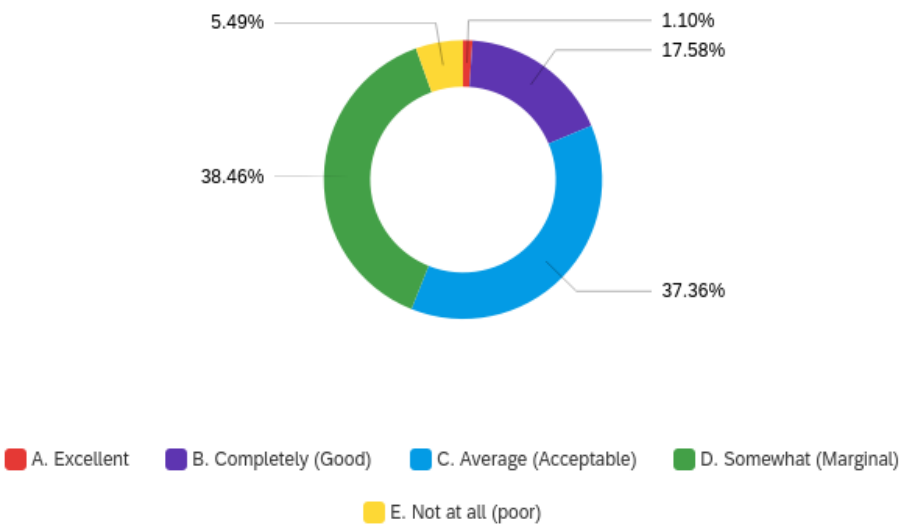
Post-training skill level for planning care for patients at risk for suicide.



Appendix W

Post-Training Familiarity with Suicide Risk Factors

Pre-training on familiarity with suicide risk factors.



Post-training on familiarity with suicide risk factors.